

Reflections

The SoL Journal
on Knowledge, Learning, and Change



SPECIAL ISSUE

Highlights from *The Systems Thinker*® Newsletter

Engaging Emergence: Turning Upheaval into Opportunity

Peggy Holman

The Promise of Systems Thinking for Shifting Fundamental Dynamics

Scott Spann and Jim Ritchie-Dunham

The World Café Goes Local: A Town Plans for the Future

Peter Hechenbleikner, Deborah
Gilburg, and Kerry Dunnell

We Can't Keep Meeting Like This: Developing the Capacity for Cross-Sector Collaboration

Mille Bojer

Confronting the Tension Between Learning and Performance

Amy C. Edmondson and
Sara J. Singer

Systems Thinking as a Team-Building Approach

Cynthia Way and Jon Walter
McKeeby

Thinking in Circles About Obesity

Tarek K.A. Hamid

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PUBLISHER'S NOTE 11.4

**C. Sherry Immediato**

Writing and publishing have been a part of my life since I learned how to string words together. I was lucky to grow up in a house with a nightly bedtime book ritual, and where my father “disabled” the TV one summer by removing a tube to insure

we found other ways to spend our time. Inevitably, my attention turned to writing, and the creation of letters, plays, books, and later school yearbooks and newspapers, followed by political and corporate newsletters and industry magazines.

For me, one of the significant differences between an editor and a publisher is this – the editor works to find and refine great content. The publisher’s job is to get it out and have it make a difference. It has been a great joy to combine a number of my interests and to serve as publisher of *Reflections* since 2001.

This particular issue of *Reflections* is in part a personal “I wish I’d published that” tribute to *The Systems Thinker*. I still remember the day Daniel Kim called in 1988 to talk about the idea he had for a newsletter (before *The Fifth Discipline* was published and organizational learning was well known). I passed on what I’d learned from publishing one in the field of sustainability and lent him a book that outlined the craft. Not too long after, *The Systems Thinker* was born. Launched by Daniel Kim and Colleen Lannon, it is now in its 23rd volume and has been in the capable hands of Janice Molloy as managing editor for the past 15 years.

As SoL and Pegasus Communications (the publisher of *The Systems Thinker*) have considered ways to partner in recent years, we discovered that there was very little overlap between readers of *Reflections* and subscribers to *The Systems Thinker*. It was with this in mind that Janice, Frank Schneider, and I looked for a sampler of articles you probably missed. In many cases, they feature the work of SoL members. As a set, they help

us appreciate something about the state of systems thinking and how we can boldly apply these evolving practices in the messy world of complex systems.

As you may know, a criticism of traditional systems thinking is that it does not adequately speak to complex adaptive systems. In the opening article, Peggy Holman provides some principles and practices for “engaging emergence.” Holman’s approach is to address this messiness in both philosophical and practical ways, and to recontextualize the intent of systems thinking as one of inquiry and possibility.

The next three articles all speak to what systems thinking looks like in this context and beyond traditional organizational boundaries. At one level, you could argue this is nothing new – Jay Forrester’s early work on industrial, urban, and world dynamics took a broad systems view. One significant development I see is a shift from a largely technical, expert process with model building in the foreground to one of dialogue in which a system develops the capacity to see itself. Modeling becomes a consequence of the conversation among diverse stakeholders and a tool to support further deliberations. A feature common to these three cases is the critical role of host or convener to create a container for engaging emergence in the way Holman describes.

In “The Promise of Systems Thinking for Shifting Fundamental Dynamics,” Scott Spann and Jim Ritchie-Dunham document and reflect on their work in support of CARE’s hosting role in bringing together diverse stakeholders to address the issue of persistent poverty in Guatemala. It’s a great case, and they offer an elegant model of creating capacity for authentic stakeholder collaboration from the individual to the ecosystem (summarized in a table on p. 16), with an ultimate focus on sustaining the capacity of the stakeholders to think and act systemically.

Peter Hechenbleikner, Deborah Gilburg, and Kerry Dunnell share how they applied the World Café methodology to convene conversation in Reading, Massachusetts.

The novel and well-crafted approach they and others designed engaged community members and elected officials in identifying shared priorities and revitalizing the democratic process.

Mille Bojer reports on her work with the Leadership and Innovation Network for Collaboration in the Children's Sector in South Africa, in which she and her colleagues used "Innovation Labs" as a focus for addressing specific community issues. The hope is that such intense efforts create new patterns of interaction that shift the quality of conversation and relationship so that collaboration is the new norm for stakeholders from different sectors.

To the extent that institutions or organizations are the parties in these large-scale efforts, we thought it helpful to look at examples of practice within organizational boundaries as well.

In "Confronting the Tension Between Learning and Performance," Amy Edmondson and Sara Singer take a fresh perspective on how to productively balance action and reflection. This tension can reveal itself at all levels – from day-to-day operations to the boardroom. See p. 37 for a succinct and useful summary on mind-sets for learning at the individual, group, and organizational levels.

Cynthia Way and Jon Walter McKeeby describe a specific use of systems thinking to increase team capability in a major research hospital. By tracking the initiative's impact over time and making adjustments as needed, team members improved immediate outcomes and learned how to learn together for future endeavors.

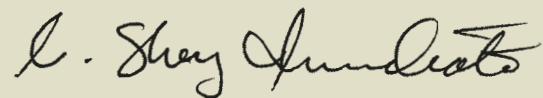
Finally, highlights from *The Systems Thinker* wouldn't be complete without a more technical illustration. Through the lens of system dynamics, Tarek K.A. Hamid provides an accessible analysis of the challenges of addressing obesity. By the way, if you are interested in participating in an experiment Hamid is conducting about increasing your understanding of health dynamics, you should contact him at tkabdelh@nps.edu.

With this issue, I end my tenure as the publisher of *Reflections*. I am very grateful to all of you as readers and disseminators of material that gets people thinking and talking, and ultimately acting more effectively in service of their aspirations. I would also like to acknowledge Ed Schein for the vision (and tenacity) he had in initiating this journal. Ed imagined a forum that would engage all parts of ourselves in service of collective intelligence and wisdom – an intention I hope will continue to guide *Reflections* as it evolves.

Finally, there are only actual issues because of the generosity and dedication of hundreds of contributors, and the tireless efforts of editors Karen Ayas, Jane Gebhart, Nina Kruschwitz, Deborah Wallace, and now, Janice Molloy, and designer/photo editor David Gerratt. I have appreciated their partnership in advancing the theory and practice of organizational learning by fine tuning and synthesizing content, and presenting it in engaging ways.

I begin my next "volume" persuaded more than ever of the value of rhythm and structure for shared reflection to complement our natural proclivity for action and intrigued by the new possibilities for the form it can take. And of course while I end this role, I continue as a member of the SoL community and look forward to future meditations, conversations, collaborations, and adventures. ■

With deep gratitude,



C. Sherry Immediato, Publisher

P.S. A special thanks to Pegasus Communications and Mark Alpert for granting SoL permission to reprint the articles featured in this issue and to Nancy Daugherty for technical illustrations and original graphics. For more information about *The Systems Thinker*, or to subscribe, please visit www.thesystemsthinker.com. Janice Molloy also edits a free monthly newsletter also published by Pegasus Communications called *Leverage Points*. You can subscribe to *Leverage Points* on the Pegasus homepage: www.pegasuscom.com.

EXECUTIVE DIGEST 11.4

Engaging Emergence: Turning Upheaval into Opportunity

Peggy Holman

Many of our systems – from the economic sphere to the political realm – seem to be in decline. Yet if we look closely, we can see signs of new beginnings all around us. In this article, Peggy Holman describes what she has learned from the science of *emergence* – nature’s way of changing in which increasingly complex order arises from disorder. We don’t control emergence, nor can we fully predict how it arises. Yet we can engage it, confident that unexpected and valuable breakthroughs can occur. Peggy offers questions, principles, and practices for equipping ourselves to work through this time of upheaval and change.

The Promise of Systems Thinking for Shifting Fundamental Dynamics

Scott Spann and Jim Ritchie-Dunham

All too often, despite people’s best efforts and intentions, the problems they seek to eliminate get worse. This article looks at what happened when a diverse group of leaders in Guatemala set out to understand the fundamental dynamics underlying poverty in their country. By integrating principles and practices from systems thinking and system dynamics with those rooted in group dynamics and collaboration building, they created an integrated systems map that they all agreed represented their world. The representatives then came to shared agreement about the overall goal of their collective work and identified critical resources that would enable them to move in the direction they all want to go.

The World Café Goes Local: A Town Plans for the Future

Peter Hechenbleikner, Deborah Gilburg, and Kerry Dunnell

“How can we as a community align ourselves to define our collective future?” That’s the question that prompted residents of the town of Reading, Massachusetts, to hold the community’s first World Café conversation. This article summarizes how the Reading World Café came together and the resulting outcomes. Whereas previous efforts to engage community members in broader thinking had met with limited success, the café drew more than 200 people at a time when, in general, public participation has dwindled and public discourse has become contentious. The process gave town officials data that was of higher quality than what might have resulted from focus groups or surveys, because it emerged from an exploratory conversation among people interested in the community.

We Can’t Keep Meeting Like This: Developing the Capacity for Cross-Sector Collaboration

Mille Bojer

We are faced with complex, global problems with many manifestations, numerous causes, and multiple players exerting different kinds of influence over them. This complexity requires us to work out creative and systemic solutions by not only communicating but also learning and collaborating across sectors, levels, and cultures. In this article, Mille Bojer uses the example of the Leadership and Innovation Network for Collaboration in the Children’s Sector (LINC) in South Africa to explore how we can build cross-sector collaboration aimed at creating systemic change. LINC brings together stakeholders from different sectors in Innovation Labs, where they develop collaborative leadership skills and design groundbreaking, systemic responses to help at-risk children.

Confronting the Tension Between Learning and Performance

Amy C. Edmondson and Sara J. Singer

Although we may prefer to believe differently, not all learning leads to improved performance. Learning and performance can be at odds in several ways. Notably, when organizations engage in a new learning challenge, performance often suffers, or appears to suffer, in the short term. Moreover, by revealing and analyzing their failures and mistakes – a critical aspect of learning – work groups may appear to be performing less well than they would otherwise. Organizations can at least partly address these challenges through leaders who create a climate of psychological safety and promote inquiry. Leadership is thus essential to foster the mind-set, group behaviors, and organizational investments needed to promote today's learning and invest in tomorrow's performance.

Systems Thinking as a Team-Building Approach

Cynthia Way and Jon Walter McKeeby

The chief information officer of a research hospital faced a formidable challenge: Over the last five years, his department had expanded from a staff of 65 to 94. Because of the complexity of the hospital's computer infrastructure, the CIO determined that a team approach was essential to managing the system. To improve communication, the leadership group participated in a team-building retreat with a focus on systems thinking. The approach was not to teach the entire systems thinking methodology. Instead, after a brief introduction to key concepts to set the stage, the group learned to look for examples of the systems archetypes in their organization. They later used these tools to improve teamwork, problem solving, and communication in the office.

Thinking in Circles About Obesity

Tarek K.A. Hamid

The strength of the systems approach lies in its capacity to integrate variables that otherwise would be isolated from each other. As shown in this article, in the case of human weight and energy regulation, systems thinking allows us to better understand the feedback interactions between the physiological and the behavioral. Psychologists have found that most people intuitively view causality in linear terms, expecting effect to always be proportional to cause. But the effort needed to accomplish a task often increases *exponentially*, not *linearly*, as the difficulty of the task increases. This is one of the perspectives that a systems approach to weight management – and other cognitive and physical tasks – can offer.

FEATURE 11.4

Engaging Emergence: Turning Upheaval into Opportunity

PEGGY HOLMAN

Many of our systems – from the economic sphere to the political realm – seem to be in decline. Yet if we look closely, we can see signs of new beginnings all around us. In this article, Peggy Holman describes what she has learned from the science of emergence – nature’s way of changing in which increasingly complex order arises from disorder. We don’t control emergence, nor can we fully predict how it arises. Yet we can engage it, confident that unexpected and valuable breakthroughs can occur. Peggy offers questions, principles, and practices for equipping ourselves to work through this time of upheaval and change.



Peggy Holman

What would it mean if we knew how to successfully engage with the unknown, the uncomfortable, the unprecedented so that our organizations and communities could thrive?

Many of our current cultural stories seem to reinforce a belief

that challenge and conflict lead to collapsing systems. Stories of breakdown are everywhere – a struggling economy, political polarization, declining high school graduation rates. Yet even as these systems falter, new beginnings are all around us. The more we look for stories of innovations launched and challenges overcome, the more visible they become.

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When we allow ourselves to look through this lens, we see that a renewal is under way, a modern renaissance fueled by the passion and commitment of many who have dared to pursue a dream. In communities, organizations, industries, and other social systems, new ways of living and working are flourishing. For example, many consider journalism to be an industry in decline. But even as traditional forms of journalism are dying – because they aren’t serving us well – I see signs of rebirth every day. Bold experiments are under way. [Spot.us](#) uses “crowdfunding,” in which community members pool money to support investigative reporting. [NewsTrust](#), which rates the news for accuracy, fairness, and other criteria, is drawing increasing readership and participation to its site. Similar innovations are arising in other areas, ranging from healthcare to politics.

Given these parallel dynamics of collapse and rebirth, what can we do to help the systems of which we are part move toward productivity and resilience?

For more than 50 years, experiments in organizations and communities and across social systems have shaped practices for “whole systems change” – methods for engaging the diverse people of a system in ways that lead to unexpected breakthroughs. In 1992, Margaret Wheatley’s groundbreaking *Leadership and the New Science* contributed to theory by connecting our changing understanding of science to human systems. As the

Born from my own practice, my interactions with friends and colleagues, and my immersion in what science has taught us about chaos, complexity, and networks, I noticed a pattern of change through the lens of *emergence* – increasingly complex order self-organizing out of disorder. What follows describes that pattern, along with questions, principles, and practices for successfully engaging with upheaval.

As the current generation of whole systems change practitioners mix and match methods, many of us have been seeking a deeper understanding of the patterns that make these practices work.

current generation of whole systems change practitioners mix and match methods such as [Open Space Technology](#), [The World Café](#), [Future Search](#), and [Appreciative Inquiry](#), many of us have been seeking a deeper understanding of the patterns that make these practices work.

My quest to unlock the mystery of what is involved in changing whole systems began in the late 1980s. I thought that understanding how change works was key to creating a world that works for all. I still do. I started noticing shifts in how change occurs when using whole systems change practices. See “[Traditional and Emerging Ideas About Change](#)” for examples.

The Nature of Emergence

Emergence is nature’s way of changing. We see it all the time in its cousin, *emergencies*. What happens?

A disturbance interrupts ordinary life. In addition to natural responses, like grief or fear or anger, people differentiate – take on different tasks. For example, in an earthquake, while many are immobilized, some care for the injured, others look for food and water, a few care for the animals. Someone creates a “find your loved ones” site on the Internet. A few blaze the trails and others follow. They see what’s needed and bring their unique gifts to the situation. A new order begins to arise. This pattern of change flows as follows:

- *Disruption* breaks apart the status quo.
- The system *differentiates*, surfacing innovations and distinctions among its parts.
- As different parts interact, a new, more complex *coherence* arises. (See “A Pattern of Change.”)

In journalism, cracks began to appear in the 1990s as newspaper readership declined. This disruption

A Pattern of Change



Illustration by Steven Wright, steven@wrightmarks.com



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was generally correlated with the rise of the Internet. Worse, advertisers, who provide a principal source of revenue for journalism, started to leave. When the economy came to the precipice in 2008, the decline became an avalanche ([Johnny Ryan, Newspaper circulation decline](#)).

With the ability for anyone to publish made possible through increasingly sophisticated online tools, the assumptions about what journalism is and how it is done are in flux. A myriad of experiments are testing those assumptions – the relationship between journalist and audience, the economic model, even the purpose of journalism itself. These experiments shed light on what to conserve from traditional journalism that still serves us well and what to embrace that wasn't possible before. Journalism is differentiating

into its elemental nature, helping us understand new ways in which news and information is created, distributed, and digested.

While a new coherence has not yet arisen and likely won't for a while, we do have clues. We know it is more of a conversation than a lecture. It still is about making sense of our complex world so that we can make wise individual and collective decisions. And it calls for a broad-based digital literacy movement, similar to the literacy movement sparked by the coming of age of newspapers that served the formation of democracy in the U.S.

People often speak of a magical quality to emergence, in part because we can't predetermine specific outcomes. Emergence can't be

manufactured. It often arises by drawing from individual and collective intuition – instinctive and unconscious knowing or sensing without deduction, reasoning, or using rational processes. It can be fueled by strong emotions – excitement, longing, anger, fear, grief. And it rarely follows a logical, orderly path. It feels much more like a leap of faith.

Emergence is always happening. If we don't work with it, it will work us over. In human systems, it often shows itself when strong emotions are ignored or suppressed for too long. While emergence is natural, we don't always experience it as positive. Erupting volcanoes, crashing meteorites,

diversity, connectivity, interdependence, or interactions become part of a system. The disruptive shifts occurring in our current systems are signs that these characteristics are on the rise.

Today's unprecedented conditions could lead to chaos and collapse, but they also contain the seeds of renewal. We can choose to face our seemingly intractable challenges by coalescing into a vibrant, inclusive society characterized by creative interactions among diverse people. In many ways, this path is counterintuitive. It breaks with traditional thinking about change, including the ideas that it occurs top-down and that it follows an orderly plan, one step at a time.

We don't control emergence. Nor can we fully predict how it arises. It can be violent, overwhelming. Yet we can engage it, confident that unexpected and valuable breakthroughs can occur.

Order is accessible when diverse people facing intractable challenges uncover and implement ideas that none could have predicted or accomplished on their own. Emergence can't be forced. It can, however, be fostered.

and wars have brought emergent change. Yet even wars can leave exciting offspring of novel, higher-order systems. The League of Nations and United Nations were unprecedented social innovations from their respective world wars. New species or cultures fill the void left by those made extinct.

Emergence seems disorderly because we can't discern meaningful patterns, just unpredictable interactions that make no sense. But order is accessible when diverse people facing intractable challenges uncover and implement ideas that none could have predicted or accomplished on their own. Emergence can't be forced. It can, however, be fostered.

Why Does Engaging Emergence Matter?

Emergence isn't just a metaphor for what we are experiencing. Complexity increases as more

Benefits of Engaging Emergence

Although specific outcomes from emergence are unpredictable, by engaging with it some benefits are foreseeable. To illustrate these benefits, I draw from [Journalism That Matters](#), an initiative that convenes conversations among the diverse people who are shaping the emerging news and information ecosystem.

Individually, we are stretched and refreshed.

We feel more courageous and inspired to pursue what matters to us. With a myriad of new ideas and confident of the support of mentors, collaborators, and fans, we act.

At an early Journalism That Matters gathering, a recent college graduate arrived with the seed of an idea: putting a human face on international reporting for U.S. audiences. At the meeting, she found support for the idea. Deeply experienced people coached her and gave her entrée to their contacts. Today, the [Common Language Project](#) is thriving, having received multiple awards.

New and unlikely partnerships form.

When we connect with people whom we don't

normally meet, sparks may fly. Creative conditions make room for our differences, fostering lively and productive interactions.

A reluctant veteran investigative reporter was teamed with a young digital journalist. They created a multimedia website for a story based on a two-year investigation. Not only did the community embrace the story, but the veteran is pursuing additional interactive projects. And the digital journalist is learning how to do investigative reporting.

Breakthrough projects surface.

Experiments are inspired by interactions among diverse people.

The Poynter Institute, an educational institution serving the mainstream media, was seeking new directions because its traditional constituency was shrinking. Because Poynter served as a cohost for a JTM gathering, a number of staff members partici-

pated in the event. They listened broadly and deeply to the diverse people present. An idea emerged that builds on who they are and takes them into new territory: supporting the training needs of entrepreneurial journalists.

Community is strengthened.

We discover kindred spirits among a diverse mix of strangers. Lasting connections form, and a sense of relationship grows. We realize that we share an intention – a purpose or calling guided by some deeper source of wisdom. Knowing that our work serves not just ourselves but a larger whole increases our confidence to act.

As a community blogger who attended a JTM conference put it, “I’m no longer alone. I’ve discovered people asking similar questions, aspiring to a similar future for journalism. Now I have friends I can bounce ideas off of, knowing we share a common cause.”



Principles for Engaging Emergence

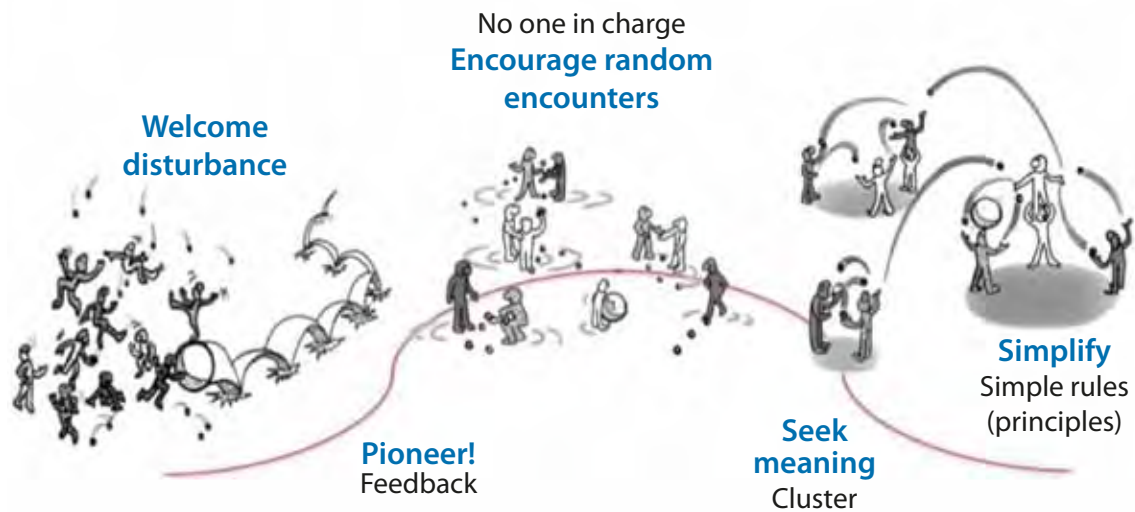


Illustration by Steven Wright, steven@wrightmarks.com

With time and continued interaction, a new narrative of who we are takes shape.

When Journalism That Matters began, we hoped to discover new possibilities for a struggling field so that it could better serve democracy. As mainstream media, particularly newspapers, began failing, the work became more vital. We see an old story of journalism dying and provide a place for it to be mourned. We also see the glimmers of a new and vital story being born. In it, journalism is a conversation rather than a lecture. Stories inspire rather than discourage their audience. Journalism That Matters has become a vibrant and open conversational space where innovations emerge. New language, such as news ecosystem— the information exchange among the public, government, and institutions that can inform, inspire, engage, and activate – makes it easier to understand what’s changing. People say, “I didn’t know I could be effective without a big organization behind me. Now I do.”

These experiences show that working with emergence can create great initiatives, the energy to act, a sense of community, and a greater view of the whole – a collectively intelligent system at work.

As more people engage emergence, something fundamental changes about who we are, what we

are doing, how we are with each other, and perhaps what it all means. In the process, we tear apart familiar and comfortable notions about how change works. We bring together unlikely bedfellows and re-imagine and re-create the organizations, communities, and social systems that serve us well.

Three Questions for Engaging Emergence

Three questions can help us think about how to work with change:

- How do we disrupt coherence compassionately?
- How do we engage disruption creatively?
- How do we renew coherence wisely?

Like all appreciative questions, these direct our attention toward possibilities and open us to exploration. They are posed as questions rather than statements to remind us that when the terrain is uncertain, focus and fluidity both support us to be nimble in our response.

You can use them as you might an affirmation. Just as affirmations help us attend to what we wish to create, these questions help us adapt to the specifics of our situation. We can connect our circumstances with the flow of change by prefacing each question with, “In this situation...”

These questions create temporary shelter for us to consider the challenges of a changing system. They help us experience and offer compassion in disruption, engage creatively with difference, and support both personal and collective renewal while potentially wise responses coalesce.

If you are familiar with Zen Buddhism, think of the questions as *koans* – paradoxical riddles or anecdotes that have no solution. They may – if you seek to understand them in an intuitive way and work with them in your life – provide flashes of insight into what’s going on and how to engage it.

Principles for Engaging Emergence

A principle is a fundamental assumption that guides further understanding or action. Principles help us make order out of chaos. They describe the landscape, enabling us to discern useful characteristics so that we can make useful choices. Principles support us in designing our initiatives, organizing our work and ourselves, determining what to do and how best to do it. For example, a commonly cited medical principle is “first, do no harm.” This fundamental understanding guides life-and-death decisions without prescribing a specific approach.

I derived the principles for engaging emergence listed below by connecting my understanding of whole systems change processes with what science tells us about the dynamics of emergence (see “Principles for Engaging Emergence”). In short, scientists frequently cite four dynamics of emergence:

- **No one is in charge.** No conductor is orchestrating orderly activity (ecosystems, economic systems, activity in a city).
- **Simple rules engender complex behavior.** Randomness becomes coherent as individuals, each following a few basic principles or assumptions, interact with their neighbors (birds flock; traffic flows).
- **Feedback.** Systems grow and self-regulate as the output from one interaction influences the next interaction. (We talk to a neighbor, who talks to a neighbor, and suddenly everyone in town knows a story.)
- **Clustering.** As we interact, feeding back to each other, like attracts like, bonding around a shared characteristic. (Small groups of women meeting in living rooms grow into the women’s movement.)

As more people engage emergence, something fundamental changes about who we are, what we are doing, how we are with each other, and perhaps what it all means.

So if emergence occurs through these dynamics, what are the implications for how we engage with it?

These five principles are my answer to this question:

- **Welcome disturbance.** Disruption indicates that the normal behavior of a system has been interrupted. If we ignore the disturbance, chances are conditions will get worse. If we get curious about it, the disruption could lead to breakthroughs.
- **Pioneer!** Break habits by doing something different. Prepare and jump into the mystery, working with the *feedback* that comes.
- **Encourage random encounters.** Remember, *no one is in charge*. More accurately, we never know which interactions will catalyze innovation. Maximize interactions among diverse agents, knowing unexpected encounters will likely trigger a shift.
- **Seek meaning.** Meaning energizes us. As we discover mutuality in what is personally meaningful, we come together. *Like clusters with like*. Shared meaning draws us to common awareness and action. When shared meaning is central, we organize resilient, synergistic networks that serve our individual and collective needs.
- **Simplify.** Principles – *simple rules* – equip us to work with complexity. When principles break down and the situation grows chaotic, what is essential? What serves now? As answers

Practices for Engaging Emergence

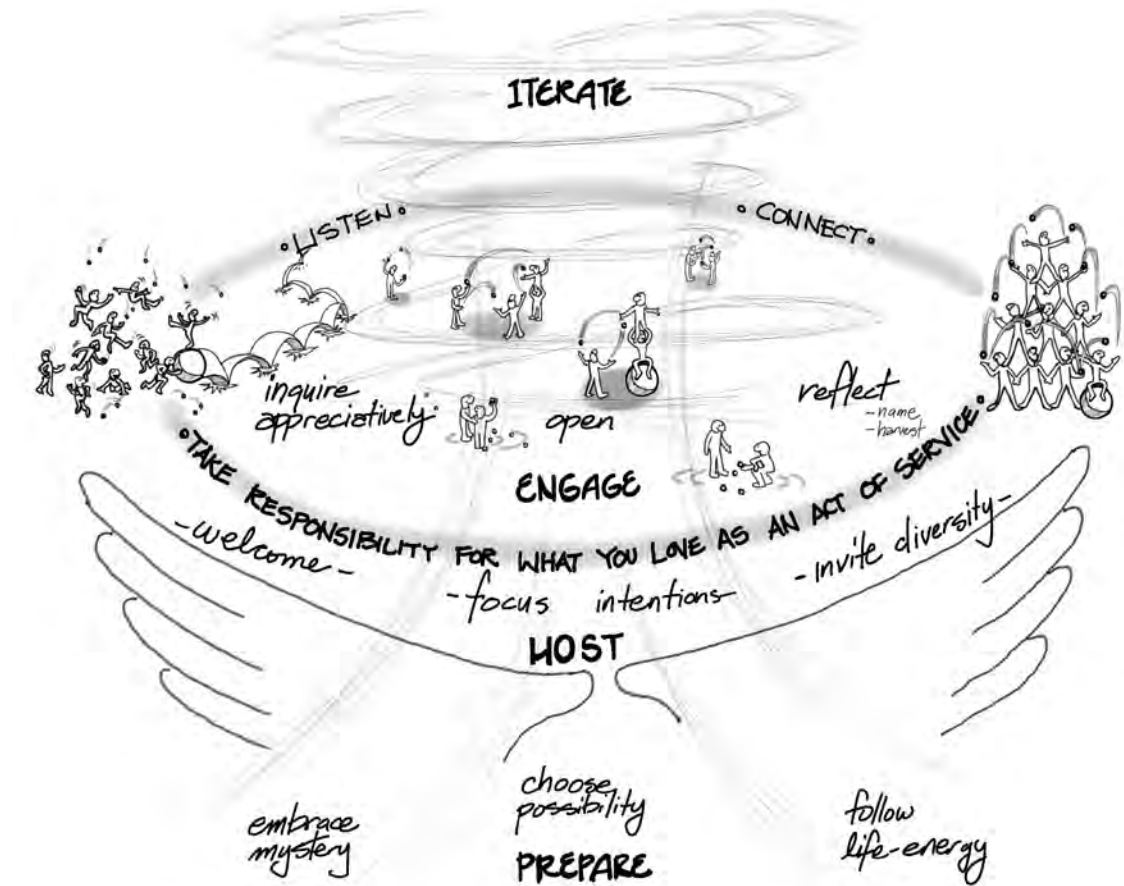


Illustration by Steven Wright, steven@wrightmarks.com

coalesce, we become a more diverse, complex system around re-formed principles at the heart of the matter.

These principles help us work with the flow of emergence. Welcoming disturbance encourages us to begin, knowing all change starts with disruption. To support differentiation, pioneering guides us in thinking about *what* to do. Encouraging random encounters reminds us to consider *who* to involve. Seeking meaning provides a thread of coherence by helping us clarify *why*. And simplifying helps coherence emerge by guiding us to the *how*.

Practices for Engaging Emergence

If principles help us sort through *what* to do, practices guide us in *how* to do something. A practice is a skill honed through study and experimentation.

The practices for engaging emergence are rooted in the skills of everyday conversation (see "Practices for Engaging Emergence"). As such, we all know something about them. They are our birthright. When issues are complex, stakes are high, and emotions are right below the surface, these practices help us engage with each other.

Because working with emergence has nothing A-to-B-to-C about it, no one right way exists to use these practices. They help us identify what to notice, what to explore, what to try. They are helpful hints for flying by the seat of our pants.

Just as scales prepare a musician and drills train an athlete, these practices equip us for the challenging conversations, the ones that involve disruption, difference, and the unknown. They are the conversational backbone for improvisation,

enabling us to stay in the flow even if we don't know the specific path we're taking. Honing these conversational skills is a great way to engage emergence.

I organize the practices into four groups:

Prepare to Engage Emergence

- **Embrace mystery, choose possibility, and follow life-energy** to cultivate a composed state of mind, alert to aliveness and potential. This enables us to face whatever shows up with equanimity or even delight.

Host Emergence

- **Clarify intentions and welcome people.** These are skills of being a good host. In exercising them, you create a "container" – a hospitable space for working with whatever arises. These practices are the yin and yang of hosting. One provides focus – clear direction and purpose. The other ensures fertile ground for relationships and connection.
- **Invite diversity** to encourage people to look beyond our habitual definitions of who and what makes up a system. Doing so prepares us for innovation by increasing the likelihood of productive connections among people with different beliefs and operating assumptions. Inviting diversity is one of the most time consuming, challenging, and critical activities of engaging emergence.

Engage

- **Take responsibility for what you love as an act of service.** This practice is a game-changing skill. It liberates our hearts, minds, and spirits. It calls us to notice what deeply matters to us and to put our unique gifts to use for ourselves, others, and the systems in which we live and work. The more this practice becomes our operating norm, the more innovation, joy, solidarity, generosity, and other qualities of well-being appear. The capacities for listening and connecting grow through this practice.
- Stepping in to **inquire appreciatively** is a second game-changing skill. The questions

we ask determine the answers we uncover, shaping our experience, actions, and outcomes. Typically, the more positive the inquiry, the more life-affirming the outcome.

- **Open yourself to the unknown.** This practice is an act of faith. Once open, we can't go back. It may be the most counter-cultural practice of them all, requiring the courage to be vulnerable.
- **Reflect, name, and harvest** – these can be sacred acts. They call forth that which previously didn't exist. The arts – music, movement, visual arts, poetry, film – often enhance the effectiveness and reach of these practices.

Iterate: Do It Again . . . and Again

This practice reminds us of the never-ending nature of change. It takes time and perseverance to make its mark. Because our attention tends to get caught in our routines, iteration is the most elusive of the practices.

Together, these practices form a system for acting, providing insight into what our role is, how we support others, and what we can do together.

What's Possible Now?

Whenever we work with this pattern of emergent change, a turning point occurs as coherence arises. We experience ourselves as part of something larger. Perhaps our voice rises in harmony, a sweet blend of each and all. Or we overcome an obstacle because we used our different skills and abilities to accomplish something together that none of us could have done alone. We change through such experiences. The principles and practices I've described help us break through habits of separation that keep us fragmented. Our personal stories become a doorway into the universal.

Joel de Rosnay, author of *The Symbiotic Man: A New Understanding of the Organization of Life and a Vision of the Future* (McGraw-Hill, 2000), introduced a notion I find promising called the *macroscope*. Just as microscopes help us to see the infinitely small and telescopes help us to see the infinitely far, macrosopes help us to see the infinitely complex. Rather than a single instrument, they are a class of

Next Steps

Here are some simple ways to engage emergence:

Ask Possibility-Oriented Questions. Be a champion for the appreciative. Especially in unlikely places, inquire into what is working, what is possible given what is happening.

Interact with People Outside Your Comfort Zone. Discover how stimulating it is to experience difference. In the process, you may develop some unexpected partnerships for bringing together diverse groups who care about the same issues.

Seek More Nuanced Perspectives That Help Us to See Ourselves in Context. If you are faced with A-versus-B choices, open up the exploration. Seek out other points of view. Discover the deeper meaning that connects deeply felt needs.

Tell Stories of Upheaval Turned to Opportunity. Help take to scale what is possible when you engage emergence. Share your experiences of working with disruption. Explore using tools that offer a macroscopic view to expand your reach.

tools for sensing complex interconnections among information, ideas, people, and experiences. Maps, stories, art, media, or some combination could be used as macroscopic tools that would help us to see ourselves in a larger context. For example, consider the brilliant use of technology in a sports stadium. We are able to experience the game from many angles. At a glance, the scoreboard tells us

the state of play. Cameras zoom in so that we can see the action not just on the field but also in the audience. Television dramatically extends the reach of the event. And a history of statistics available online lets both professional commentators and ordinary people put the activities in perspective. We can immerse ourselves in the experience and understand it from many perspectives. Imagine applying such thoughtfulness to making the state of the economy, education, or a war visible to us all.

Both microscopes and telescopes sparked tremendous innovation. Macroscopes have such potential today. As we appreciate our interconnectedness, our sense of who is our community expands. The conditions for greater trust and courage emerge. We act, knowing something about the collective assumptions and intentions we share. We become better equipped to work with upheaval and change.

Let us put these notions to work so that we fully engage with the nascent renaissance that is underway. Begin simply, wherever you are. I offer three suggestions:

- Be compassionate disrupters, asking possibility-oriented questions.
- Creatively engage, interacting with people outside our comfort zone.
- Support wise renewal, telling stories of upheaval turned to opportunity. ■

ABOUT THE AUTHOR

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FEATURE 11.4

The Promise of Systems Thinking for Shifting Fundamental Dynamics

SCOTT SPANN AND JAMES RITCHIE-DUNHAM

All too often, despite people's best efforts and intentions, the problems they seek to eliminate get worse. This article looks at what happened when a diverse group of leaders in Guatemala set out to understand the fundamental dynamics underlying poverty in their country. By integrating principles and practices from systems thinking and system dynamics with those rooted in group dynamics and collaboration building, they created an integrated systems map that they all agreed represented their world. The representatives then came to shared agreement about the overall goal of their collective work and identified critical resources that would enable them to move in the direction they all want to go.



Scott Spann

People in Guatemala – smart people – were working harder, hiring brighter people, raising more money, doing better projects, and getting improved results. And yet, what they sought to eliminate – poverty – was getting worse. So, we asked what we thought was a relatively straightforward question: “Do you understand the fundamental dynamics of poverty?” As it turned out, no one had an answer – not the government, NGOs, local communities, or business leaders.

We set out with CARE Latin America to understand this complex problem. We engaged leaders of the national intelligence service and the military policy and leadership institutes, on the one hand, and members of the former guerrilla movement, on the other; leaders of the Catholic church and the leading Mayan philosophers; the head of the president’s commission on local economic development and leaders in local villages – in total, 30 diverse, sometimes historically conflicted, perspectives.



James Ritchie-Dunham

Many thought it would be impossible for these diverse actors to come together in the same room; for them to reach shared understanding about the impact they each had on their world; and for them to agree about how to act together to change their world for the better. Yet, in a surprisingly short time, by integrating principles and practices from systems thinking and system dynamics with those rooted in group dynamics and collaboration building, representatives from these stakeholder groups were able to create a simple,

Team Tip

When people are working harder and yet a problem symptom fails to improve, ask, “Do we understand the fundamental dynamics of [the problem]?” Use some of the tools in this article to improve your knowledge of the system.

one-page representation – an integrated systems map – that they all agreed represented their world. This map included all of the system’s parts, their interactions, and their goals. It clearly showed why the groups were experiencing conflict and what they needed to do about it. Representatives then came to shared agreement about the overall goal of their collective work. And they identified a handful of critical resources that would enable them to move it in the direction they all want it to go.

Naturally, several questions come to mind. How did they make such a major shift in such a short time? Can this success be replicated? Can it be scaled? In the spirit of Peter Block, the answer to all these questions is “yes” (see *The Answer to How is Yes*, Berrett-Koehler, 2001).

We applied principles from systems thinking and system dynamics to help them flesh out their thinking, get clearer about their leadership role, and consider how they really can and will cause the change they believe is needed.

Broadly speaking, the group achieved success by focusing on building relationships and developing clarity, first as individuals, then as partners, teams, and organizations, and finally extending to their constituents and society. As a result of this process, they developed six abilities at each of those levels – *leadership, trust, innovation, execution, scalability, and sustainability*.

The group used tools you’re likely familiar with: individual interviews and causal maps of diverse stakeholder worldviews; conversation around key themes using dyads, triads, and small groups; mission building (insisting on positive, measurable, time-specific goals) to ensure alignment; behavior over time graphs to assess anticipated performance of that mission over time; causal mapping and validation of the fully integrated system as a whole; systems

analyses (including archetype analyses, trends analyses, cross-impact matrix analyses, and stakeholder assessment matrices); group-as-whole meetings for inclusion, engagement, deliberation, and decision making; and, finally, organizational and community dialogue and networking about the process and results.

A Deeper Dive

Now for a deeper dive into how the group accomplished its goals, here’s a more or less chronological flow with a bit of detail to give you a feel for what we did to build capacity at the individual, partner, group, organizational, constituent, and societal levels. (For more on this process, you can download the article “Impossible” at www.innatestrategies.com.)

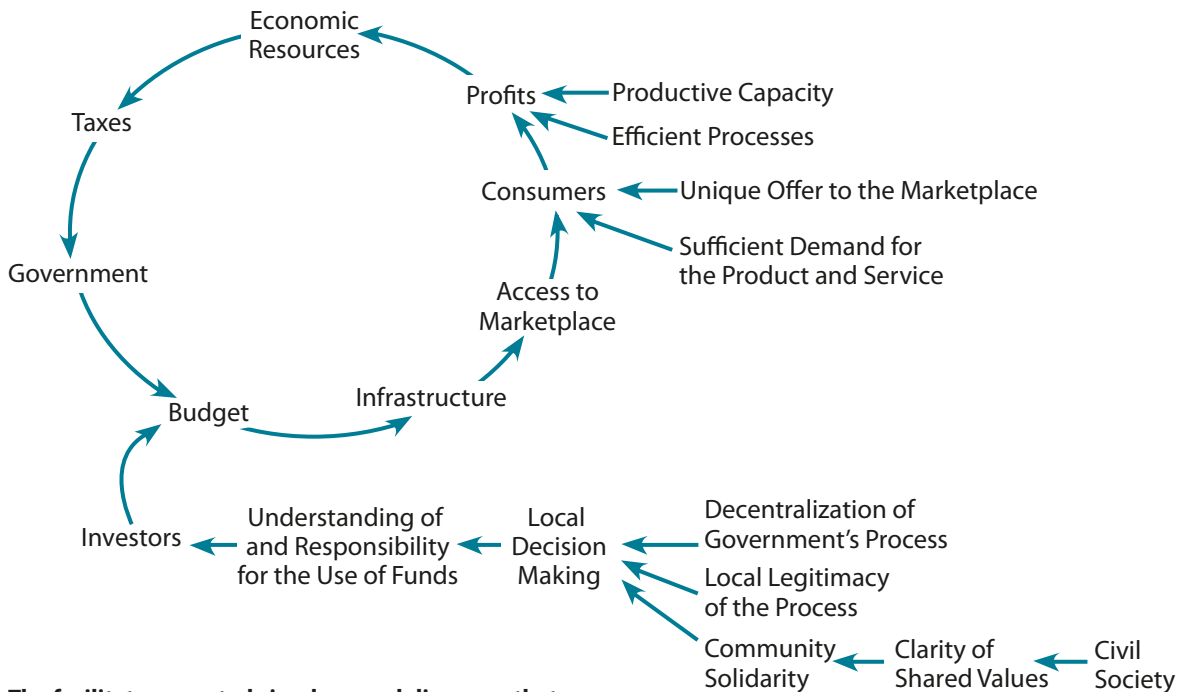
Individual Leadership

The first thing we needed to know was what the leaders in this system really cared about as human beings, regardless of the stated goal of their organizations. What caused them to devote themselves to their work? What did they envision for *whom* – their children, students, grandparents, indigenous peoples – or for *what* – the forests, rivers, lakes, fields, wildlife? We set aside the stated goal of “eliminating poverty” and in one-on-one interviews asked participants what they were committed to in measurable, time-specific terms.

From these kinds of questions came rich, compassionate, human stories at every level and in every sector of Guatemala. Then we asked the leaders to tell us their success stories about how they had done something similar in the past, had seen it done, or planned to do it, that is, to give us their mental models of how the process would unfold. We applied principles from systems thinking and system dynamics to help them flesh out their thinking, get clearer about their leadership role, and consider how they really can and will cause the change they believe is needed.

We reflected this information back to participants in the form of simple causal diagrams that captured their stories, their goals, and all of the parts and

Fito's Map



The facilitators created simple causal diagrams that captured participants' stories, their goals, and all of the parts and interactions.

interactions. The diagrams clarified their thinking at a higher level and added value to their ability to perceive, think, and act as leaders. As a result of the process, we came to know them, care about them, and even add value to them. And through the work, they came to trust us and the process in which they were about to engage. For an example, see "Fito's Map."

One-to-One Trust

Then, we shared the participants' stories with the group, either in words or through the maps. People emerged with a new level of understanding, respect, and even appreciation for their perceived "adversaries" in the system. When one set of leaders could see and understand what other leaders cared about and were committed to, how thoughtful and rigorous they were about achieving their goals, and how competent they had been in other situations, their unquestioned assumptions, beliefs, and attitudes shifted almost immediately. A new level of trust emerged and, with it, a new level of conversa-

tion. These changes stuck over the long run. Today, the leaders are attending one another's meetings, engaged in one another's networks, and sharing information, ideas, and solutions.

Group Innovation

Unfortunately, we still had a problem. We had entered the system through the portal of "eliminating poverty." That's a negative goal, and negative goals don't work very well, because they don't clarify what people truly want or are trying to create (see Robert Fritz's *Path of Least Resistance*, Ballantine, 1989). It's hard to visualize a negative goal (try it!). So, working from the foundation of trust and clarified understanding that had been created, we identified a small subset of themes and created subgroups (we adapted this practice from Yvonne Agazarian's work on the interplay between individual, subgroup, and group-as-a-whole dynamics; see *Systems-Centered Group Therapy*, Guilford, 1997). Subgroups are critical for building collaborative capacity because they bridge the gap between



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individual conversations and full-group conversations, enabling those who think they are already aligned to first discover, as Agazarian would say, “the differences among the apparently similar” and, then and only then, “the similarities among the apparently different.”

For example, when we brought together the subgroup focused on the elimination of poverty, the members all assumed that it would be the “same old” conversation – but it wasn’t. We quickly discovered that we couldn’t even agree on what poverty was (for example, some people without shoes and living on the land were quite happy and didn’t consider themselves poor even when others did). As differences within their apparently similar views emerged, the participants debated vigorously, trying to resolve their diverse points of view. It wasn’t until they began to offer up positive goals, however, that their conversations began to converge. Subgroup members quickly came to the realization that what they really cared about was “economic self-determination”; that is, they couldn’t guarantee that an individual wouldn’t deliberately choose to be “poor,” but they could build a society that would

enable the individual to have a choice. This conversation was incredibly deep, surfacing and integrating universal concepts of liberty, equality, and solidarity.

Once this goal had been identified, the group assessed past trends using a behavior over time graph. As a result of the meaningful conversations that led up to the goal setting, what emerged next was a rich, rigorous exchange of information. Individuals with responsibilities and expertise from various parts of the system swapped data back and forth, reshaping their perspectives about the behavior of Guatemalan society relative to this issue over time.

The group came to a sobering conclusion (see “Ability to Self-Determine”): That if the downward trend of economic self-determination did not correct itself, Guatemalan society risked a resurgence of the violence that had swept the country prior to the civil war in the early 1960s. This was a somber moment for the group, one that renewed their sense of urgency. They all knew that they couldn’t let that worst-case scenario happen. So, they

debated what had to happen by when in order to ensure that the goal of improving economic self-determination could be achieved. The conversation was short and direct: We must immediately reverse the trend, progressing steadily to a reasonably high level of democracy and real justice over the next 10 years.

The emotional and intellectual energy from this conversation was palpable in the room. Even today, whenever we sense that the process is lagging, all we have to do is flash the group's graph on the wall again, reawakening their original realization. We anchored and expanded participants' ability to innovate by having them pair up and develop practices to ensure that they actively internalized both possibilities – the pessimist's downward trend and the idealist's upward one – as the dynamic from which creative energy will emerge.

Organizational Execution

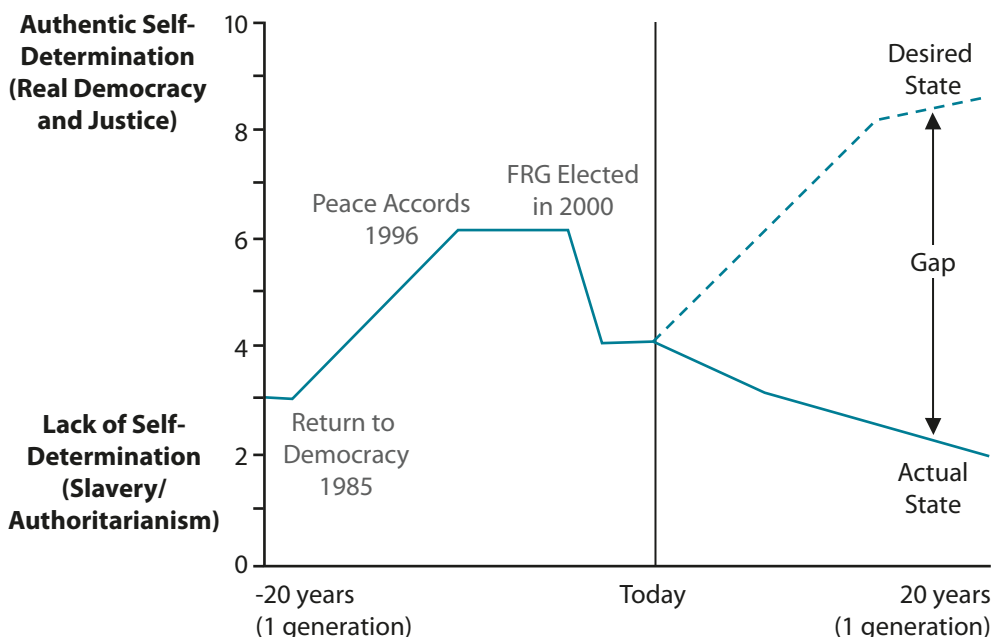
The compelling nature of the situation became clearly visible as an unambiguous, uncompromised collective understanding and agreement. But the leaders couldn't yet see, understand, or

agree on why and how economic self-determination was continuing to fall, despite their best efforts. To make the roots of these trends visible, we had to take the individual perspectives (the causal maps) of each of the diverse stakeholders and integrate them into a single, inclusive worldview – their own [systems map of Guatemalan society](#).

This expanded perspective made it clear why and how poverty endured, conflict continued, and adversaries couldn't come to agreement via traditional means. Their system – this “blind, amoral beast” with a lot of momentum – simply reacted “unthinkingly” to inputs to its structure. The conflict wasn't personal (though it felt that way), but structural. This was a significant breakthrough, enabling the leaders to see and understand how they and people they had come to respect through this process somehow generated results that caused harm to others.

What was most significant about this new, more inclusive, and more rigorous perspective was that the participants began to see how to *act* in the system and how to effect the changes they all believed were necessary. Aided by the analyses

Ability to Self-Determine



Using a behavior over time graph, the group came to a sobering conclusion: That if the downward trend of economic self-determination did not correct itself, Guatemalan society risked a resurgence of the violence that had swept the country prior to the civil war in the early 1960s.

Authentic Stakeholder Collaboration

Creating, at the level of:	Relationship	Clarity	Ability
Self	Grounding in your context, experiencing your system, and choosing your role	Internalizing a systemic point of view and taking a personal stand	Leadership
Another	Engaging with others in their passion, their work goal, and a success story, and adding value to them	Creating an individual causal map of their goal, their top 3–5 core competencies, and their story	Trust
Team	Gathering around shared passions, discovering a positive goal, and describing your shared reality	Discovering and assessing your global goal by understanding that goal's behavior over time; mapping the system as a whole	Innovation
Organization	Sharing the work and worldview with the organization and exploring its implications	Analyzing your map to discover your solution set; assessing the organization's fit with reality	Execution
Constituents	Engaging constituents, helping them to shape their identity and define what they seek	Formulating a viral strategy for execution at the constituent level	Scalability
Ecosystem	Giving critical stakeholders a voice, demonstrating your understanding and adding value	Integrating stakeholder goals, needs, and value exchange via a thoughtful, balanced stakeholder assessment	Sustainability

we mentioned before (archetypes, trends, matrices, and so on), they extracted a handful of variables from the model that, if they rigorously and systematically changed, could begin to shift the system. When coupled with group members' learnings from the larger map, this understanding and agreement about the need to source each of their projects in the identity of their constituents – those they were most seeking to support – became the basis for robust organizational action.

Scalability

Next came the process of deciding where to start this “movement,” how to spread it, and how to enable it to self-direct and then self-sustain. For CARE Guatemala, it started with the group's appreciation of the system as a whole and the actors in it. The organization hosted a series of presentations of their systemic map, inviting other stakeholders to critique their insights. What resulted, even with former foes, were profound conversations whose

passionate energies were bounded and channeled by the rigor of the societal systems map. Through these discussions, the participants experienced one another as thoughtful, committed, caring, and creative individuals struggling to resolve complex problems. Through the larger map and analysis, they found clarity about how to shift their shared system, not with another symptomatic solution, but at the root-cause level.

Sustainability

The final hurdle/opportunity to overcome was to ensure the sustainability of the process. Sustainability is a function of the “ecosystem,” whether a biological, social, or environmental ecosystem. In Guatemala, the ecosystem of most immediate concern was the socio-political one. Avoiding “extinction” in such an ecosystem meant understanding the commitments, concerns, and circumstances of the major actors. While much of this knowledge emerged naturally along the way,

the group took the time to document and then validate it. Doing so enabled members to (1) enter into relationship with critical stakeholders in the larger system and (2) anticipate, adapt, and avoid solutions that would not survive in the ecosystem over time.

This whole process – from individual relationships to ecosystem sustainability – is reflected in “Authentic Stakeholder Collaboration.”

From Insights to Practice

In addition to their newly established, ongoing dialogue and work with members of the Guatemalan government, other NGOs, and local constituencies, CARE International is working with 12 partnering NGOs to put these insights into practice. This collaboration is working with 28,000 people in 47 communities in the Cuilco Coatan watershed in western Guatemala, helping them rebuild their lives in the wake of the devastation of Hurricane Stan. Others in CARE Central America are seeking to introduce the process into their work as well.

Something meaningful and useful became possible when these leaders in Guatemala successfully integrated the best of what it means to be human within their work, their relationships, and themselves. They internalized both the intellectual rigor

of systems thinking and system dynamics along with the emotional rigor that comes from truly engaging, understanding, and empathizing with one another. In the process, they collectively shifted their perspectives, bringing themselves

Something meaningful and useful became possible when these leaders in Guatemala successfully integrated the best of what it means to be human within their work, their relationships, and themselves.

into greater alignment with their shared reality, and began to act in ways that benefited the whole. What began as something none of them believed was possible has become a new way of perceiving, thinking, and acting in their efforts to cause deep, lasting impact for those they most care about. ■

For other papers, books, and presentations on this work and process, go to the Institute for Strategic Clarity (www.instituteforstrategicclarity.org).

ABOUT THE AUTHORS

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FEATURE 11.4

The World Café Goes Local: A Town Plans for the Future

PETER HECHENBLEIKNER, DEBORAH GILBURG, AND KERRY DUNNELL

“How can we as a community align ourselves to define our collective future?” That’s the question that prompted residents of the town of Reading, Massachusetts, to hold the community’s first World Café conversation. This article summarizes how the Reading World Café came together and the resulting outcomes. Whereas previous efforts to engage community members in broader thinking had met with limited success, the café drew more than 200 people at a time when, in general, public participation has dwindled and public discourse has become contentious. The process gave town officials data that was of higher quality than what might have resulted from focus groups or surveys, because it emerged from an exploratory conversation among people interested in the community.



Peter Hechenbleikner



Deborah Gilburg



Kerry Dunnell



In the evening of February 27, 2008, the town of Reading, Massachusetts (population 23,708) held its first World Café conversation. The event, open to anyone who lived or worked in Reading, attracted about 220 participants, including high school students, senior citizens, businesspeople, representatives from cultural, religious, and other nonprofit institutions, volunteers, activists, and residents who had never been involved in local activities before. People new to Reading and life-long octogenarian residents alike were all present to talk about what they wanted for the future of their community.

At that time, no other Massachusetts municipality had hosted a World Café or similar process. We believe, however, that this kind of community-wide conversation offers valuable benefits to cities and towns that wish to increase civic engagement and qualitative community input in planning for the future, particularly during a time of stagnant budgets, escalating

Team Tip

Following the lead of the Reading World Café organizers, pay careful attention to gaining buy-in from stakeholder groups for any new initiative.

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costs, competing special interests, contentious public discourse, and dwindling public participation. We offer the story of our process – how the Reading World Café came together and the outcomes that resulted – to illuminate the practical role of inclusive conversation as a means of identifying priorities and building systemic support in community governance.

Why a World Café

It started in June 2007 in a kitchen, where a handful of people met to talk about the possibility of hosting a community-wide conversation about the future of Reading. The group was drawn to this idea for a number of reasons.

Reading has a strong history of community involvement. In addition to local governance boards, committees, and representative town meeting, Reading boasts dozens of volunteer organizations dedicated to schools, environmental activism, social services, charity, arts and culture, religious pursuits, and neighborly networking. However, these groups generally operate independent of one another, focusing only on their perceived sphere of influence. The folks around the kitchen table were attracted to the potential in all that divergent volunteer energy, asking “How can we as a community align ourselves to define the collective future of Reading?”

The idea greatly interested Pat Schettini, superintendent of Reading Public Schools, who had come to this initial meeting excited to consider that question. “Given the strong community involvement we’ve seen in the past, hosting an open, expansive community dialogue about the future sounded doable,” commented Schettini. “Yet I have seen many public discussions deteriorate and polarize in the face of controversy and strong opinions – to the point where folks were no longer listening to or learning from each other. I am interested in encouraging more inclusive and courteous discussions to determine what is important to this town.”

Over the past several years, the Reading community had experienced its share of conflict over a number of local issues, including commercial development proposals, interstate highway projects, redistricting for elementary and middle schools, budget allocations, tax overrides, and the town’s water supply. Passions over these issues tended to run high, and the discussions often led to debates and even shouting matches; dialogue was scarce. A recent rezoning controversy concerning a retail development had become heated. “I think the debate became so volatile because as a community we hadn’t really explored what our future could be,” observed Priscilla Hollenbeck, one of the original conversation organizers. “We had to take a step back and consider, if not this, then what do we want as a community? We needed to heal the divisiveness and focus on a common vision.” The people gathered around the kitchen table thought the World Café might be a way to do so.

Previous efforts to engage community members in broader thinking had met with limited success. For example, Reading had recently finalized its 10-year master plan, a document that identified more than 150 projects and actions for the town to undertake. Despite the best efforts of the master plan committee to draw citizens to any number of public meetings, this process drew little community input. As a result, the town manager and board of selectmen had only limited data on community interests to consider when developing priorities. In addition, the school district had completed its District Improvement Plan, which also contained many recommendations and objectives that reflected the best efforts of a relatively small number of dedicated residents.

It became clear to those who met that morning in June that hosting a World Café conversation could have tremendous benefit to the community, not only because of the potential for collecting qualitative data about what people cared about, but also because of the positive, collaborative experience the community could have by talking about their future together. “The hope was that we would get a sense of what the community valued most

as part of the World Café conversation process,” reflected school committee member Elaine Webb. “The data generated will be valuable in helping those of us charged with implementing these plans prioritize our next steps.”

As with all things new, the approach was not without risk. Whether real or perceived, the possibility that the event could fail and make matters even worse was an underlying concern. Luckily, one of the initial organizers was an experienced facilitator who utilized similar processes in her consulting work, and she was able to bring her experience to the group of eager enthusiasts.

How It All Came Together

While the idea to host this event began with just

a few people, over the course of the eight months it took to implement the World Café, the concept captured the interest and curiosity of many others. The first step for the organizers was to attract “Supporters” to draw participants to the Café. Once engaged, these individuals and organizations would help promote the event and ensure a diverse representation of perspectives.

Armed with a date, a venue, and a list of resources needed, the planning team organized an informational meeting in October 2007. They invited representatives from every group and organization they could think of. The team chose to use the introductory meeting to run a mini-version of the World Café so those in attendance could experience the conversation process for themselves. During

Questions to Consider

Because the World Café process was new and unusual, many were unsure and even suspicious about its capabilities. The planning committee had to reckon with the following questions to ensure a high-quality event.

- **What if people have a difficult time understanding what the World Café is?** How do you get them to participate? We found it important to distinguish the World Café process from the kinds of public forums that people had attended in the past, and make the information about the process transparent and accessible. The planning team created a website, drafted an FAQ, spoke at dozens of meetings, ran a panel discussion on community access TV, sent out press releases, made personal calls, and used the connections and networks of the event Supporters to disseminate information.
- **How does this differ from formal decision-making processes?** This was perhaps the most difficult question to answer and required active support from the board of selectmen, school committee, town manager, and superintendent of schools. The message that this process was not in lieu of official decisions, but rather a complement to them, had to be reinforced on a regular basis.
- **Who needs to be involved?** The planning team sought as many local organizations, community leaders, and businesses as possible to support the event. The goal was to attract folks across a broad spectrum in interests, values, and perspectives. The team created categories of support with different levels of commitment to make it easier for groups to sign on.
- **How difficult is it to organize a World Café conversation?** The World Café organization is a great resource for groups that would like to host a community conversation (www.theworldcafe.com). Their website offers instructions, supplies, and case studies. We found it helpful to have the aid of a person experienced in this style of communication to lead the effort.

this recruitment workshop, the participants were asked to share their perspectives on the questions: “What do I value about this community? What would make this community stronger and more connected?”

“I was pleasantly surprised,” remarked Selectman James Bonazoli of the conversation experience. “I had anticipated there being some kind of hidden agenda or ulterior motive involved, but the conversations were authentic and energizing. I really enjoyed hearing what people had to say.”

Curiosity among a broader group for what might come of a Reading World Café had been sparked. Over the course of the next several months, the planning team worked to build the list of Supporters, meeting with many different organizations to gain formal and informal sponsorship for the event.

Early on, the team discovered it was important to list the essential questions and trajectory for the Café conversation on all marketing materials in order to clarify intentions and keep the process transparent. Accordingly, they developed a logo, an FAQ, press releases, and promotional flyers. With the help of early Supporters, the Reading World Café developed a website and an online RSVP process. They enlisted volunteers to manage communications, set up and break down the venue, and supply refreshments and entertainment during the reception hour. They recruited a visual recorder willing to capture the event graphically, and contacted the local newspapers and community television network (see “Questions to Consider”).

“Many people are asking, what will happen at the World Café? What will come of it?” noted school committee member David Michaud, during an interview on Reading Community Television. “The fact is no one really knows – it is all part of the mystique and excitement of expansive, collaborative conversation. In the end, however, I believe it will be the experience we have together that matters most.”

The Reading World Café Event

The evening of February 27, 2008 began with a half hour reception in the entrance hall to the high school field house. It didn’t snow until 11:00 that evening – a blessing in New England! Inside the field house itself, 45 round tables, each with five chairs, were covered with large sheets of plain paper and cups of colored markers. A projection screen was positioned so that people seated at the tables could see the questions on slides (see “The World Café in Action,” p. 23). Participants arrived curious about what exactly they had signed up for.

The questions used that night allowed participants to explore what they valued most about Reading and what possibilities they hoped would be a part of the town’s future.

Over the course of two and a half hours, the crowd participated in four rounds of conversation. Participants were invited to be “courteous and curious” during their conversations, and a “recorder” for each table was asked to keep records of what was discussed on the sheets of paper. The questions used that night allowed participants to explore what they valued most about Reading and what possibilities they hoped would be a part of the town’s future. Between rounds, all participants except the recorders were asked to move independently to other tables. The movement encouraged divergence and infused each table with new perspectives at each round.

At the end of the evening, the participants were asked to capture on large sticky notes (one idea per note) their ideas about Dreams, Opportunities, Dilemmas, and Next Steps. Notes were collected and posted on large templates located in the front of the room for all to see. The notes were later transcribed and published on the Reading World Café website. The templates and graphic recording

remained on display at the Reading Public Library for the following month (see “The Future and What We Want,” p. 24).

Closing comments shared in the plenary revealed that people felt energized, connected, and inspired. “I loved being included in this process,” offered a teenaged girl. “It felt really good to have the adults in this town listen to what we kids have to say.” “I felt so respected by the people here,” added a young parent. “I am proud to be a member of this community.”

The World Café process gave town officials data that was of a higher quality than what might have come from focus groups or surveys, because it was the result of an explorative conversation between people interested in the community.

The energy level of individuals that night was positive and uplifting. The town administrators collected an armload of forms with names, contact information, and stated interest in following up on outcomes. When people reluctantly left the venue at the end of the evening, they were eager to know when the results would be available and when another World Café could be scheduled.

Outcomes

Members of the planning team organized and summarized the results of the World Café conversation. Overall, the sticky notes indicated that residents and business people wanted a richer community experience. There was a strong interest in:

- Increased community diversity
- Multigenerational spaces
- Ways and places to come together to learn and celebrate
- A downtown area as a focal point for community connection through social gathering spots, a community or cultural arts center, and more restaurants

- Accessible outdoor space ranging from sidewalks and walking paths to more usable open spaces and parks
- Public efforts to go “green” and become more environmentally friendly
- Increased communication and better use of the town website, including a community calendar

These thoughts and suggestions were sprinkled throughout the four templates, taking the form of broad hopes, concrete suggestions to capitalize on community strengths, practical challenges such as funding and low public participation, and actual steps that could be taken to increase communication and idea implementation.

“It is clear to me that people want more information about what is happening in the community,” acknowledged school committee member Lisa Gibbs. “And they definitely want the results of this conversation acknowledged and used by the governing bodies. Those of us who are local officials also need to make it clear how valuable this kind of feedback is.”

The World Café process gave town officials data that was of a higher quality than what might have come from focus groups or surveys, because it was the result of an explorative conversation between people interested in the community. People had time to listen to each other as well as express their ideas before converging on concrete suggestions. As a result, the suggestions spoke to a deeper need for strong community and a quality of life that might not be as evident in results from anonymous surveys or small focus groups.

Much of the data collected that evening was not a surprise to local decision makers; they had heard these perspectives before. Nonetheless, the Café event helped to reinforce and validate those issues, and provided great assistance in prioritizing them. Town officials responsible for setting community goals and program initiatives can establish priorities confident of the support from a broad cross-section of the community. The ability to proceed with the “wind at one’s back” versus

The World Café in Action



The Reading high school field house was the setting for the World Café.

anticipating public inertia or resistance can be highly motivating for the volunteers who hold these important positions.

Town officials are not the only ones who benefit from the data; other community organizations are also privy to the collective perspectives, desires, and concerns of the participants. This information can inform direction, mission, and collaborative efforts. For example, the event spurred discussions between a local bank with excess property in the downtown area and an umbrella cultural group that has been seeking space for a performing arts center.

In addition, participants connected with others in their community who share an interest in Reading's future, and they were able to influence the shape of that future. Perspectives were altered; new insights gleaned. "I have always felt I needed to advocate passionately for the environment," commented one participant after the conversation event. "I was really struck at how easily the idea of 'going green' took hold without my expending all that energy; and I was able to listen to others in a new way."

Finally, participants and the community organizations learned a new way of communicating, or perhaps, discovered the lost art of communication. In Reading, the World Café has become a lexicon for inclusive, respectful dialogue that has spread throughout the town, cropping up in

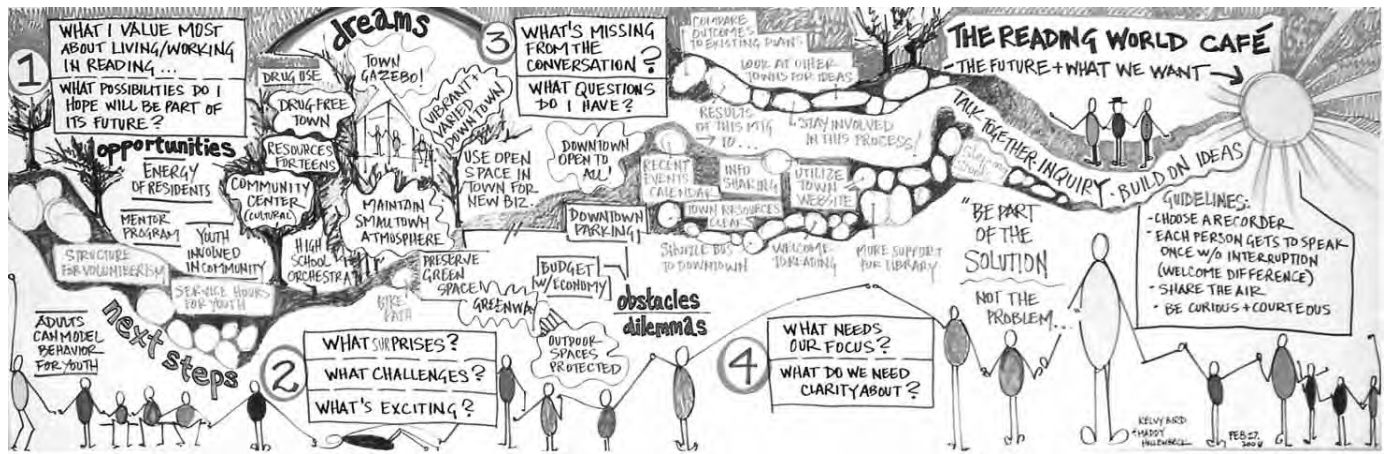
church gatherings, official committee meetings, and the Substance Abuse Prevention program; it has become the methodology of choice for community conversation.

A Valuable Step

The World Café process can be a valuable step between community involvement and formal decision making. When held in a productive manner that expands creative thinking, increases interaction, and affords a safe, inquisitive environment, conversations about important questions in which everyone has a stake can provide qualitative data for decision makers as well as invite a more collaborative and inclusive form of civic engagement. Taking time to discover collective perspectives and desires – without the pressure of an imminent decision – permits the emergence of new possibilities, reduces resistance, and creates a shared experience that can fuel the courage needed to face an uncertain future.

In the words of 10-year-old Madeline Hollenbeck, who observed the event, "I liked Reading World Café because it was important. It was a chance for all of Reading to get together and speak out about what was on their mind. It was helpful to the community because it made people think about things that they may have never thought about before. If more people work together on something they agree needs work, it will get done quicker. And afterward everybody can admire what they've accomplished together." ■

The Future and What We Want



A visual recorder captured the event graphically.

Update

Since we wrote this article, the Town of Reading has met its share of ups and downs; however, the World Café experience remains a touchstone for community leaders. In the fall of 2011, Reading hosted three community conversations in response to outcries over two drug-related homicides. The victims were young men who were graduates from Reading Memorial High, and their deaths raised concerns about substance abuse among Reading youth.

The first conversation was held in World Café fashion and attracted almost 200 people on short notice. Several participants had been to the first World Café four years earlier. The two follow-up meetings were held in a different format, but attracted equal numbers and involved some conversation among the audience members. When Town Manager Peter Hechenbleikner (who facilitated the third meeting) asked whether people would come to more town-hosted conversations, the audience overwhelmingly said yes. The seed we planted four years ago has taken root, and we look forward to watching it bloom.

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FEATURE 11.4

We Can't Keep Meeting Like This: Developing the Capacity for Cross-Sector Collaboration

MILLE BOJER

We are faced with complex, global problems with many manifestations, numerous causes, and multiple players exerting different kinds of influence over them. This complexity requires us to work out creative and systemic solutions by not only communicating but also learning and collaborating across sectors, levels, and cultures. In this article, Mille Bojer uses the example of the Leadership and Innovation Network for Collaboration in the Children's Sector (LINC) in South Africa to explore how we can build cross-sector collaboration aimed at creating systemic change. LINC brings together stakeholders from different sectors in Innovation Labs, where they develop collaborative leadership skills and design groundbreaking, systemic responses to help at-risk children.



Mille Bojer

Not long ago, I participated in a climate change event in Johannesburg, South Africa. In the room were one of the lead negotiators for the South African government on climate change, key activists, a representative from a major energy company, a few scientists, and about 40 others. The facilitator opened the event by reminding the group of Albert Einstein's famous statement, "No problem can be solved from the same level of consciousness that created it." The session then continued with a series of PowerPoint presentations from the different constituencies, with no time for questions or dialogue. Several of the presentations were excellent, but

my overriding feeling as I listened to speaker after speaker was "these people don't speak each other's language."

At the end of the session, I commented with some emotion that "we can't solve this problem with the same level of *communication* that created it." By that I meant not only the conference setup. I meant the scientific language, the graphs, the acronyms, the detached analysis, the corporate image-orientation, as well as the dismissive activist style and the very localized and disconnected community perspective.

I felt that what I had witnessed during the session was not the solution, but rather the climate change problem *coming into being*. I left feeling discouraged about our ability to address this monumental challenge.

Team Tip

Discuss the following statement as it applies to your organizational context: "We can't solve this problem with the same level of *communication* that created it." How might you change the ways in which you communicate in order to tackle problems in a profoundly new way?

Why We Must Change

From climate change to AIDS, from culture clashes to poverty, we are faced with complex, global problems. These problems have many causes and many manifestations, and multiple different players have different kinds of influence over them. Cause and effect are distant in time and space and not easily discernible. The causes themselves have

[These problems] require us to work out creative and systemic solutions by not only communicating but also learning and collaborating across sectors, levels, and cultures.

many causes of their own and are often interlinked and reinforce each other: *Poverty causes AIDS, AIDS causes poverty, and both poverty and AIDS are causes of the rise in the number of vulnerable children.* Because of this complexity, solutions directed at one part of the system, without a view of the whole, can compound problems in another part: *The prospect of climate change increases use of biofuels which leads to food shortages which lead to increased deforestation which in turn compounds carbon emissions and increases climate change (see "Interlinked Problems" on p. 27).*

This is the reality of the messes we are coping with in the globalized world of the 21st century. There is no one button or leverage point that we can press to make these problems go away. They require us to work out creative and systemic solutions by not only communicating but also learning and collaborating across sectors, levels, and cultures. We just can't get out of these situations separately.

For the past couple of years, I have had the privilege to work intensively on a cross-sector collaboration project called LINC (Leadership and Innovation Network for Collaboration in the Children's Sector), which addresses the difficult situation currently

faced by South Africa's children. Primarily as a result of the HIV/AIDS pandemic and compounded by other factors, over one million orphans under the age of 18 currently live in the country. Many more children subsist in difficult circumstances. This unprecedented, heartbreaking situation is straining people, communities, and institutions. The LINC project brings together senior officials from four government departments, CEOs of NGOs and faith-based organizations, leaders of major business foundations and other business representatives, as well as community members, academics, and international donors. These people participate in a series of "Innovation Labs" combined with leadership coaching, project coaching, and networking support in order to develop collaborative leadership and innovative, systemic responses to the crisis.

Through this work and many other recent experiences, I have been paying attention to what I can learn about cross-sector collaboration aimed at addressing complex problems and creating systemic solutions. What are the qualities of the types of solutions we need? What mindsets and capacities do we need in order to be effective? How do we overcome the blockages we face? What processes and resources can support this work? My intention with this article is to share some of these ideas to



contribute to strengthening a wider dialogue and practice, and to build our capacity to cope in these times.

Systemic Solutions

There are many different understandings of what it means to think or act “systemically.” For years, I used the word “systemic” because it sounded right, without having a clear picture in my mind of what it meant. I knew that it had to do with seeing connections and relationships, addressing root causes, and shifting our way of thinking. I didn’t really know how to recognize a “systemic solution” when I saw one.

As my colleagues and I in South Africa started to work on high-stakes projects with multistakeholder groups, challenging them to come up with “systemic solutions,” we had to get specific about what that meant. On that journey, we encountered Elisabeth Dostal, co-author of *Biomatrix: A Systems Approach to Organisational and Societal Change* (African Sun Press, 2003), whose life has been about applying systems thinking to complex social problems like poverty and unemployment. As we engaged with Elisabeth and with each other around the deeper meaning of our work, we started to see the following:

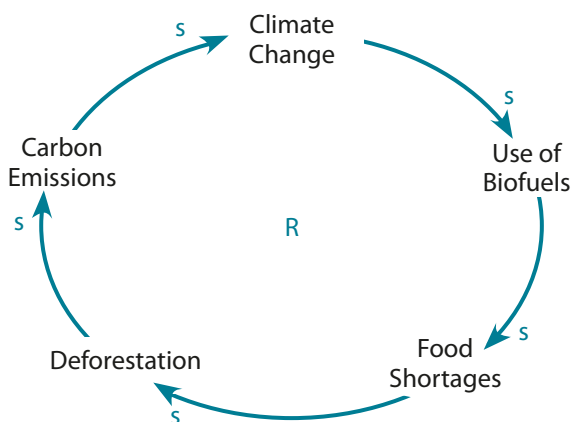
Systemic Solutions Shift Logic

They change some of the underlying thinking that is producing the problem situation, thus going to the source of the problem. As a result, systemic solutions aim at problem-*dissolving*, as opposed to problem-*solving* (which tries to “fix” a problem within a current logic). This is, I suppose, what Einstein was also trying to communicate: that the logic of the solution is not the same as the logic of the problem.

Systemic Solutions Work on Multiple Dimensions and Levels

Because complex problems are produced by many causes, systemic solutions have to work on multiple dimensions (for example, technological, economic, and cultural) and levels (for example, global, societal, organizational, individual, and

Interlinked Problems



The prospect of climate change increases use of biofuels which leads to food shortages which lead to increased deforestation which in turn compounds carbon emissions and increases climate change.

internal). These approaches embrace paradoxes and look for *both/and* instead of *either/or*. As an example, it is futile to discuss whether AIDS is a health problem or a poverty problem; it is both and requires solutions working on both these dimensions (and many others).

Systemic Solutions Harness Synergies

One of the core ideas of systems thinking is that “the whole is more than the sum of the parts.” Systems display *emergent* properties that are unpredictable outcomes of the interplay between their parts, the relationships between their parts, their context, and what could be called their identity. Emergent properties can be either *synergistic* (more than the sum of the parts, with the parts reinforcing each other positively) or *dissynergistic* (less than the sum of the parts, with the parts undermining each other, leading to a dysfunctional whole). Ideally, a systemic solution shifts some of the “vicious” cycles among causal factors to “virtuous” cycles.

Systemic Solutions Are Iterative

Because cause and effect are so complex in these big messy problem situations, we can’t predict all the outcomes of an intervention with certainty (Russell Ackoff coined the term “mess” as it relates to major complex societal problems). This means that we can’t completely separate planning from implementation. Rather, there has to be a constant communication and iteration between our



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conceptual reality and *physical reality*. We need to work on re-perceiving and rethinking the situation at the level of the whole (shifting conceptual reality), and then act on this basis in physical reality at the local level. Then we need to attentively observe what is happening, or emerging, in the physical reality and consider whether it has implications for changing our thinking.

Talking Across Sectors

To act more on the level of “whole” problems and “whole” systems, we must get together with people who are based in a different part of that whole. We need to get better at talking to each other across sectors and at working in partnership where necessary. How we do so effectively is a vast topic. For the purposes of this article, I’ve chosen to focus on four important principles that stand out in reflecting on our recent practice in South Africa:

- Becoming self-aware as sectors,
- Understanding complementarities,
- Iterating within microcosms, and
- Seeing the system in the room.

Becoming Self-Aware as Sectors

One of the biggest reasons cross-sector collaboration is difficult is because sectors have different logics, values, priorities, and comfort zones, in short, different cultures. People seldom invest in understanding these different identities, even though it is an integral part of cross-sector partnership efforts. They fail to give attention to the need for the cross-sector system to self-reflect and create a healthy foundation for its work together.

My favorite university course was an interdisciplinary one on international development. For a year, I worked in a team composed of a biologist, a geographer, an engineer, a humanities student, and myself – a political science student. Our joint task was to study development and to write a paper about shrimp farming in Bangladesh. The real genius of the course was that *half the assignment* – half the time, half the paper, and half of our shared mark in the end – was based on our ability to become aware of the differences in logic across our disciplines and to create a *cross-disciplinary, shared scientific methodology* as a team. Though I didn’t have the language for it

at the time, I think we were creating a systemic way of looking at the problem and its solutions because we had to find a place for each of our disciplines, and in doing so, we had to look at the issue from the multiple dimensions represented by our disciplines.

Until I participated in this course, I never realized how disciplines are like cultures. Our team started out by trying to describe the assumptions and norms of each of our disciplines, which most of us had never thought about. We drew on cross-cultural literature in designing our group process and philosophy of science. The course offered us a unique opportunity to self-reflect on our differences as a team, while still having a clear collective goal of something we all had a stake in producing. How often are we given a chance to give equal attention to our collective process and culture as we do to our product?

As with disciplines, professions and sectors are also like cultures. But while a lot of attention goes into cross-cultural education, little seems to go into interdisciplinary or cross-sectoral understanding. As part of our education, we generally don't learn how to become aware of the assumptions of our disciplines and how they differ from those of other fields.

At the first "Innovation Lab" of the LINC project, we had nearly 50 leaders from across sectors in the room. One of the tasks on the opening day was for them to spend time with people from their own sector in a dialogue around the things that they were proud of and the things that they were sorry about in relation to their sector's response to the situation of the country's children. Each sector presented back to the larger group while the others listened and reflected.

This session proved to be one of the most powerful moments of the event. Why? Because participants benefited from time for self-reflection to acknowledge the differences between the sectors and to notice the varied ways the sectors tackled the task and shared their stories. Also, the process disarmed

some of the negative dynamics across sectors, because each sector had a chance to name for itself its own weaknesses and challenges.

Understanding Complementarities

Surfacing the differences across sectoral cultures is only a first step. The path to creating synergy lies in understanding that there are *complementarities* across these differences, seeing what these complementarities are, and then finding ways of harnessing them.

To act more on the level of "whole" problems and "whole" systems, we must get together with people who are based in a different part of that whole.

One of the major challenges in developing true cross-sector collaboration is that the sectors have perceptions and judgments of each other. At the risk of being simplistic, I would even dare to venture that sometimes people in a sector just want the others to "go away." Government and corporations at times want civil society to go away so they can get on with their jobs. NGOs want corporations and government to go away, and corporations want NGOs and government to go away. Or, they wish that the other sectors could be more like themselves, think like they do, and operate from the same logic.

I experienced a powerful moment of shifting such perceptions and discovering complementarity in the LINC project. In the first phase of the initiative, we interviewed 40 stakeholders, and we were struck that many of them were struggling with the same burning question: *Given that millions of children in South Africa are in need of care, should we be going for a "Woolworths" solution or a "Checkers" solution?* In South Africa, Woolworths is a high-end supermarket that provides expensive but healthy, high-quality products to a small portion of the population, while Checkers is a low-end

supermarket that provides cheap products to the masses. So the question was: *Do we provide a basic package of services to the largest number of children possible, or do we focus on a smaller number of children that we can give personal attention to and provide with everything they need?* One of the interviewees told us, “I always think of the five kids we fed today, I don’t think about the 5,000 we couldn’t feed. Otherwise I wouldn’t be able to handle it.”

The idea of convening a microcosm is that you create a group that together has the power to see the whole situation and to act on or influence it.

At the time of doing and analyzing the interviews, I didn’t even notice that this question of quantity versus quality, which seemed valid, was coming only from the NGOs and business stakeholders. When I raised it at the workshop with an academic participant who works with government, she became frustrated and said she was tired of hearing this question because “It’s a false choice. It’s a basic rights issue.” From her perspective, you can’t take a few kids, give them everything, and provide nothing to the rest. It’s simply unjust.

In that moment, I realized that the problem the South African government faces every day is in some ways completely different from the problem the NGOs deal with. The government struggles with how to provide for millions of children equally, to deliver on their rights, and to deliver on justice. They don’t have the luxury to choose not to think of the 5,000, or 50,000, that weren’t fed that day. The NGOs and community workers, on the other hand, look into the eyes of specific children, children who need much more than the level of care and support that is possible if you spread your resources evenly and thinly.

In his book, *Shaping Globalization: Civil Society, Cultural Power and Threefolding* (New Society

Publishers, 2003), Nicanor Perlas posits that *in a healthy society*,

The three key institutions [government, business, and civil society] are aware that they have consciously entered into a social process that mobilizes the unique perspectives, strengths, resources, and capacities of the cultural, political, and economic realms of society. The three key institutions . . . place their respective talents towards the pursuit of comprehensive sustainable development, balancing economic, political, and cultural, social, ecological, human, and spiritual imperatives of development. (p. 13)

Each of these powerful institutions has the potential to “represent,” in its own way, the realm of society from which each is active – civil society represents culture; government represents polity; and business, the economy . . . business, government, and civil society will naturally emphasize different aspects of society as a whole. (p.4)

In the Woolworths versus Checkers question, the shift happens when government and NGOs start to see that they each represent different imperatives. Part of the reason government struggles with bureaucracy is because it has to cope with the reality of millions of children every day. Part of the reason NGOs seem sentimental or struggle to prioritize is because they look into the eyes of the individual child every day.

With that realization, we can start to ask the questions, “What is the value that each of these positions in the system can offer to the collective work of improving *quality and quantity* of care for children? What are the different dimensions and levels that they can bring to the systemic solutions?” Some decisions can only be taken at a distance by the government, which has to prioritize justice, and at the same time, some insights can only be had at the local level. The two *need* each other. The original question dissolves and changes from *either/or* to *both/and*. The logic shifts.

Iterating Within “Microcosms”

We use the term “social complexity” to describe a problem situation in which the players involved have contrasting logics or frames of mind, and therefore sometimes conflicting perceptions and explanations of what the problem is and how it should be addressed. This is usually the case with the kinds of complex problems that require cross-sector intervention. One of the most eye-opening things I have learned about intervening in social complexity is that all the players do not have to share the same perspectives and imperatives. If you insist that they must, then you may spend a lot of time creating a plan that no one is excited about implementing. Furthermore, by getting a group of people in a room to agree to the lowest common denominator, you lose important details that are crucial to successful implementation.

For systemic solutions, instead of getting everyone to agree on what the problem is and on one frame of mind, we need to think “both/and.” Building on the deeper sense of complementarity described above – respecting that different institutions represent diverse dimensions and levels of society – we can seek out systemic solutions that *make sense* in multiple frames of mind.

A powerful way to create such solutions is to bring diverse stakeholders together to generate and test ideas for intervention. This is what is meant by convening a “microcosm” of the system. The idea of convening a microcosm is that you create a group that together has the power to see the whole situation and to act on or influence it. The primary requirement in forming the microcosm when addressing societal issues is to have balance between government, business, civil society, and/or the other major groupings related to a problem. It is of course impossible to literally get the “whole system” in the room. There will always be voices missing, but it is possible to get a group of people together who reflect the major parts of the system.

In the case of the LINC project, it took us over a year just to convene the players, through a process of dialogue interviewing and ongoing advocacy



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work and consultation. In the end, we had 50 high-level participants representing most of the key groupings from government, civil society (NGOs, faith-based groups, and community-based organizations), business, academics, and donors. The convening process had to pay attention both to who the individuals were and to the composition of the group as a whole. Still, it was not a complete microcosm in that the children themselves and the grannies who take care of them were not present in the room, though people close to them were.

As the participants started to form cross-sector teams to generate initiatives to work on, they were explicitly encouraged to provide constructive perspective across teams from their place in the system. What can you see from where you stand that the larger group might not?

Seeing the System in the Room

When you bring together a microcosm, you essentially get the “system in the room.” Over time, the *dynamics* of the problem situation manifest in the group, which leads to extremely powerful

There is nothing radical about creating a situation of diversity of power by inviting some young people or poor people to a conference. It is extremely radical, on the other hand, to create the kind of set-up where the more powerful and the less powerful can participate on an equal footing or to shift the power dynamics as an integral part of the process.

learning. The problem shifts from being “out there” to being “in here.” Of course, when convening microcosms, we look for different kinds of diversity – not only sectoral diversity, but also gender diversity, cultural diversity, social diversity, and so on. What always results from including these other types is diversity of *power*.

There is nothing radical about creating a situation of diversity of power by inviting some young people or poor people to a conference. It is extremely radical, on the other hand, to create the kind of set-up where the more powerful and the less powerful can participate on an equal footing or to shift the power dynamics as an integral part of the process. In my experience, doing so requires pointing out the power differences in the room, which are reflective of the power differences in the larger society, and not pretending they don’t exist.

In the LINC project, as one of the first activities we introduced a brief power dynamics game that brought the issue to light and set the intention among participants of “changing the rules of the game.” This, along with the dialogue-based design of all the activities, helped to level the playing field and allow community members to participate on a relatively equal footing. The interesting thing is that because we have now introduced power as a legitimate area of work, participants have started to request more direct work on the power and race dynamics in the room.

Myrna Lewis is a psychotherapist and facilitator of group processes using a methodology called “Deep Democracy” (see www.deep-democracy.net).

[net](http://www.deep-democracy.net)). One of her main beliefs is that a system is healthy when there is “role fluidity” and unhealthy when “roles are stuck.” Roles in this sense are not simply positions, but can also include opinions, emotions, attitudes, and so on. A role is stuck when someone feels they are the only one in a certain situation or with a certain opinion or emotion (“I am doing all the work, and I am so overwhelmed”), or when a certain characteristic is being projected onto someone and disowned by those projecting it (“The government is so inefficient and out of touch”).

Role fluidity can develop in many ways. What struck me in our LINC Innovation Lab was the realization of shared overwhelm. In one group, one of the government representatives shed a tear and said how overwhelmed she was when she thought about the children. Government had been perceived as distant, cold, and out of touch, but with that display of emotion, others realized that government workers are in the same situation that they are. In that moment, roles became more fluid, and some of the kind of trust needed for collaboration was established.

This idea raises a paradox. You need role clarity for the sectors, in terms of understanding the different positions they are in, the different demands on them, and the different imperatives they represent. This transparency is what enables us to harness what each grouping brings to the task. At the same time, you need role fluidity when it comes to the judgments, the “they are like this, and we are like that” statements, in order to overcome the stuckness of the situation and release true collaboration.

The Journey Ahead

My intention with this article is to stress the importance of systemic solutions to complex problems and of attentive cross-sector collaboration for systemic solutions. I have not tried to outline all the tools, practices, and capacities related to cross-sector partnerships, as I know this has been done well elsewhere (for example, see the Prince of Wales International Business Leaders Forum at www.iblf.org). Rather, my intention is to contribute to deepening this field, specifically in relation to addressing complex social problems. I have focused on four principles that I think are central to this deepening.

The LINC project is ongoing. The stakeholders periodically meet in Innovation Labs, where they work on seeing and designing together, and outside of the Labs, where they test their ideas against reality, work in project teams, participate in leadership coaching, and do what they can to contribute in their daily jobs to serving the children. Meanwhile, the search for insights on how to create systemic change continues. ■

Next Steps

Although Mille Bojer focuses on the social sector in this article, the principles can apply to any complex systems or organizational challenge.

Become Self-Aware as Sectors or Functions. Have people spend time with others from their own function area in a dialogue around the things that they have done well and the things that they can improve in relation to their function's response to the challenge. Each function then presents back to the larger group while the others listen and reflect.

Understand Complementarities. Ask the questions, "What is the value that each of these positions in the system can offer to the collective work? What are the different dimensions and levels that they can bring to the systemic solutions?"

Iterate Within Microcosms. Seek out systemic solutions that make sense in multiple frames of mind. Bring diverse stakeholders together to generate and test ideas for intervention.

See the System in the Room. When convening microcosms, look for different kinds of diversity – not only sectoral/functional diversity, but also gender diversity, cultural diversity, social diversity, and so on. What always results from including these other types is diversity of power. Over time, the dynamics of the problem situation manifest in the group, which leads to extremely powerful learning.

ABOUT THE AUTHOR

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FEATURE 11.4

Confronting the Tension Between Learning and Performance

AMY C. EDMONDSON AND SARA J. SINGER

Although we may prefer to believe differently, not all learning leads to improved performance. Learning and performance can be at odds in several ways. Notably, when organizations engage in a new learning challenge, performance often suffers, or appears to suffer, in the short term. Moreover, by revealing and analyzing their failures and mistakes – a critical aspect of learning – work groups may appear to be performing less well than they would otherwise. Organizations can at least partly address these challenges through leaders who create a climate of psychological safety and promote inquiry. Leadership is thus essential to foster the mindset, group behaviors, and organizational investments needed to promote today's learning and invest in tomorrow's performance.



Amy C. Edmondson



Sara J. Singer

Few readers would disagree with the suggestion that those who develop and exercise a greater capacity to learn are likely to outperform those less engaged in learning. Indeed, we might make the same unsurprising prediction about individuals, teams, or organizations. Nonetheless, the relationship between learning and performance is not as straightforward as it first appears.

Why is this relationship problematic? First, although learning is clearly essential for sustained individual and organizational performance in a changing environment, at times the costs may be more visible than performance benefits. Learning can be messy, uncertain, interpersonally risky, and without guaranteed results. Moreover, not all learning leads to improved performance; it depends on what is being learned and how important it is for particular dimensions of performance. Although some learning is straightforward (the knowledge is codified and readily used by newcomers), other forms rely on experimentation and exploration for which outcomes are unknown in advance. Lastly, time delays between learning and performance may obscure or even undermine evidence of a clear causal relationship.

As described in this article, organizations can at least partly address these challenges through leadership that creates a

Team Tip

Use the information in this article to identify and overcome the barriers to learning in your group and organization.

climate of psychological safety and that promotes inquiry. But first, let's go into more detail about some of the ways in which a focus on learning can actually appear to undermine performance.

Impediments to Learning

Where catastrophic failure is possible, mistakes are inevitable, or innovation is necessary, learning from failure is highly desirable. Yet research suggests that few organizations dig deeply enough to understand and capture the potential learning from failures. Why this resistance to learning?

Psychological and Organizational Barriers

A multitude of barriers can preclude learning in teams and organizations. These include limitations in human skills or cognition that lead people to draw false conclusions, and complex and cross-disciplinary work designs that can make failures difficult to identify. Additional barriers include lack of policies and procedures to encourage experimentation or forums for employees to analyze and discuss the results.

Learning about complex, interconnected problems also suffers from ineffective discussion among parties with conflicting perspectives. Status differences, lack of psychological safety, and lack of inquiry into others' information and experiences related to substantive issues can combine to ensure that a group as a whole learns little.

Powerful individuals or respected experts can stifle dissent simply by expressing their opinions. Social pressures for conformity exacerbate the impact of leaders' actions, particularly when large status and power differences exist among leaders and subordinates. In addition, people in disagreement rarely ask the kind of sincere questions that are necessary for them to learn from each other. We tend to try to force our views on others rather than educating them by providing the underlying reasoning behind our perspectives, as Chris Argyris and Donald Schön showed long ago (see Argyris, C. and Schön, D. *Organizational Learning: A Theory of Action Perspectives*, Addison-Wesley, 1978).

More generally, the human desire to "get it right" rather than to treat both success and failure as useful data greatly impedes learning. Individuals prevent learning when they ignore their own mistakes in order to protect themselves from the unpleasantness and loss of self-esteem associated with acknowledging failure. People may also deny, distort, or cover up their mistakes in order to avoid the public embarrassment or private derision that frequently accompanies such confessions, despite the potential of learning from them. In addition, people derive comfort from evidence that enables them to believe what they want to believe, to deny responsibility for failures, and to attribute a problem to others or the system.

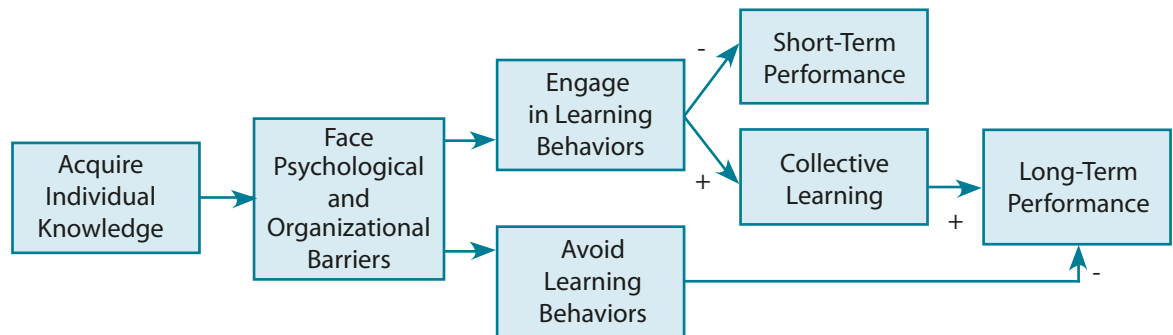
Similarly, groups and organizations tend to suppress awareness of failures. Organizational incentives typically reward success and punish failure, creating an incentive to hide mistakes. Teams and organizations are also predisposed to underreact to the threat of failure when stakes are high, different views and interests are present, and the situation is ambiguous. Such groups can fail to learn and hence make poor decisions.

Multiple mechanisms can combine to inhibit responsiveness and preclude learning in group settings. First, people tend to filter out subtle threats, blocking potentially valuable data from careful consideration. They also remain stubbornly attached to initial views and seek information and experts to confirm initial conclusions. Groups silence dissenting views, especially when power differences are present. They spend more time confirming shared views than envisioning alternative possibilities. Organizational structures often serve to block new information from reaching the top of the organization. Rather, they tend to reinforce existing wisdom.

Inability to Learn from Failure

Most organizations' inability to learn from failure stems from a lack of attention to small, everyday problems and mistakes. Organizations that embrace small failures as part of a learning process are more likely to innovate successfully. Likewise, organizations

Impact of Psychological and Organizational Barriers to Learning



While proactively seeking to acquire new capabilities often takes a toll on short-term performance, over time, it benefits both the individual and the organization. Avoiding learning behaviors, on the other hand, can undermine long-term performance.

that pay more attention to small problems are more likely to avert big ones, especially where tasks are interconnected. Despite the increased rate of failure that accompanies deliberate experimentation, organizations that experiment effectively are likely to be more innovative, productive, and successful than those that do not take such risks (see especially Sitkin, S. B. "Learning Through Failure: The Strategy of Small Losses," in L. L. Cummings and B. M. Staw (Eds.), *Research in Organizational Behavior*, Vol. 14: 231–266, JAI Press, 1992, and Cannon and Edmondson (2005), cited below).

Small failures arise not only in the course of purposeful experimentation, but also in daily work that is complex and interdependent. When problems inevitably arise during the course of business in these situations, workers can either simply compensate for or work around problems, or they can seek to resolve the underlying cause by notifying those who can help to correct them. The former would likely go unnoticed, while the latter would expose poor performance. Nevertheless, compensating for problems can be counterproductive if doing so isolates information about problems such that no learning occurs.

In hazardous situations, small failures not identified as problems worth examination often precede catastrophic failures. Small failures are often the key early warning sign that could provide a wake-up

call needed to avert disaster down the road. Yet, in recognizing small failures in order to learn from them, individuals and groups must acknowledge the performance gaps.

Collective learning requires valuing failure and being willing to incur small failures in front of colleagues. It requires being willing to enhance rather than reduce variance. Learning groups must proactively identify, discuss, and analyze what may appear to be insignificant mistakes or problems in addition to large failures. When organizations ignore small problems, preventing larger failures becomes more difficult (see "Impact of Psychological and Organizational Barriers to Learning").

The Learning Mindset

Given the above challenges, this section describes some of the theoretical alternatives for promoting organizational learning that enhances future performance. It ties together different but related ideas from research at several levels of analysis (see "Learning Mindsets at Multiple Levels of Analysis").

Advocacy and Inquiry Orientations

As discussed above, organizational structures and processes can severely inhibit the ability of a group to effectively incorporate the unique knowledge and concerns of different members. Key features of group process failures include antagonism; a lack

of listening, learning, and inquiring; and limited psychological safety for challenging authority. These kinds of individual and interpersonal behaviors have been collectively referred to as an *advocacy orientation* (Garvin and Roberto introduced this term in "What You Don't Know About Making Decisions," *Harvard Business Review*, Vol. 79, No. 8, September 2001).

For example, simple but genuine inquiry into the thinking of other team members could have generated critical new insights about the threat posed by the foam strike to the Columbia space shuttle. Instead, NASA managers spent 16 days downplaying the problem and so did not view the events as a trigger for conducting detailed analyses of the situation. A recent analysis by Roberto, Bohmer, and Edmondson concluded that NASA's response to the foam strike threat was characterized by active discounting of risk, fragmented, discipline-based analyses, and a wait-and-see orientation to action. When engineers became concerned about the foam strike, the impact of their questions and

analyses was dampened by poor team design, coordination, and support. In contrast to the flat and flexible organizational structures that enable research and development, NASA exhibited a rigid hierarchy with strict rules and guidelines for behavior, structures conducive to aims of routine production and efficiency. The cultural reliance on data-driven problem solving and quantitative analysis discouraged novel lines of inquiry based on intuitive judgments and interpretations of incomplete, yet troubling information. In short, the shuttle team faced a significant learning opportunity but was not able to take advantage of it due to counterproductive organizational and group dynamics.

In contrast, effectively conducting an analysis of a failure requires a spirit of inquiry and openness, patience, and a tolerance for ambiguity. Such an *inquiry orientation* is characterized by the perception among group members that multiple alternatives exist, frequent dissent, deepening understanding of issues and development of new

Learning Mindsets at Multiple Levels of Analysis

	Dimension	Performance Orientation	Learning and Innovation Orientation
Individual & Group	Behavioral characteristics of individuals and group members	Advocacy orientation <ul style="list-style-type: none"> • Lack of listening • Reliance on quantitative data 	Inquiry orientation <ul style="list-style-type: none"> • Openness, tolerance for ambiguity • Reliance on intuition and interpretation
	Leader response to problems	Confirmatory response <ul style="list-style-type: none"> • Reinforce accepted assumptions 	Exploratory response <ul style="list-style-type: none"> • Experiment to test assumptions
	Leader approach to environment	Coping <ul style="list-style-type: none"> • View as threat • Technically oriented 	Learning <ul style="list-style-type: none"> • View as exciting opportunity • Team oriented
Organization	Behavioral characteristics of organizations	Exploitation <ul style="list-style-type: none"> • Appropriate in mature markets • Focus on execution 	Exploration <ul style="list-style-type: none"> • Appropriate in uncertain environments • Focus on learning and experimentation
	Leader mindset and organizational design	Organize to execute <ul style="list-style-type: none"> • Ask, "Did we do it right?" • Promote first-order learning 	Organize to learn <ul style="list-style-type: none"> • Ask, "Did we learn?" • Promote second-order learning

possibilities, filling gaps in knowledge through combining information sources, and awareness of each others' reasoning and its implications. Such an orientation can counteract common group process failures. Learning about the perspectives, ideas, experiences, and concerns of others when facing uncertainty and high-stakes decisions is critical to making appropriate choices.

Organizing to learn and organizing to execute are two distinct management practices, one suited to exploration and the other to exploitation respectively.

Confirmatory and Exploratory Responses

Leaders play an important role in determining group orientation to an observed or suspected failure. Analyzing the Columbia Shuttle tragedy, Edmondson and colleagues suggested that when small problems occur, leaders can respond in one of two basic ways. A *confirmatory response* – appropriate in routine production settings, but harmful in more volatile or uncertain environments – reinforces accepted assumptions, naturally promoting an advocacy orientation on the part of leaders and others. When individuals seek information, they naturally look for data that confirms existing beliefs. Confirmatory leaders act in ways consistent with established frames and beliefs, passive and reactionary rather than active and forward-looking.

In uncertain or risky situations or where innovation is required, an *exploratory response* may be more appropriate than seeking to confirm existing views. An exploratory response involves challenging and testing existing assumptions and experimenting with new behaviors and possibilities, the goal of which is to learn and to learn quickly. By deliberately exaggerating ambiguous threats, actively directing and coordinating team analysis and problem solving, and encouraging an overall orientation toward action, exploratory leaders

encourage inquiry and experimentation. Leaders seeking to encourage exploration also actively foster constructive conflict and dissent and generate psychological safety by creating an environment in which people have an incentive, or at least do not have a disincentive, to identify and reveal failures, questions, and concerns. This form of leader response helps to accelerate learning through deliberate information gathering, creative mental simulations, and simple, rapid experimentation.

Rather than supporting existing assumptions, an exploratory response requires a deliberate shift in the mindset of a leader – and of others – that alters the way they interpret, make sense of, and diagnose situations. When leaders follow an exploratory approach, they embrace ambiguity and openly acknowledge gaps in knowledge. They recognize that their current understanding may require revision, and they actively seek evidence in support of alternative hypotheses. Rather than seeking to prove what they already believe, exploratory leaders seek discovery through creative and iterative experimentation.

Learning-Oriented and Coping-Oriented Approaches

When implementing an innovation such as a new technology or practice, leaders can orient those who will be responsible for implementation by responding in one of two ways. They may view the innovation challenge as something with which they need to cope or as an exciting learning and improvement opportunity. A *coping-oriented* approach is characterized by protective or defensive aims and technically oriented leadership. In contrast, *learning-oriented* leaders share with team members a sense of purpose related to accomplishing compelling goals and view project success as dependent on all team members.

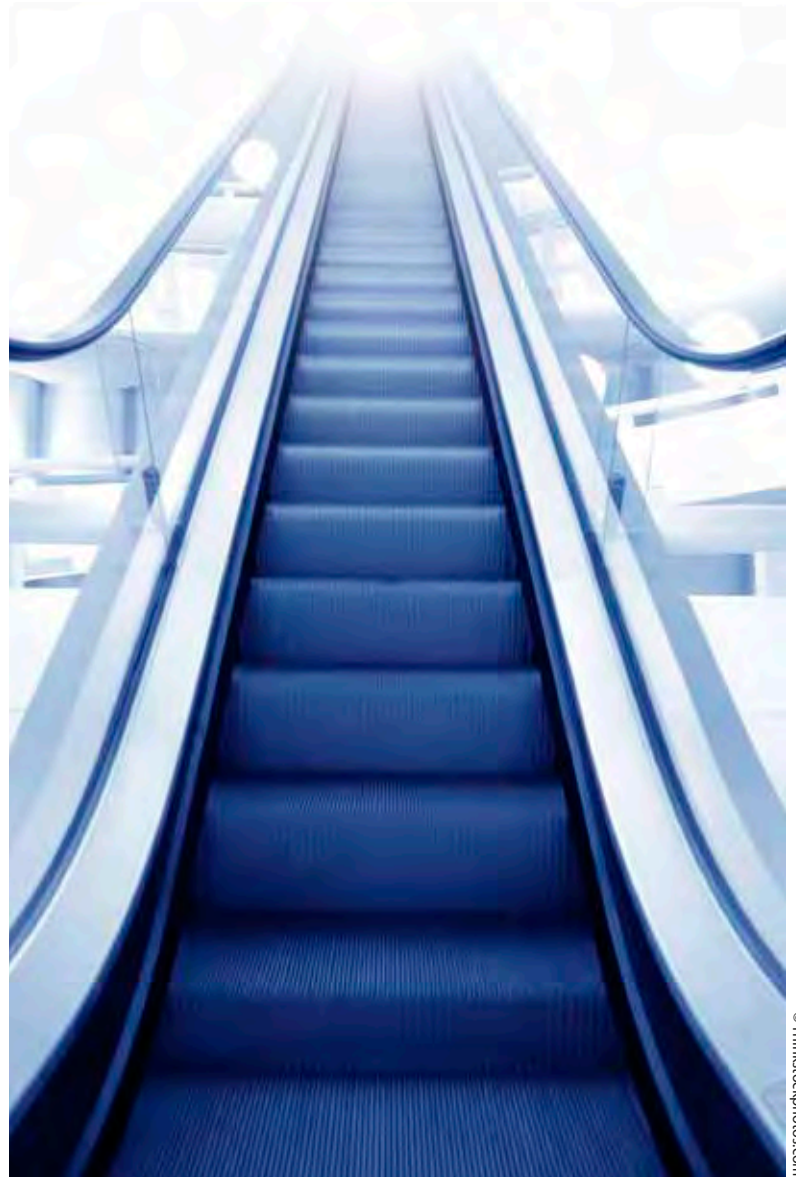
In a study of 16 cardiac surgery departments implementing a minimally invasive cardiovascular surgery technique, successful surgical team leaders demonstrated a learning-oriented approach rather than a coping approach. Learning-oriented leaders explicitly communicated their interdependence with others, emphasizing their own fallibility and

need for others' input for the new technology to work. Without conveying any loss of expertise or status, these leaders simply recognized and communicated that in doing the new procedure they were dependent on others. In learning-oriented teams, members felt a profound sense of ownership of the project's goals and processes, and they believed their roles to be crucial. Elsewhere, the surgeon's position as expert precluded others from seeing a way to make genuine contributions beyond enacting their own narrow tasks, and it put them in a position of not seeing themselves as affecting whether the project succeeded or not. Learning-oriented teams had a palpable sense of teamwork and collegiality, aided by early practice sessions.

In addition, team members felt completely comfortable speaking about their observations and concerns in the operating room, and they also were included in meaningful reflection sessions to discuss how the technology implementation was going. In teams that framed the innovation as a learning opportunity, leaders enrolled carefully selected team members, conducted pre-trial team preparation, and engaged in multiple iterations of trial and reflection. Dramatic differences in the success of learning-oriented versus coping-oriented leaders suggest that project leaders have substantial power to influence how team members see a project, especially its purpose and their own role in achieving that purpose.

Organizational Exploitation and Exploration

Inquiry and advocacy orientations describe individuals and groups; exploration and exploitation are terms that have been used to describe parallel characteristics of organizations. In mature markets, where solutions for getting a job done exist and are well understood, organizations tend to be designed and oriented toward a focus on execution of tasks and *exploitation* of current products or services. In more uncertain environments, knowledge about how to achieve performance is limited, requiring collective learning – or *exploration* in which open-ended experimentation is an integral part. In sum, exploration in search of new or better processes or



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products is conceptually and managerially distinct from execution, which is characterized by planning and structured implementation and amenable to formal tools such as statistical control.

Organizing to Learn and Organizing to Execute

In the same way that leader response drives group member orientation, the mindset of organizational leaders as well as the structures and systems they initiate play a large role in determining firm behavior and capabilities. Organizing to learn and organizing to execute are two distinct management practices, one suited to exploration and the other to exploitation respectively.

Where problems and processes are well understood and where solutions are known, leaders are advised to *organize to execute*. Organizing to execute relies on traditional management tools that motivate people and resources to carry out well-defined tasks. When reflecting on the work, leaders who organize to execute are well advised to ask, “Did we do it right?” In general, this approach is systematic, involves first-order learning in which feedback is used to modify or redirect activities, and eschews diversion from prescribed processes without good cause.

Organizing a team to experiment and learn about an unknown process requires a management approach that embraces failure rather than seeking perfect execution.

In contrast, facing a situation in which process solutions are not yet well developed, leaders must *organize to learn*: generating variance, learning from failure, sharing results, and experimenting continuously until workable processes are discovered, developed, and refined. Motivating organizational exploration requires a different mindset than motivating accurate and efficient execution. Leaders must ask not “Did we succeed?” but rather “Did we learn?”

In this way, organizing to learn considers the lessons of failure to be at least as valuable as the lessons of success. Such a managerial approach organizes people and resources for second-order learning that challenges, reframes, and expands possible alternatives. Practices involved in organizing to learn include promoting rather than reducing variance, conducting experiments rather than executing prescribed tasks, and rewarding learning rather than accuracy.

Creating systems to expose failures can help organizations create and sustain competitive

advantage. For example, General Electric, UPS, and Intuit proactively seek data to help them identify failures. GE places an 800 number directly on each of its products. UPS allocates protected time for each of its drivers to express concerns or make suggestions. Intuit staffs its customer service line with technical designers, who directly translate feedback from customers into product improvements. At IDEO, brainstorming about problems on a particular project often enables engineers to discover ideas that benefit other design initiatives. At Toyota, the Andon cord, which permits any employee to halt production, enables continuous improvement through frequent investigation of potential concerns.

Leading Organizational Learning

Edmondson’s research has identified several success factors for leaders seeking to incorporate learning into their efforts to manage their organizations effectively. These include recognizing and responding to the need for learning versus execution, embracing the small failures from which organizations can learn, and maintaining the ability to shift nimbly between learning and execution as needed.

Diagnose the Situation and Respond Accordingly

Rather than vary their style as appropriate for the situation, in practice leaders tend to employ a consistent approach. They frequently gravitate toward organizing to execute, particularly when associated practices are consistent with the organization’s culture. However, being good at organizing to execute can hamper efforts that require learning. When leaders facing a novel challenge organize to execute rather than employing a learning approach, their organizations miss opportunities to innovate successfully.

Several years ago, the new chief operating officer at Children’s Hospital and Clinics in Minnesota, Julie Morath, exemplified a mindset of organizing to learn. Emphasizing that she did not have the answers, she invited people throughout the organization to join in a learning journey, aimed at discovering how to ensure 100 percent patient safety.

Embrace Failure

Organizing a team to experiment and learn about an unknown process requires a management approach that embraces failure rather than seeking perfect execution. Discovery and expeditious trial and error are the keys to successful learning. In the Electric Maze[®], an interactive learning exercise created by Interel, participants recognize how unnatural collective learning is for most managers. Teams of students must get each member from one end of the maze to the other without speaking. Individuals step on the maze until a square beeps, at which point the individual must retrace his or her steps back to the start.

To optimize the learning process, the team should “embrace failure” (symbolized in the Electric Maze exercise as “beeps going forward”) and systematically collect as many “failures” as quickly as possible. More typically, however, the need to learn is hampered by the perceived interpersonal risk of “failing” in front of colleagues by stepping on a beeping square. In reality, only by stepping on beeping squares can the team learn quickly and discover the true path forward. The exercise offers a palpable experience to show managers that the desire to look as if one never makes mistakes hinders team and organizational learning.

Maintain Flexibility and Shift as Needed

Some business situations require innovation and execution simultaneously, or in rapid sequence. However, shifting from organizing to learn to organizing to execute can be difficult. Participants in the Electric Maze exercise come to appreciate this challenge as well. To find the correct path through the maze requires organizing to learn.

Once the path is discovered, teams are required to have participants walk through the path as quickly as possible with minimal error. In practical terms, this means the teams must shift their behavior from learning to execution, something that most teams find difficult. The Maze exercise illustrates that managing a team for superb execution of a known process calls for a different approach than managing a team to experiment and discover a



new process. The ability to recognize situations that require learning and the flexibility to shift from execution to learning requires awareness as well as skillful management, posing significant challenge to many leaders and competitive advantage to leaders with such ability.

Implications for Performance Measurement

The implication of the complex relationship between learning and performance for performance measurement is worth a brief discussion. Performance is easier to measure in execution contexts than in exploratory learning contexts. In the latter, performance can be challenging to measure in the short term, even if it contributes to clear performance criteria in the long term.

Consider the Electric Maze exercise again. In the second phase, excellent performance is error-free, rapid completion of the task – every member traversing the discovered path. In the first phase, success requires encountering and learning from failures, but how many is the right number? How fast should experiments be run? As in this example, the success of experimentation is far more difficult to assess than the success of execution.

Next Steps

- Evaluate your organization's ability – and willingness – to learn from both success and failure. Do workers compensate for or work around problems, or do they seek to resolve the underlying causes? If it's the former, you may need to revamp incentive systems to reward improvement rather than success or to make it safe for people to acknowledge mistakes.
- Rely on inquiry rather than advocacy, especially regarding failures. Likewise, in uncertain situations or ones in which innovation is required, choose an exploratory rather than a confirmatory approach. These shifts require practice and commitment, but they are critical to overcoming counter-productive group dynamics.
- In launching a new initiative or moving an existing initiative forward, determine whether you need to organize to execute or organize to learn. Depending where you are in the process, you may need to first organize to learn and then later organize to execute.
- For innovative projects, design performance measurement systems that reward experimentation, even when it results in failure. Also, implement ways to measure learning, not just performance, including direct observation, surveys, and interviews.

Clearly, there are situations in which it is appropriate to measure performance against quality and efficiency standards. This is true when tasks are routine. However, employee rewards based primarily on indices measuring routine performance, such as accuracy and speed, can thwart efforts to innovate. Stated goals of increasing innovation are more effective when rewards promote experimentation rather than penalize failure. At Bank of America, for example, innovation was an espoused value. Leaders targeted a projected failure rate of 30 percent as suggestive of sufficient experimentation. However, few employees experimented with new ideas until management changed its reward system from traditional performance measures to those that rewarded

innovation. Truly supporting innovation requires recognition that trying out innovative ideas will produce failures on the path to improvement.

Leaders need to align incentives and to offer resources to promote and facilitate effective learning. Supporting improvement requires understanding that mistakes are inevitable in uncertain and risky situations. Organizations must reward improvement rather than success, reward experimentation even when it results in failure, and publicize and reward speaking up about concerns and mistakes, so others can learn. Policies that reward compliance with specific targets or procedures encourage effort toward those measures but may thwart efforts toward innovation and experimentation.

Given the problematic nature of the relationship between learning and performance, to provide incentives for learning, performance measurement must examine learning, not just performance. Useful tools include surveys, questionnaires, and interviews to examine attitudes toward and depth of understanding regarding new ideas, knowledge, and ways of thinking. Process measures are also helpful. Direct observation is useful for assessing behavioral change due to new insights. Finally, performance measurement must consider improvement by measuring results over time. Groups that improve more over a fixed time frame or that take less time to improve must be learning faster than their peers.

Conclusions

This brief article calls attention to some of the challenges and tensions that exist when trying to improve team or organizational performance through proactive learning. We note several ways in which learning and performance in organizations can be at odds. Notably, when organizations engage in a new learning challenge, performance often suffers, or appears to suffer, in the short term. Struggling to acquire new skills or capabilities often takes a real, not just apparent, toll on short-term performance. Moreover, by revealing and analyzing their failures and mistakes – a critical

aspect of learning – work groups may appear to be performing less well than they would otherwise.

The work reviewed here has elucidated the challenges of learning from failure in organizations, including the challenges of admitting errors and failures and production pressure that make it

difficult to invest time in learning. These challenges are at least partially addressed by managerial efforts to create a climate of psychological safety and to promote inquiry. Leadership is thus essential to foster the mindset, group behaviors, and organizational investments needed to promote today's learning and invest in tomorrow's performance. ■

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FEATURE 11.4

Systems Thinking as a Team-Building Approach

CYNTHIA WAY AND JON WALTER McKEEBY

The chief information officer of a research hospital faced a formidable challenge: Over the last five years, his department had expanded from a staff of 65 to 94. Because of the complexity of the hospital's computer infrastructure, the CIO determined that a team approach was essential to managing the system. To improve communication, the leadership group participated in a team-building retreat with a focus on systems thinking. The approach was not to teach the entire systems thinking methodology. Instead, after a brief introduction to key concepts to set the stage, the group learned to look for examples of the systems archetypes in their organization. They later used these tools to improve teamwork, problem solving, and communication in the office.



Cynthia Way

The chief information officer (CIO) of the National Institutes of Health Clinical Center, a research hospital with a large outpatient facility, faced a formidable challenge: Over the last five years, based on the merger of two departments and increasing changes to meet the growing needs of this public healthcare organization, his department had expanded from a staff of 65 to 94. The IT department's charter is to keep the Clinical Center's computer infrastructure up and running, create new computer databases to serve the hospital's needs, and maintain existing databases – all of which are critically important.



Jon Walter McKeeby

Because of the department's rapid expansion, employees had to develop specialized skills, which meant that a team approach was essential to managing even one system. Even though the group was using structured project management methodologies and tools, the CIO recognized that silos were being formed, communication was breaking down, and people weren't functioning well as a team. So he turned to his executive coach for help in conducting a team-building retreat for his leadership group with the goals of "learning to work better together" and "communicating better."

Team Tip

In designing an intervention to an ongoing problem, identify potential leverage points – "a small change that has the capacity to have a big impact." Because the organization is a living system, look at the leverage points as hypotheses to be tested in the system for their potential ripple effects.

The coach suggested that the team adopt a systems thinking approach to see what was going on in the organization from a bigger-picture perspective. Her hypothesis was that it would provide the group with an opportunity to work on a meaningful challenge and, in the process, would help them develop their collaboration skills. Senior leaders agreed with this assessment, deciding that for the department to make progress in the areas of teamwork and communication, they needed to change the system in which they worked.

A Culture of “Yes”

The initiative began with a two-day leadership retreat, with 30-, 60-, and 120-day follow-ups. The leadership group consisted of 25 managers and supervisors, primarily information technology and clinical informatics specialists – nurses and doctors whose clinical expertise provided the link between the department and the customers they served.

The approach was not to teach the entire systems thinking methodology. Instead, after a brief introduction to key concepts to set the stage, the coach introduced systems archetypes. Systems archetypes are universal patterns of behavior. In this case, the 10 “classic” archetypes, as popularized in *The Fifth Discipline*, were introduced, along with 10 “positive” archetypes – the flip side of the same coin, as developed by Marilyn Herasymowych and Henry Senko of MHA Institute. Because the archetypes are universal, people quickly understand them and can immediately begin to name where in their system they see that dynamic in action. Because the MHA method is based on stories and patterns rather than on causal loop diagrams, which often require a learning curve to understand, it makes seeing the big picture of the system easy for novices.

As each archetype was introduced, participants identified examples of how it manifested in their own group. By noon of the second day, they had identified 10 classic archetypes. By the end of the second day, they had identified 10 positive archetypes. The team was then divided into four groups of five to six people per group. Each group devel-

oped its own version of a map of the system in which the department operated. The participants asked questions such as, “Are there any obvious flows here? Which archetypes feed into which others?” The premise of this approach is that there is no one “right” map – they’re all stories seen, lived, and told.

The groups then told their stories of the system to the rest of the team. While the maps were different, each narrative nonetheless resonated with the other participants. In particular, a pattern became clear that the team dubbed “the Vortex of Doom,” with the flip side called “the Swirl of Hope.”

From the maps, the team identified “noisy” archetypes. Noisy archetypes are characterized by conversational inconsistencies (e.g., conflict, disagreement, disparities) or structural limitations (e.g., policies, organizational charts, change interventions). Next, they looked for leverage points – “a small change that has the capacity to have a big impact.” The group viewed leverage points as hypotheses to be tested. As individuals selected their top three potential leverage points, the one that generated the most consensus as a place to start was “making choices about what to say ‘yes’ to and what to say ‘no’ to.”

The team talked about having a culture of “yes,” in that customers and senior managers refused to accept “no” as a response to a request. They came to realize that, as they took on more and more assignments, the available resources in the department declined. The group talked about how this “Growth and Underinvestment” dynamic led people to take heroic efforts to accomplish their workload, which eventually led to burnout. They explored the implications of the “Attractiveness Principle,” a pattern in which you try to meet everyone’s needs but aren’t able to do so or do so at a high personal cost.

The team also did a future map showing what they thought the system would look like as a result of addressing this leverage point. They had lively discussion around the fact that their customers and managers were not used to hearing

“no,” and how team members might convey this message without alienating others. Participants recognized potential negative side effects of different interventions and focused on ways to mitigate them. These included:

- Engage in clear communication.
- Manage customer expectations.
- Give customers choices where they can, so it isn't an absolute “no.”
- Let customers prioritize their own projects.
- Enlist management support.

Management support was a topic for discussion, and the group debated whether you could tell your manager “no.” The general consensus was that there were non-negotiable priorities, but that managers were open to looking at different options; for example, “Okay, we'll push back this time, but here's what it will cost us in terms of support and impact on other projects and systems.”

Finally, to make informed choices and priorities, the team decided they must first have a handle on what they had already agreed to. Thus, they planned to compile a project list that identified all the work being conducted within the department. The team came up with a 30-day action plan:

30-Day Action Plan

- The CIO will distribute a list of known and projected projects and initiatives.
- Each member of the leadership team will validate their projects, identify missing items, identify items no longer valid, and submit the annotated list to the CIO.
- The CIO will consolidate and distribute the consolidated list.
- The CIO and his team will meet for an initial review of the list.
- The CIO and his team will meet with the executive coach for a two-hour follow-up session to review the last 30 days and plan for the next 30.

The team noted the contrast in their mood from Day 1 to Day 2. After focusing initially on the classic archetypes, which draw out the negative

trends in the system, they reported that they found themselves feeling overwhelmed and demoralized. After identifying and mapping the positive archetypes the next day, they were reminded of their capacity to make positive change and started to feel excited about their ability to improve what the day before had felt hopeless. Upon reflection, the team also commented that it was helpful to hear that others were experiencing the same emotions.

30 Days Later

Initially, the most important benefit the senior staff experienced was understanding their co-workers and their responsibilities in a new, more respectful light. In addition, during the retreat, the group identified a few processes that were not working as efficiently as possible. As people left the retreat, they had already planned meetings to discuss how to improve those practices. From the actual retreat content, the leadership team started to use the language of systems archetypes to evaluate, define, and communicate about the current system. Finally, the group had accomplished its goal of updating the list of existing commitments.

However, this last accomplishment had an unintended negative side effect: People felt overwhelmed by the sheer volume of the projects with which they were dealing. The project list was longer than expected, with 200 items. In addition to creating the list, the team also needed to design processes to filter new projects, maintain the list, and work together to review the list. At times, the list and the workload threatened to take over the department. But the group continued to apply its knowledge of the archetypes and monitor the system to improve communication and collaboration.

Despite the fact that their 30-day action plan only specified that they update the list, people felt demoralized that they hadn't made progress on the leverage point of “making choices about what to say ‘yes’ to and what to say ‘no’ to.” One participant commented, “Basically, nothing's changed. All the negative archetypes that were there when

we started are still there.” Upon questioning, people conceded that there was positive movement within the negative archetypes, and evidence that more positive archetypes were happening. But since their workload hadn’t changed, they felt they had failed, even though communication had dramatically changed. To dispel this negative perception, group members discussed the time delay factor in seeing the impact of the changes they’d made in their communication and in their system.

60 Days Later

At the 60-day follow-up, the team started recognizing the significant impact that had occurred in communication. One woman remarked that she was listening to a program on the radio about stovepipes in organizations, and suddenly it occurred to her that their organization no longer had them. The CIO spoke of having more patience about projects not getting done, because he had a better sense of the big picture and the interrelationships. Because of that insight, he felt he was less of a micromanager.

Various team members remarked that they see things from a systems thinking perspective. Now it is more common for them to think ahead and involve other teams in their efforts, whereas in the past they may not have done so until halfway through the project. The group also felt as though there were fewer surprises now that members had a broader picture of what was going on.

The project list went from being an overwhelming prospect to a useful tool. Team members recognized that they still needed to prioritize, and their plan for the next 30 days was around that goal. Interestingly enough, the CIO speculated that the project list was the cause of all the positive changes. After discussing this opinion, the team concluded that the list itself was not responsible for the improved communication; the changes wouldn’t have happened in the absence of the leadership retreat with the systems thinking focus. In fact, one person mentioned that the department had created consolidated lists of projects in the past, without the same kind of positive results they were experiencing this time.

120 Days Later

A major project did not go as successfully as expected, and the team required about three months to resolve outstanding issues. The department worked hard to make sure the staff that worked on the project did not feel that fingers were pointing toward them. The team evaluated what worked and what did not, and then developed a process to handle unsuccessful projects.

Despite this setback, communication, teamwork, and morale stayed at an acceptable level. The leadership team thought that the leadership retreat and systems thinking perspective prevented the problem from being worse than it was. Here’s how one team member described it:

Systems thinking brought levity to the situation. We were able to deal with it in more of a non-blaming way, looking at things from a systems perspective. We made a collective decision to drift a few goals, so that we could move forward relieving the pressure of this crisis. We kept the customer informed and had a unified presence. Despite the stress people were feeling, we worked through the issues while maintaining our cool, stayed out of each other’s way, and sent people home for rest and recovery. We understood the need to give ourselves a breath!

In describing in general what they learned at the retreat, one participant gave the following anecdotal story:

We came in, and the office was flooded. We successfully communicated the need for temporary space, relocated everyone in three days, and maintained the level of support to our customers. Systems thinking helped us focus on helping each other out.

Other participants described the success of the systems thinking effort in the following way:

When problems come up, we work more effectively as a team. Communication has improved



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across different groups. We're aware of creating a win/win among our users and our teams so that we all can win. The atmosphere we've created has made accomplishing our work much easier. "Planning for Limits" has been a big success. Regarding our recent fiasco, we looked at short-term fixes to relieve the pressure; now we're focusing on the longer-term strategy.

We have a lot less "Shifting the Burden." We are also more aware of, and thus prevent, people and departments from becoming "Accidental Adversaries." We get problems to the right people more quickly, thereby minimizing the negative "Escalation" archetype.

We are putting more focus on "Fixes That Work," not just quick fixes to relieve pressure. We are doing cross-training so we all are successful, minimizing the negative impact of "Success to the Successful."

The leadership team identified existing challenges:

- **The "Attractiveness Principle" continues to be a strong negative archetype.** We keep saying "yes" and are working on prioritizing and filtering what we take on. We are still suffering from "Growth and Underinvestment," which in turn causes "Tragedy of Commons" and "Limits to Success" (not enough resources to keep up with demands). Now that it's the end of the fiscal year, we are seeing a lot of new projects,

and everyone wants them to start now. How we manage it will be key.

- **Communicating to our customers is a challenge.** They don't read our e-mails. We recognize that part of the problem might be because we've been sending them more, because they complain we don't keep them informed. It's a vicious circle.

The team discussed how to sustain the momentum going forward and came up with the following two items:

- **After Action Reviews.** The team emphasized integrating lessons learned into adjustments going forward. They would incorporate the After Action and Before Action Reviews into the current Lessons Learned approach.
- **Systems thinking at all levels.** To maximize the systems thinking process and sustain it going forward, people thought it needed to go down to all levels in the organization. Most people expressed a desire to have an abbreviated systems thinking training similar to the four-hour make-up session (for those who were absent from the two-day retreat), whereby people from each original group would have a chance to explain their maps, and participants would learn the language of the archetypes. The folks who did this at the four-hour make-up session commented that it was helpful to them in integrating their learning of the methodology.

Three months later, people still thought the leadership retreat was a success and were still reaping the rewards. Internal communication was the most visible improvement, and certain negative archetypes were affected in a positive way. The CIO and his leadership team recognized external

communication with their customers as an area on which to focus next. They also saw the need to continue the efforts to prioritize and filter projects to mitigate the continued presence of the “Attractiveness Principle” archetype. ■

Update

The positive ripple effects of this retreat continue three years later and have moved beyond the IT department to impact the entire organization. Specifically, four other initiatives evolved to continue to improve communication and teamwork. These projects also produced a more coordinated effort with the wider organization, better relations between IT and its customers, and increased focus and productivity.

- **We identified “cornerstone projects”** – the three or four major projects that would be our department’s main focus and would help the team stay focused on its key priorities over the next several years.
- **We created and implemented a scale** for evaluating the priority and complexity of each project, which in turn helped us better coordinate with our customers.
- **We developed a Portfolio Management Section** within the department to address all projects from conception to analysis, procurement, planning, design, activation, support, and retirement.
- **The most important initiative was to establish an IT Advisory Governance body** that made the project list and the prioritization of projects an organizational versus a departmental focal point. This initiative elevated decision making to a higher organizational level, essentially dispelling misperceptions that the IT department serves as the sole gatekeeper of all IT work and that it favors particular stakeholders.

What started as a systems thinking approach to team building surpassed the original expectations with which the client and the consultant started. We are happy to have this opportunity to provide a three-year update.

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FEATURE 11.4

Thinking in Circles About Obesity

TAREK K.A. HAMID

The strength of the systems approach lies in its capacity to integrate variables that otherwise would be isolated from each other. As shown in this article, in the case of human weight and energy regulation, systems thinking allows us to better understand the feedback interactions between the physiological and the behavioral. Psychologists have found that most people intuitively view causality in linear terms, expecting effect to always be proportional to cause. But the effort needed to accomplish a task often increases *exponentially*, not *linearly*, as the difficulty of the task increases. This is one of the perspectives that a systems approach to weight management – and other cognitive and physical tasks – can offer.



Tarek K.A. Hamid

Systems thinking is a perspective and a set of conceptual tools that enables us to understand the structure and predict the behavior of complex systems. While already commonplace in engineering and in business, the use of systems thinking in personal health is less widely adopted. Yet health is precisely the setting where dynamic complexity is most problematic and where the stakes are highest. *Thinking in Circles About Obesity: Applying Systems Thinking to Weight Management* (Springer, 2009), aims to fill this gap. The book applies systems thinking to personal health in a form that's accessible to the general reader, with the hope that it will have a profound influence on how ordinary people think about and manage their health and well-being.

Systems Thinking . . . and Thinking About Systems

The great shock of 20th-century science has been that systems cannot be understood by analysis alone. While the performance of any system – whether it is an oil refinery, an economy, or the human body – obviously depends on the performance of its parts, it is never equal to the sum of the actions of its parts taken separately. Rather, it is a function of their *interactions*. Breaking a system into its component pieces and studying the pieces separately is, thus, an inadequate way to understand the whole.

Human weight and energy regulation provide a good case in point. They are parts of a complex psychobiological system that involves the behavioral act of eating, the processes of ingestion and assimilation of food, the storage and utilization of energy, as well as interactions with the external environment (cultural and physical). All these various factors are interconnected, pushing on each other and being pushed on

Team Tip

Although this article focuses specifically on the issue of weight management, some of the lessons are relevant for organizational issues; for example, the idea of “learning to squint” to see feedback.

in return. Appetite shapes body weight, and body weight influences appetite. Weight reflects activity levels (which are also shaped by the socioeconomic environment), and activity levels reflect weight. And on and on (see “Learning to Squint”).

Understandably, putting systems pieces back together and recognizing the interactions between them can appear slippery and elusive. So much will be going on, and some of the things that are going on will cause still other things to go on. Making sense of it all becomes a daunting task. It’s why one of the most important and potentially most empowering insights to come from the field of systems thinking is that certain patterns of

structure recur again and again in many systems – whether physical, biological, or social – revealing an elegant simplicity underlying the complexity of systems (Peter Senge, *The Fifth Discipline: The Art & Practice of the Learning Organization*, Doubleday/Currency, 1990). And it’s why learning to recognize these recurring building blocks is a powerful conceptual leverage that allows us to see through complexity into the underlying structures that drive system behavior (or misbehavior).

Stock and Flow Basics

All dynamic systems – the human body being a perfect example – can be modeled as *stocks* and *rates of flow* threaded together by information

Learning to Squint

Why do we see straight lines when reality works in circles? For two primary reasons: visibility (what we see when we open our eyes) and time delays.

When we look with our eyes, we see “stuff.” We see material things like people, food, tubs, and buildings. Feedback processes, on the other hand, are not physical objects; they are causal relationships between objects. To see them takes training and effort – more effort than simply opening our eyes and letting the appropriate chemical receptors be stimulated. We have to squint with our minds to see feedback relationships (from Barry Richmond, “Systems Thinking: Four Key Questions” – available at www.iseesystems.com).

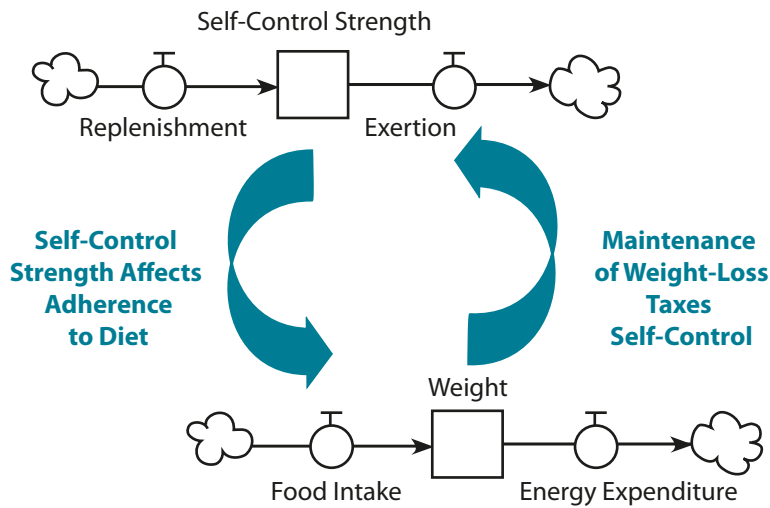
In the case of human energy and weight regulation, the feedback relationships are hard to see, because many aspects of that physical system are opaque. The rise and fall of our energy stores, for example, are not as visible as the rising and falling water level in a tub. Further, because with energy and weight regulation we are part of the system ourselves, it is doubly hard to see the patterns of interactions.

In addition to the lack of visibility, another important reason we often fail to see the loops is the asymmetry in the delays associated with cause and effect (e.g., as when the effect of X on Y is immediate and directly apparent, but the feedback effect of Y on X is delayed by days or months). In many of the things we do, the consequences of our actions are not evident in the moment the action is being taken (as when smoking today leads to lung cancer many years in the future). Because we are conditioned to use cues such as temporal and spatial proximity of cause and effect to judge causal relationships, we often fail to close the causal loop.

The misperception of feedback, however, comes at a price. Misperceiving feedback often results in actions that generate unanticipated (often undesired) surprises, and when this happens, we are quick to claim these to be unfortunate side effects. But do not fool yourself. As John Sterman says in *Business Dynamics: Systems Thinking and Modeling for a Complex World* (Irwin McGraw-Hill, 2000), “Side effects are not a feature of reality but a sign that our understanding of the system is narrow and flawed.”

He concludes: “To avoid [side effects] . . . requires us to expand the boundaries of our mental models so that we become aware of and understand the implications of the feedbacks created by the decisions we make. That is, we must learn about the structure . . . of the increasingly complex systems [that we are managing].”

Dieting Regulation System



This diagram integrates two sets of stocks and flows in the human psychobiological system for feeding regulation: (1) the stock of human self-control, with its replenishment and exertion rates; and (2) the body's energy stock, with food intake as its inflow rate and energy expenditure as its outflow rate. The interaction between these two systems gives rise to the weight-cycling dynamic widespread among and dreaded by dieters.

The strength of the systems approach lies in its capacity to integrate variables that otherwise would be isolated from each other.

feedback loops. Stocks and flows constitute the two fundamentally different processes – accumulation and flow – that characterize how reality works and how systems change. You'll find these stock and flow structures in systems of all kinds. A familiar "plumbing" example is that of water in a bathtub. A bathtub is a (hydraulic) stock whose level changes as a function of the rates of water flowing in and draining out. And just like a bathtub, the level of energy stored in the human body constitutes a stock (primarily of fat), with food intake as its inflow rate and energy expenditure as its outflow rate.

Stock and flow structures are not limited to physical "stuff," however. For example, experimental research is demonstrating that the human capacity for self-regulation – a critical faculty for successful weight regulation – is a limited resource. In a manner analogous to the storage and depletion of physical energy, the human capacity for self-regulation can be conceptualized as a reservoir – or stock – that is consumed and replenished with the exertion of self-control and rest (M. Muraven, D. M. Tice, and R. F. Baumeister, "Self-control as a limited resource: Regulatory depletion patterns," *Journal of Personality and Social Psychology*, 74, 1998).

Behavior and Physiology Interactions

The strength of the systems approach lies in its capacity to integrate variables that otherwise would be isolated from each other. In the case of human weight and energy regulation, it allows us, for example, to examine (and better understand) the feedback interactions between the *physiological* and the *behavioral*.

The diagram "Dieting Regulation System" integrates the two sets of stocks and flows in the human psychobiological system for feeding regulation discussed above: (1) the stock of human self-control, with its replenishment and exertion rates; and (2) the body's energy stock, with food intake as its inflow rate and energy expenditure as its outflow rate. As we shall see, these two sets of processes are not isolated phenomena. Indeed, it is the (mismanaged) interaction between these two stock and flow systems that gives rise to the weight-cycling dynamic – the "lose-gain" phenomenon widespread among and dreaded by dieters.

When the two stock and flow processes are combined into an integrated whole (see "Dieting Regulation System"), what we end up with is one of the classic archetypes for *oscillatory* behavior: that of two stocks (resources) interacting with one another such that the rise in one drains the other and vice versa.

Specifically, in this integrated psychobiological system for human feeding regulation, “Self-Control Strength” (which we can designate as stock 1) affects adherence to the diet and, hence, the regulation of the food intake rate into stock 2, “Weight.” This regulatory function is not a free lunch – constraining food intake to decrease and/or maintain the weight stock at a certain level requires effort which, in turn, consumes self-control strength. This means that the state of the body-weight stock (stock 2) regulates the exertion rate (the outflow rate) of the self-control stock. Stock 1 acts as a catalyst for the *inflow* rate to stock 2, and, likewise, stock 2 returns the favor and acts as a catalyst for the *outflow* from stock 1.

For any such stock and flow system, if and how fast total depletion of a stock occurs depends on the initial size of the stock and the magnitude of the imbalance between the inflow and outflow. In the case of self-regulation, we know from personal experience that most people are capable of exerting modest levels of self-control and sustaining the effort day in and day out. This suggests that the amount of self-control needed for our daily social functioning – for example, stopping at a stop sign, standing in line even when in a hurry, holding our tempers, and so forth – is low enough that normal periods of rest can compensate for the moderate depletion rate.

But what about when we have to (or choose to) exert *more-than-modest* levels of self-control? Resisting stronger impulses, such as not eating even when persistently hungry, obviously requires more self-control than resisting less appealing temptations or weaker impulses, such as speeding on the highway. Would normal rest be enough, then, to compensate for the faster depletion rate? Or is the human capacity for self-regulation a limited resource that intense exertion depletes relatively quickly – akin say to our bodies’ limited glycogen stores that fuel intense physical activity?

Over the last 20 years, a wide range of studies have been conducted to assess self-regulatory depletion in humans. (Many of these studies were

conducted by Dr. Roy Baumeister and his group at Case Western Reserve University.) The results generally point toward the following conclusions: The capacity for self-regulation, just like muscular strength, is a limited resource that is subject to temporary depletion. Furthermore, the research results suggest that, for most people, this resource is rather scarce.

The capacity for self-regulation, just like muscular strength, is a limited resource that is subject to temporary depletion.

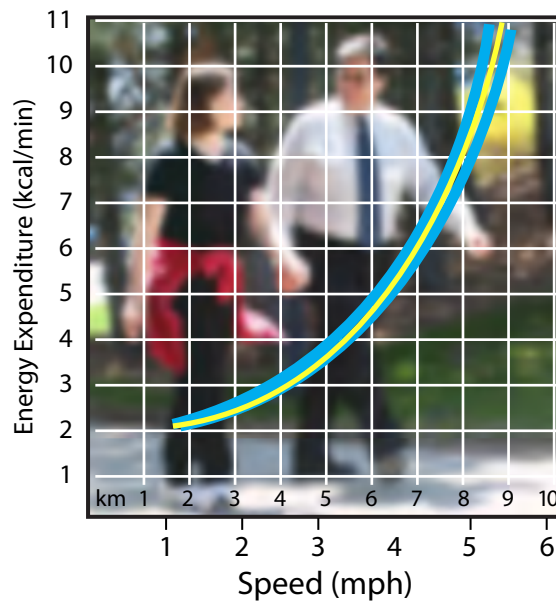
So, how effective are dieters at managing their limited capacity for self-regulation? The record indicates that successful long-term “losers” remain a minority, and that the vast majority of dieters are trapped in a recurring cycle of weight loss and regain – *Yo-Yo dieting* is the colloquial term for this process. In this all-too-familiar pattern, dieters seeking lofty weight-loss goals are able to slash off large amounts of weight by eating very little or even starving themselves, but then run out of regulatory gas and end up, after a period of short-lived success, regaining the weight – often with “interest.”

But why?

Where More Is Less

When embarking on a diet, most overweight individuals tend to set weight-loss goals that reflect their image of what their ideal body weight should be – based, perhaps, on personal notions of aesthetics, advertised “poster” success stories, or standard height/weight charts read in a book or magazine article. The greater the weight-loss goal, the greater the caloric deficit must be. The greater the caloric deficit, the more acute the person’s hunger and the greater the self-control needed to override the deprivation and sustain the diet – that is, the greater the drain rate on the dieter’s self-control capacity (stock). That’s obvious. But

Escalating Energy Expenditure



The effort needed to accomplish a task often increases exponentially, not linearly, as the difficulty of the task increases. For example, energy expenditure escalates as walking speed increases.

what is often less obvious is how much harder doing so becomes over time.

Dieters can seriously underestimate the escalation in hardship because, as psychologists have found, most people intuitively view causality in *linear* terms, expecting effect to be always proportional to cause. That is to say, we tend to think that if *A* causes *B* to happen, then *2As* must cause *2Bs* to happen.

But the effort needed to accomplish a task often increases *exponentially*, not linearly, as the difficulty of the task increases. This principle is not unique to dieting, but applies to many tasks, both cognitive and physical. And it is, perhaps, easier to grasp in physical tasks such as, say, muscular exertion. Consider, for example, walking, which for most people is their major physical activity in a relatively sedentary lifestyle. “Escalating Energy Expenditure” portrays how energy expenditure escalates as walking speed increases, at speeds ranging from one to 10 km per hour (0.62 to 6.2 mph). It shows that as speed increases, energy expenditure rises, not in a linear fashion, but exponentially.

At low walking speeds – at the one- to two-mph pace of normal daily activities – the exertion of muscular energy (the stock’s outflow rate) is modest enough that the drain on energy reserves can be adequately compensated for by daily rest and food intake (the inflow rate). It is, in other words, a level of exertion that is sustainable, meaning that if we chose to, we could sustain this level of physical activity for extended periods of time without depleting our muscular energy stock. In fact, we can sustain it for very extended periods, as in the case of Deborah De Williams. On Friday, October 15, 2004, De Williams arrived back in her hometown of Melbourne after having set a world record as the first woman to walk around Australia – traveling in a clockwise direction along Australia’s National Highway 1. She completed the 9,715-mile walk in 343 days (which also earned her a second world record for the “longest walk in the shortest time”). Deborah De Williams had walked close to 30 miles per day, at a speed of two miles per hour. That translates into walking 15 hours a day, every day for almost a year – a sustained stock, if there ever was one.

As the speed versus energy-expenditure plot in “Escalating Energy Expenditure” shows, walking faster can quickly increase the rate of energy expenditure. Once our rate of energy expenditure exceeds our ability to replace it, our energy reserves deplete over time. How fast? Consider what it takes to run a marathon. The human energy “stock” (even the best stocked) is barely large enough to sustain a 26-mile marathon run (quite a bit less than De Williams’ 9,715 miles.) And those resilient enough to endure that challenge will most certainly arrive with empty tanks.

Not unlike walking or running, the self-regulatory effort in weight loss escalates not linearly, but exponentially, with the difficulty of the goal. Our body’s weight set point seems to have a certain give to it, so that a person can stay a bit below it with relatively little effort. Larger weight losses, on the other hand, are difficult to tolerate. Fat-cell theory provides one possible mechanism for this physiological nonlinearity. As the enlarged fat cells of an overweight dieter (which had expanded in

size during weight gain to accommodate excess energy storage) shrink back to their normal size (or slightly below it) subsequent to modest weight loss, the physiological signals to overeat and regain the weight are often easy to override. But if the weight-loss effort persists and the fat cells deplete to below-normal levels, the “volume” of the physiological message to the brain’s appetite-control center increases, eventually becoming a scream: “EAT, EAT, EAT.”

Understanding How Weight Cycling Happens

To understand how unrealistic goals can induce weight-cycling behavior, in the lower part of “The Lose-Gain Cycle” (p. 56), we “walk through” one such cycle by following the numbered arrows down from top to bottom. At the start of a diet cycle, both stocks – “Self-Control Strength” and “Weight” – would typically be relatively full (such as at point 1). Voluntary restriction of one’s food intake when starting a diet causes “Weight” – stock 2 – to gradually drop. Because the dieting process consumes self-control energy, the dieter drops to point 2 in the figure with both stocks partially depleted.

But this particular dieter doesn’t stop there. Her futile persistence to shed an unrealistic amount of weight causes her to keep going, depleting both stocks further. When that process ultimately depletes her self-control strength, she hits bottom – at point 3 in the cycle. While, from a weight-loss standpoint, reaching that juncture may be cause for celebration, unfortunately for her, she will not stay at that point. With a depleted stock 1, the dieter’s grip on the feeding inflow “spigot” loosens. And with adherence to the diet progressively weakening as a result, the weight stock invariably refills – propelling her back to the top of the cycle, at point 4.

This two-stock feedback structure, while admittedly far too simplified to capture the full complexity and idiosyncrasies of human weight regulation, does in fact capture the essential elements that underlie human weight-cycling behavior. Interestingly, this particular two-stock structure –

two resources (stocks) interacting with one another such that the rise in one drains the other and vice versa – is fundamentally the same structure that underlies cyclic behavior in many other familiar systems, such as the pendulum clock and a child’s Slinky toy. And if we were to mathematically represent the variables in these systems and their interrelationships, the variables would assume different names – rather than body weight, feeding, and energy expenditure, we would have, for example, pendulum or spring mass, force, and momentum – but the differential equations that capture their dynamic interactions will have similar forms.

This particular two-stock structure is fundamentally the same structure that underlies cyclic behavior in many other familiar systems.

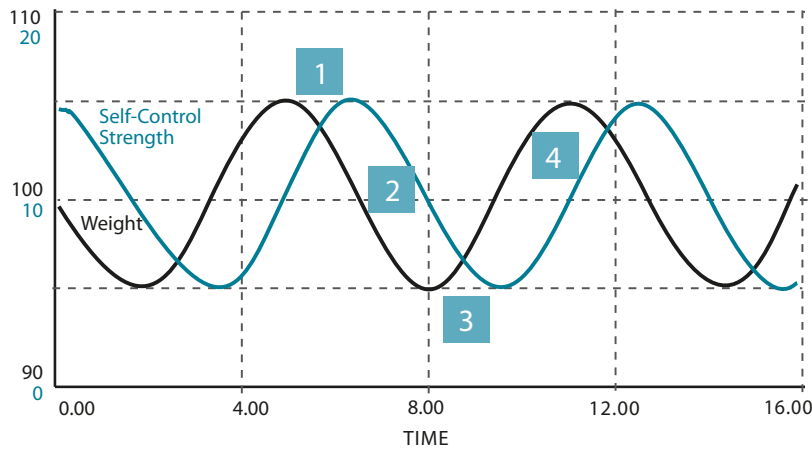
While weight cycling is surely a source of frustration to many dieters, the risks associated with repeated cycles of weight loss and regain far exceed mere disappointment. A substantial body of epidemiologic research clearly shows that repeated cycles of weight loss and regain increase the risks of chronic diseases (particularly coronary heart disease) and even premature death – independent of obesity itself.

Learning to “Manage Our Stocks”

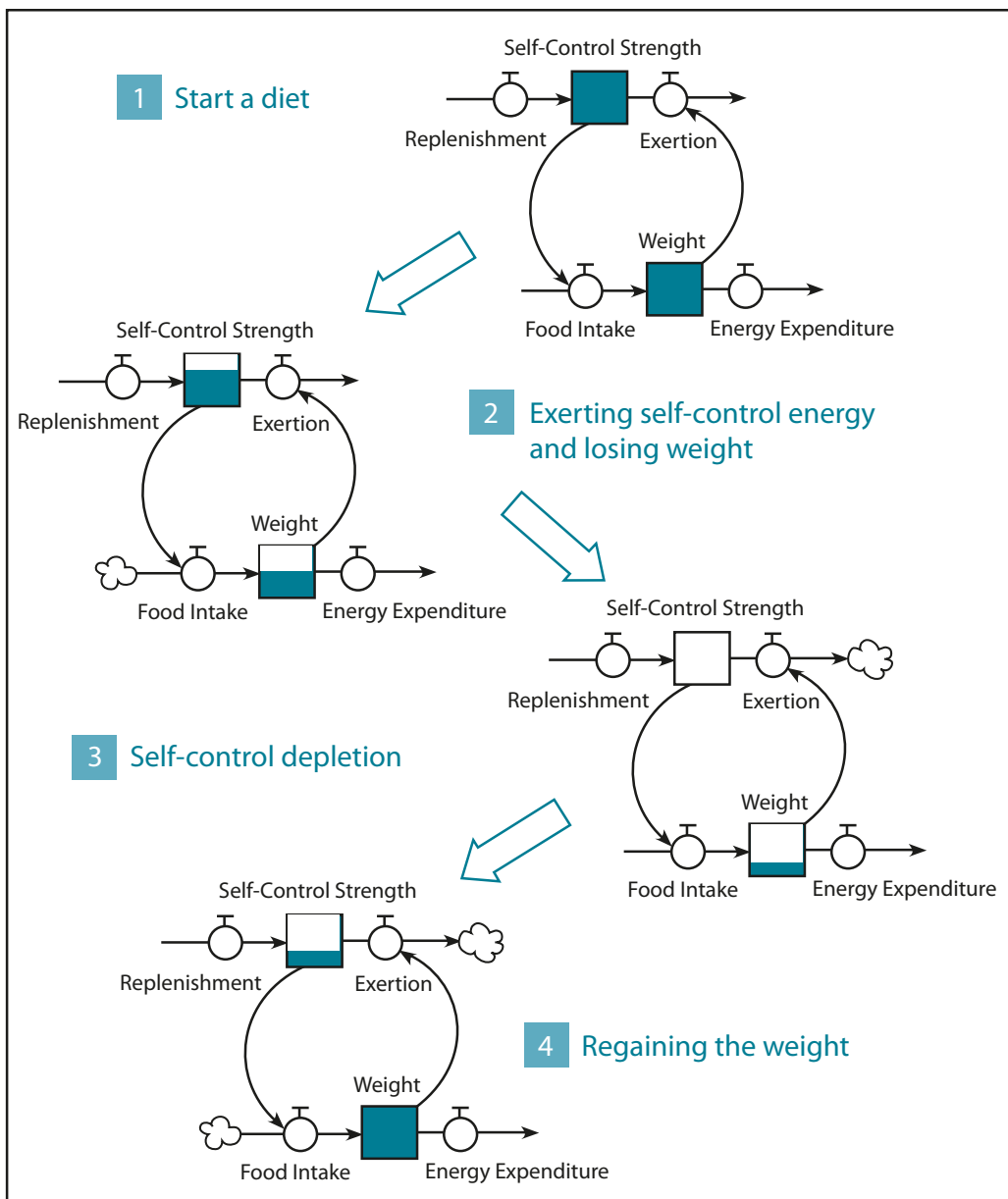
Like any other limited (and exhaustible) resource, self-regulatory capacity needs to be managed and must not be squandered. But squandering it, not managing it, is what most dieters habitually do. The unrealistic goals that people set escalate self-regulatory exertion and over time induce regulatory depletion and ultimately relapse (not unlike a marathoner who sprints early, only to run out of gas later).

Unfortunately, setting more realistic goals rarely coincides with most dieters’ personal agendas. Nor

The Lose-Gain Cycle



At the start of a diet cycle, both stocks – “Self-Control Strength” and “Weight” – are relatively full (point 1). Voluntary restriction of food intake causes “Weight” to gradually drop. Because the dieting process consumes self-control energy, the dieter drops to point 2 with both stocks partially depleted. As she continues to lose weight, she depletes both stocks further, hitting bottom at point 3. With depleted self-control, the dieter’s grip on the feeding inflow “spigot” loosens, and the weight stock invariably refills – propelling her back to the top of the cycle (point 4).



are they encouraged to. The diet industry thrives for two reasons – big promises and repeat customers. The big promises attract the customers in the first place, and the magnitude of the promises virtually guarantees that they cannot be maintained. It makes for a very attractive business model (J. Polivy and C.P. Herman, “If at first you don’t succeed: False hopes of self-change,” *American Psychologist*, 57(9), 2002).

Thankfully, however, things may be changing.

A growing understanding of the biological factors that regulate body weight and of the cognitive difficulty of maintaining large weight losses is prompting a redefinition of the “successful” goals of obesity treatment. Slowly but surely, moderation is becoming the overriding theme in weight-loss efforts. A major impetus for this shift has been the growing evidence that moderate weight losses of only 10–15 percent of initial weight, even among substantially overweight individuals, are associated with a significant improvement in nearly all parameters of health – including blood pressure, heart morphology and functioning, lipid profile, glucose tolerance (among diabetics), sleep disorders, and respiratory functioning. And these findings are now prompting a growing number of federal agencies and health organizations to call for setting more realistic weight goals rather than striving for an “ideal” weight.

To this system thinker, that’s music to the ear. ■

Next Steps

Here are some topics for additional exploration; many of these are covered in depth in *Thinking in Circles About Obesity*:

- While linear thinking is convenient (and, in some cases, may serve as a “good enough approximation”), in reality, it is almost always invalid. Changes in system outputs are not always proportional to changes in input, and things rarely happen in straight lines. Until a few years ago when mathematical analysis was our only tool, “assuming away” nonlinearity was justifiable – some say a necessity. It no longer is. With the advent of modern computers and the availability of inexpensive simulation techniques, we are now able to develop realistic and faithful models of our real-world nonlinear systems. Today there is no excuse (whether in managing a business or one’s health) to make simplifying linearity assumptions when dealing with complex phenomena.
- While already commonplace in engineering and in business, the use of systems thinking in personal health is less widely adopted. Yet this is precisely the setting where complexities are most problematic, and where the stakes are perhaps highest.
- We all need to realize that in managing our health (and our bodies), we are decision makers who are managing a complex and dynamic system. Effective self-regulation requires more than motivation – it requires understanding and skill.

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Reflections

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