FEATURE

THE SYSTEMS THINKER®
BUILDING SHARED UNDERSTANDING

VOL. 8 NO. 4 MAY 1997

FROM FRAGMENTATION TO INTEGRATION: BUILDING LEARNING COMMUNITIES

BY PETER SENGE AND DANIEL H. KIM

"We live in an era of massive institutional failure," says Dee Hock, founder and CEO emeritus of Visa International. We need only look around us to see evidence to support Dee's statement. Corporations, for example, are spending millions of dollars to teach high-school graduates in their workforces to read, write, and perform basic arithmetic. Our healthcare system is in a state of acute crisis. The U.S. spends more on healthcare than any other industrialized country, and yet the health of our citizens is the worst among those same nations. Our educational system is increasingly coming under fire for not preparing our children adequately to meet the demands of the future. Our universities are losing credibility. Our religious institutions are struggling to maintain relevance in people's lives. Our government is increasingly dysfunctional, caught in a vicious cycle of growing special interest groups, distrust, and corruption. The corporation may be the healthiest institution in the U.S. today, which isn't saying much.

One of the reasons for this widespread institutional failure is that the *knowledge-creating system*, the method by which human beings collectively learn and by which society's institutions improve and revitalize themselves, is deeply fragmented. This fragmentation has developed so gradually that few of us have noticed it; we take the disconnections between the branches of knowledge and between knowledge and practice as a given.

A Knowledge-Creating System

Before we can address the issue of fragmentation, we need to establish what has been fragmented. In other words, what do we mean by a knowledge-creating system, and what does it mean to say it is fragmented?

We believe that human communities have always attempted to organize themselves to maximize the production, transmittal, and application of knowledge. In these activities, different individuals fulfill different roles, with varying degrees of success. For example, in indigenous cultures, elders articulate timeless principles grounded in their experience to guide their tribes' future actions. "Doers," whether warriors, growers, hunters, or nannies, try to learn how to do things better than before and continually improve their craft. And coaches and teachers help people develop their capacities to both perform their roles and grow as human beings. These three activities—which we can term theory-building, practice, and capacity-building—are intertwined and woven into the fabric of the community in a seamless process that restores and advances the knowledge of the tribe. One could argue that this interdependent knowledge-creating system is the only way that human beings collectively learn, generate new knowledge, and change their world.

We can view this system for producing knowledge as a cycle. People apply available knowledge to accom-

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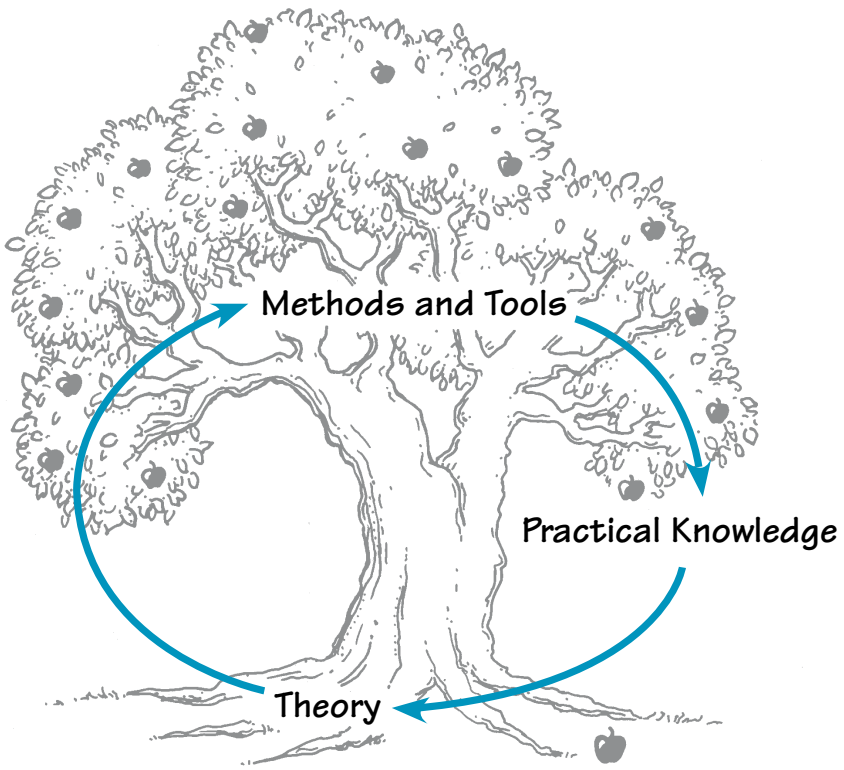
THE CYCLE OF KNOWLEDGE-CREATION



Like theories, the tree's roots are invisible, and yet the health of the root system determines the health of the tree. The branches are the methods and tools, which enable translation of theories into new capabilities and practical results. The fruit is that practical knowledge. The tree as a whole is a system.

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plish their goals. This practical application in turn provides experiential data from which new theories can be formulated to guide future action. New theories and principles then lead to new methods and tools that translate theory into practical know-how, the pursuit of new goals, and new experience—and the cycle continues.

Imagine that this cycle of knowledge-creation is a tree (see "The Cycle of Knowledge-Creation" on p. 1). The tree's roots are the theories. Like theories, the roots are invisible to most of the world, and yet the health of the root system to a large extent determines the health of the tree. The branches are the methods and tools, which enable translation of theories into new capabilities and practical results. The fruit is that practical knowledge. In a way, the whole system seems designed to produce the fruit. But, if you harvest and eat *all* the fruit from the tree, eventually there will be no more trees. So, some of the fruit must be used to provide the seeds for more trees. The tree as a whole is a system.

The tree is a wonderful metaphor, because it functions through a profound, amazing transformational process called photosynthesis. The roots absorb nutrients from the soil. Eventually, the nutrients flow through the trunk and into the branches and leaves. In the leaves, the nutrients interact with sunlight to create complex carbohydrates, which serve as the basis for development of the fruit.

So, what are the metaphorical equivalents that allow us to create fruits of practical knowledge in our organizations? We can view research activities as expanding the root system to build better and richer theories. Capacity-building activities extend the branches by translating the theories into usable methods and tools. The use of these methods and tools enhances people's capabilities. The art of practice in a particular line of work transforms the theories, methods, and tools into usable knowledge as people apply their capabilities to practical tasks, much as the process of photosynthesis converts the nutrients into leaves, flowers, and fruit. In our society,

•***Research*** represents any disciplined approach to discovery and understanding with a commitment to share what's being learned. We're not referring to white-coated scientists performing laboratory experiments; we mean research in the same way that a child asks, "What's going on here?" By pursuing such questions, research—whether performed by academics or thoughtful managers or consultants reflecting on their experiences—continually generates new theories about how our world works.

•***Practice*** is anything that a group of people does to produce a result. It's the application of energy, tools, and effort to achieve something practical. An example is a product development team that wants to build a better product more quickly at a lower cost. By directly applying the available theory, tools, and methods in our work, we generate practical knowledge.

•***Capacity-building*** links research and practice. It is equally committed to discovery and understanding and to practical know-how and results. Every learning community includes coaches, mentors, and teachers—people who help others build skills and capabilities through developing new methods and tools that help make theories practical.

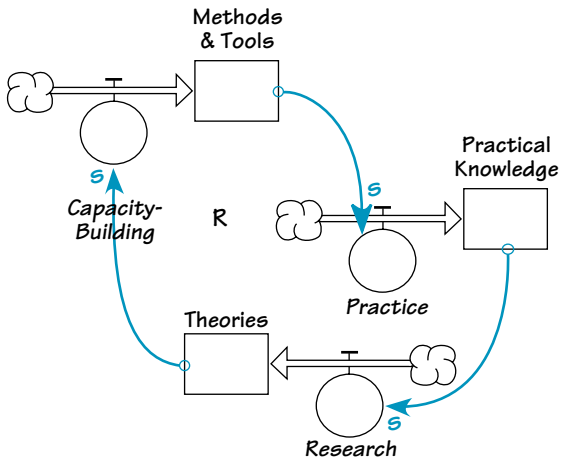
"The Stocks and Flows of Knowledge-Creation" shows how the various elements are linked together in a knowledge-creating system.

Institutionalized Fragmentation

If knowledge is best created by this type of integrated system, how did our current systems and institutions become so fragmented? To answer that question, we need to look at how research, practice, and capacity-building are institutionalized in our culture (see "The Fragmentation of Institutions").

For example, what institution do we most associate with research? Universities. What does the world of practice encompass? Corporations, schools, hospitals, and nonprofits. And what institution do we most associate with capacity-building—people helping people in the practical world? Consulting, or the HR function within an organization. Each of these institutions has made that particular activity its defining core. And, because research, practice, and capacity-building each operate within the walls of separate institutions, it is easy for the people within these institutions to feel cut off from each other, leading to suspicion, stereotyping, and an "us" versus "them" mindset.

THE STOCKS AND FLOWS OF KNOWLEDGE-CREATION



Research activities build better and richer theories. Capacity-building functions translate the theories into usable methods and tools. The use of these methods and tools enhances people's capabilities. The art of practice transforms the theories, methods, and tools into practical knowledge, as people apply their capabilities to practical tasks.

This isolation leads to severe communication breakdown. For example, many people have argued that the academic community has evolved into a private club. Nobody understands what's going on but the club members. They talk in ways that only members can understand. And the members only let in others like themselves.

Consulting institutions have also undermined the knowledge-creating process, by making knowledge proprietary, and by not sharing what they've learned. Many senior consultants have an incredible amount of knowledge about organizational change, yet they have almost no incentive to share it, except at market prices.

Finally, corporations have contributed to the fragmentation by their bottom-line orientation, which places the greatest value on those things that produce immediate, practical results. They have little patience for investing in research that may have payoffs over the long term or where payoffs cannot be specifically quantified.

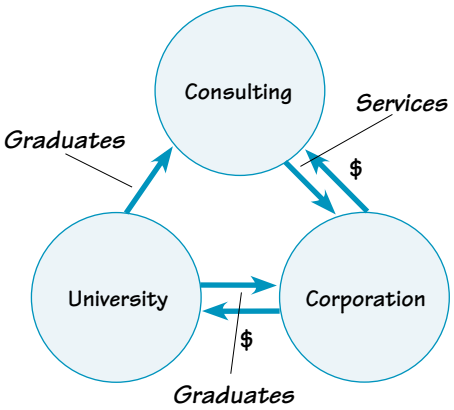
Technical Rationality: One Root of Fragmentation

How did we reach this state of fragmentation? Over hundreds of years, we have developed a notion that knowledge is the province of the expert, the researcher, the academic. Often, the very term *science* is used to connote this kind of knowledge, as if the words that come out of the mouths of scientists are somehow inherently more truthful than everyone else's words.

Donald Schön has called this concept of knowledge "technical rationality." First you develop the theory, then you apply it. Or, first the experts come in and figure out what's wrong, and then you use their advice to fix the problem. Of course, although the advice may be brilliant, sometimes we just can't figure out how to implement it.

But maybe the problem isn't in the advice. Maybe it's in the basic assumption that this method is how learning or knowledge-creation actually works. Maybe the problem is really in this very way of thinking: that first you must get "the answer," then you must apply it.

THE FRAGMENTATION OF INSTITUTIONS



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The implicit notion of technical rationality often leads to conflict between executives and the front-line people in organizations. Executives often operate by the notion of technical rationality: In Western culture, being a boss means having all the answers. However, front-line people know much more than they can ever say about their jobs and about the organization. They actually have the capability to *do* something, not just *talk* about something. Technical rationality is great if all you ever have to do is talk.

Organizing for Learning

If we let go of this notion of technical rationality, we can then start asking more valuable questions, such as:

- How does real learning occur?
- How do new capabilities develop?
- How do learning communities that interconnect theory and practice, concept and capability come into being?
- How do they sustain themselves and grow?
- What forces can destroy them, undermine them, or cause them to wither?

Clearly, we need a theory, method, and set of tools for organizing the learning efforts of groups of people.

Real learning is often far more complex—and more interesting—than the theory of technical rationality suggests. We often develop significant new capabilities with only an incomplete idea of *how we do what we do*. As in skiing or learning to ride a bicycle, we "do it" before we really understand the actual concept. Similarly, practical know-how often precedes new principles and general methods in organizational learning. Yet, this pattern of learning can also be problematic.

For example, teams within a large institution can produce significant innovations, but this new knowledge often fails to spread. Modest improvements may spread quickly, but real breakthroughs are difficult to diffuse. Brilliant innovations won't spread if there is no way for them to spread; in other words, if there is no way for an organization to extract the general lessons from such innovations and develop new methods and tools for sharing those lessons. The problem is that wide diffusion of learning requires the same commitment to research and capacity-building as it does to practical results. Yet few businesses foster such commitment. Put differently, organizational learning requires a *community* that enhances research, capacity-building, and practice (see "Society for Organizational Learning" on p. 4).

Learning Communities

We believe that the absence of effective learning communities limits our

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ability to learn from each other, from what goes on within the organization, and from our most clearly demonstrated breakthroughs. Imagine a learning community as a group of people that bridges the worlds of research, practice, and capacity-building to produce the kind of knowledge that has the power to transform the way we operate, not merely make incremental improvements. If we are interested in innovation and in the vitality of large institutions, then we are interested in creating learning communities that *integrate* knowledge instead of fragment it.

In a learning community, people view each of the three functions—research, capacity-building, practice—as vital to the whole (see "A Learning Community"). Practice is crucial because it produces tangible results that show that the community has learned something. Capacity-building is important because it makes improvement possible. Research is also key because it provides a way to share learning with people in other parts of the organization and with future generations within the organization. In a learning community, people assume responsibility for the knowledge-creating process.

Learning Communities in Action

To commit to this knowledge-creating process, we must first understand what a learning community looks like in action in our organizations. Imagine a typical change initiative in an organization; for example, a product development team trying a new approach to the way they handle engineering changes. Traditionally, such a team would be primarily interested in improving the results on their own projects. Team members probably wouldn't pay as much attention to deepening their understanding of why a new approach works better, or to creating new methods and tools for others to use. Nor would they necessarily attempt to share their learnings as widely as possible—they might well see disseminating the information as someone else's responsibility.

In a learning community, however, from the outset, the team conceives of the initiative as a way to maximize learning for itself *as well as* for other teams in the organization. Those involved in the research process are integral members of the team, not outsiders who poke at the system from a disconnected and fragmented perspective. The knowledge-creating process functions in real time within the organization, in a seamless cycle of practice, research, and capacity-building.

Imagine if this were the way in which we approached learning and change in all of our major institutions. What impact might this approach have on the health of any of our institutions, and on society as a whole? Given the problems we face within our organizations and within the larger culture, do we *have* any choice but to seek new ways to work together to face the challenges of the future? We believe the time has come

SOCIETY FOR ORGANIZATIONAL LEARNING

The Center for Organizational Learning (OLC) at the Massachusetts Institute of Technology has gone through a transformational process to enhance knowledge-creation that may serve as a model for other organizations.

The OLC was founded in 1991 with a mission of fostering collaboration among a group of corporations committed to leading fundamental organizational change and advancing the state-of-the-art in building learning organizations. By 1995, the consortium included 19 corporate partners. Many of these partners teamed with researchers at MIT to undertake experiments within their organizations. Numerous learning initiatives were also "self-generating" within the member corporations.

Over time, we came to understand that the goals and activities of such a diverse learning community do not fit into any existing organizational structure, including a traditional academic research center. We also recognized the need to develop a body of theory and models for organizing for learning, to complement the existing theories and methods for developing new learning capabilities.

So, over the past two years, a design team drawn from the OLC corporate partners and MIT, and including several senior consultants, engaged in a process of rethinking our purpose and structure. Dee Hock has served as our guide in this process. Many of these new thoughts about building a knowledge-creating community emerged from this rethinking. At one level, this process was driven by the same kind of practical, pressing problems that drive corporations to make changes; many of these challenges stemmed from the organization's growth. But throughout the whole redesign process, what struck us most was that the OLC's most significant accomplishment was actually the creation of the OLC community itself.

In April 1997, the OLC became the Society for Organizational Learning (SoL), a nonprofit, member-governed organization. SoL is designed to bring together corporate members, research members, and consultant members in an effort to invigorate and integrate the knowledge-creating process. The organization is self-governing, led by a council elected by the members—a radical form of governance for a nonprofit organization. In addition, SoL is a "fractal organization"; that is, the original SoL will eventually be part of a global network of "SoL-like" consortia.

SoL will undertake four major sets of activities:

- community-building activities to develop and integrate the organization's three membership groups and facilitate cross-community learning;
- capacity-building functions to develop new individual and collective skills;
- research initiatives to serve the whole community by setting and coordinating a focused research agenda; and
- governance processes to support the community in all its efforts.

SoL is a grand experiment to put into practice the concept of learning communities outlined in this article. We all hope to learn a great deal from this process and to share those learnings as widely as possible.

For more information about SoL, call (617) 300-9500.

for us to begin the journey back from fragmentation to wholeness and integration. The time has come for true learning communities to emerge.

Peter M. Senge, best-selling author of *The Fifth Discipline: The Art and Practice of the Learning Organization*, is an international leader in the area of creating learning organizations. He is a senior lecturer in the Organizational Learning and Change Group at MIT. Peter has lectured throughout the world and written extensively on systems thinking, institutional learning, and leadership.

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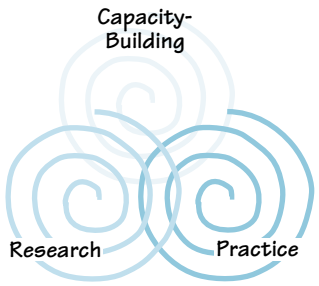
Editorial support for this article was provided by Janice Molloy and Lauren Johnson.

NEXT STEPS

- With a group of colleagues, identify the "experts" in your organization. How do they gain their knowledge, and how do they share it with others?
- Following the guidelines outlined in the article, analyze which of the following capabilities is most strongly associated with your organization: research, practice, or capacity-building. Which capability does your organization most need to develop and what steps might you take to start that process?
- Discuss where in your organization learning feels fragmented, that is, where "lessons learned" are not being applied effectively. How might you better integrate knowledge into work processes so that you or your team can apply what you've learned to achieve continuous improvement?

A LEARNING COMMUNITY



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