

The Learning Organization Made Plain

An Interview with Peter Senge

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Senge was interviewed by Patricia A. Galagan, the editor of Training & Development.

T&D: Your book, *the Fifth Discipline: The Art and Practice of the Learning Organization*, came out in August 1990, which means you've been thinking seriously about learning organizations for some time. How did you get the idea for the book and how did you get a jump on people's interest in such an important new idea as learning organizations?

SENGE: It sort of hit me one morning about three years ago while I was meditating that the learning organization was going to be a hot area in business. I had already watched a fad cycle come and go related to work I had been doing for years with Innovation Associates. We had been teaching courses in personal mastery and leadership since 1979, and we all sat on the sidelines and watched as other people wrote about vision, empowerment, and alignment - - ideas that we had been teaching for years.

That morning as I meditated it dawned on me that it was not OK to sit on the sidelines this time. It was time for a book on the subject of learning organizations, and I wanted to get it out before the whole world was talking about them.

I didn't want to define the territory; it is really too broad for one book. My hope was to establish a point of view about learning organizations that might serve as a reference point.

T&D: The perspective you chose was the idea of a set of disciplines. How did that come about?

SENGE: I had been working on the book for almost a year and had a tremendous amount of material, but it just didn't fit together as a whole. Harriet Ruben, my editor at Doubleday, was becoming distressed. She can tell a pile of papers from a book and what we had was a pile of papers.

Harriet introduced me to a writer named Art Kleiner who had been with *The Whole Earth Catalogue*. He had no business background, but knew exactly what I was talking about. With Art's help I learned to focus and organize the book, and with his coaching I was able to write it. (See review of book contained in this article.)

The idea of disciplines emerged in conversations with Art. He kept after me to express the essential message of the book in just one sentence. Finally I realized that everything in my life in which I had been deeply interested was a discipline, and that discipline was the thread that ran through everything I had to say in the book. And it seemed like a novel way to approach the development of organizations.

The word discipline comes from the Latin *disciplina*, meaning "to learn." A discipline is a body of practice, based in some underlying theory or understanding of the world, which suggests a path of

development of "education" in its true sense of "drawing out." I believe that discipline is the method by which we draw out that which is in us.

Systems thinking, for example, is a discipline -- a set of practices based in theory -- that can have an impact only if people are serious about developing their capabilities to practice it.

It was only after the book was written that I understood a premise that lies behind it. The way organizations are is a product of how we think and how we interact; they cannot change in any fundamental way unless we can change our basic patterns of thinking and interacting. That is what disciplines are all about: changing our patterns of thinking and interacting so that learning can be a way of life rather than an episodic event.

"In an organization, how do we develop our capacity to clarify what is most important to us?"

T&D: How would one foster the learning of the five disciplines?

SENGE: The first thing to realize is that there is no substitute for commitment and passion. You can't cause other people's learning, although you may be able to help them realize there are things they really care about.

In writing about these disciplines I felt a sense of responsibility for helping unearth people's real caring. I think each of them touches on an aspect of the human condition that people care deeply about but that gets lost in the hustle and bustle of the organization.

In an organization, how do we develop our capacity to clarify what is most important to

us? That is the discipline of personal mastery.

How do we develop our capacity for conversation, which is what the team learning discipline is all about?

How do we develop our capacity for putting pieces together and seeing wholes, which is what systems thinking does?

How do we develop our capacity to reflect on our internal pictures of the world to see how they shape our actions? This is the discipline of mental models.

And finally, how do we learn to build a sense of commitment in a group based on what people would really like to create? That is shared vision.

Discipline is hard work and there is no end point. You will never be able to say, "Now I am a systems thinker," or "Now I am a personal master." That's nonsense. But there is an entry point. You choose to undertake the path because you care enough to say, "Yes, this is what my life is about."

T&D: The subtitle of your book is "The Art and Practice of the Learning Organization." Whose job is it to create the learning organization?

SENGE: Everyone's. I'm not saying that everyone has the same role. Certainly not everyone will have the same appetite for it. But it is the work of everyone in the organization.

There is a very critical role for people in senior positions. In every organization that has made significant headway as a learning organization, you can identify individuals and groups in positions of power or influence who are deeply committed to developing their own capabilities along these lines.

There is a tendency in the United States, especially in the quality movement, to assume that the changes that need to take

place should occur down low in the organization. The idea that people at the top need to lead the change by changing themselves is novel to many U.S. managers.

In this country, the people who spend the most time learning about quality are at the local level. They get the five-day course on statistical process control. Their bosses get the three-day course, and the CEO gets the two-hour briefing. In Japan, by contrast, it is exactly the opposite. This is very significant symbolically. The leaders are the learners.

T&D: So are you saying that the passion for creating a learning organization has to start with an individual?

SENGE: I've come to think of it just slightly differently than that. I think it starts with small groups of people.

It's true that there is no substitute for individual caring and commitment, but I have come to think that the real generative point in moving toward a learning organization is in small groups that form around commitments. These are groups of people who are really committed to something larger than themselves and larger than their own personal desires. They support each other in the way that real friends support each other. They tell the truth to each other and they are continually in a mode of inquiry, knowing that nobody knows and everybody can learn continually.

T&D: Suppose a reader of your book comes to believe strongly in the ideas behind a learning organization and wants to do something where he or she works. How does one start to put those ideas to work?

SENGE: I'm always skeptical about how useful a book is. A book can start you thinking about something but eventually you have to identify ways you can practice and actually work at the disciplines.

I think I would start by getting together some people with whom I am close and feel a real sense of alignment in terms of our personal values and feelings about the organization. I'd have them read the book but I'd also draw together other information and others books that seem to point in the direction of shared commitment and so on. This is vast territory. Only bits and pieces of it are in my book.

In any case, the first step is to find your natural partners and start to talk to them about how to bring the disciplines into practice in your part of the business.

Obviously it is best to develop these kinds of capabilities within a business entity in which you have some capacity for action. That could be a work team. It could be a division of an organization. It could be the whole organization. But there has to be some context for action. Learning cannot exist apart from action. Learning is the process of enhancing our capacity for effective action.

So, find a group of people who collectively have enough responsibility in some organizational unit to be able to take effective action. Figure out how to start to translate the ideas behind a learning organization into your work. The key things for getting started are identifying a business context in which you have some power to act, and identifying partners with whom you can act.

T&D: In the book, you talk about the evolution of the learning organization as an idea whose time is about to come. Where are we in the growth cycle of that idea?

SENGE: We're largely unconscious of it. I've often had the experience of starting a session with a question such as, "How many of you were ever part of a team that was really extraordinary?" Consistently two-thirds to three-quarters of the hands will go up. And if you ask why, people always say

the same things. They had a vision. They wanted to create something bigger than themselves. They cared for one another. They focused on how all their jobs fit together.

Then I ask, "Did the team function like that when it first started?" And they always say, "Oh no, not at first." What they are describing is a learning organization.

I do not think we are in the business of inventing learning organizations. They already exist.

In the book, I use an example from engineering to describe how we move from invention to innovation. I talk about the steps and the time it took to move from the invention of the first airplane to the first commercially successful aircraft -- the McDonnell Douglas DC-3. In this example it took 30 years from the basic invention to the production of a plane that was reliable and cost-effective.

In engineering, the innovation process usually involves bringing together component technologies. It's a process in which isolated developments in separate fields of research gradually form an ensemble of technologies that are critical to each other.

In the innovation stage you are learning to do something that is reliable and replicable. I think that is where we are now with learning organizations. We are developing the key understandings, practices, and tools.

There are four levels of this process as it unfolds:

- The highest is the level of values and vision.
- The second encompasses the skills and capabilities.
- Third are the methods we use to develop those skills and capabilities.

A COLLABORATIVE VENTURE

It's important to emphasize that the ideas in the book are not mine. By rough calculation, at least 100 years of work by some very fine minds produced the theories that underlie the five disciplines I describe in the book.

(The five disciplines are systems thinking, personal mastery, mental models, building shared vision, and team learning.)

The idea of approaching them as disciplines was mine, but the theories are the work of some leading thinkers. My contribution was to put the pieces together in a way that people can understand.

One such theorist is Jay Forester, who has been my mentor for most of my 20 years at MIT. He led the team that built the first modern digital computer, and he invented core memory, which was the breakthrough that enabled computers to be practical. He's written many books on system dynamics, but they're too technical for the general reader.

The ideas of David Bohm, a leading quantum physicist, are the foundation for the book's discussion of team learning and dialogue.

Theories about defensive routines, plus the ideas about working with mental models come from Chris Argyris at Harvard and Con Schon at MIT. They've been working more than 20 years to understand the counterproductive dynamics of groups of intelligent managers. They helped me understand why teams of bright, talented, committed people are often much less intelligent collectively than they are individually.

The discipline of personal mastery is based on the work of Robert Fritz, an extraordinarily talented musician and composer. And the theories of shared vision come from Charlie Keiffer, the founder of Innovation Associates, and many other people.

The book was supposed to be a collaborative venture but one by one the others dropped out and I found myself standing alone on the playing field. It was a matter of going ahead alone or quitting.

- The fourth is the infrastructure. By that I mean the design of an organization such that continual practice of the methods continually develops the skills and reinforces the values and vision.

In engineering there are often long delays, even a hundred years, between invention and innovation. One of the reasons it takes a long time is that you must wait for the right set of conditions to crystallize in terms of need and use.

We're not building an airplane here. We're developing the capacity of a community of people. We're creating an organization in which you cannot *not* learn because learning is so insinuated into the fabric of its life.

T&D: Do you believe that the five disciplines of the learning organization must all be used together, or can one pick and choose?

SENGE: That's a matter of opinion. Originally I thought there were three disciplines. By the time I'd finished writing the book I'd come to the conclusion that there are five that capture everything my colleagues and I had been working on for 20 years. But there may be more. I'm pretty convinced that the five are all important and that they are also distinguishable from one another in fundamental ways. So yes, I think they are all vital, but that doesn't mean they have to be developed in lockstep.

One of the reasons for writing this book was to point out the multidimensionality of the territory. We shouldn't feel satisfied if we have learned only how to build shared visions.

At Innovation Associates we go into a comfortable rut of telling organizations that they would meet with trouble if they didn't clarify the visions. That was probably good advice, but we were neglecting the way individuals and groups come to deeper and deeper understandings of the reality they are

actually dealing with. That is what three of the five disciplines are about.

But the same problems occurred when we thought systems thinking was independent of mental models. We were blind to the fact that systems in organizations are really a function of how people think. People's implicit mental models affect how they think things work and how they think things get done. It's no good to teach systems thinking without getting people to develop their capabilities for reflecting on their own ways of looking at the world. I haven't been able to convince myself that any of the disciplines could be disregarded without losing something vital.

T&D: Would you talk specifically about the value of systems thinking?

SENGE: The methods and tools of systems thinking are important for helping organizations rethink their businesses. They help us understand and create the strategies and policies of organizations. You can use the tools of systems thinking to put together the ideas of people from different parts of the company into a coherent whole that works together. You create a sort of mosaic out of the views of different people.

There is an aesthetic value to systems thinking, too. Deep within us is a tremendous longing to understand how wholes work. The notion of beauty in a work of art, for example, lies in seeing a whole.

We are literally killing ourselves because of our inability to understand wholes. Think of our biggest problems: the arms race, environmental decay, the erosion of the education system in this country, the international drug crisis . . . What are all these except systemic crises? There is no single cause of environmental decay. There is no person or thing to get rid of to solve the problem.

We are hooked on thinking we must fix problems in a certain way. For almost all of our collective history as a species, the great threats to our survival have been sudden dramatic events: a volcano erupting, a saber-tooth tiger attacking, or an army marching over the hill and wiping out our tribe, for instance.

All that has changed. Today the major threats to our survival as a species are slow, gradual processes. They are systemic phenomena that unfold gradually the way environmental decay has. We have no idea how to deal with systemic threats because all our notions of ensuring our survival have had to do with getting rid of external threats, with fighting something -- with fixing our attention on an adversary doing battle.

So, the capacity to reflect and to see patterns of interdependency is critical, and that is what systems thinking does. Foremost of us, our education has taught us to break problems down to smaller and smaller pieces. Learning to use the tools and methods of systems thinking and translating them into action may not come easily to us.

Sometimes the action to take against a systems failure is not obvious. If a company were losing money, you would probably look for a solution that was close in time and space to the symptom. You would start a marketing program, cut prices, or cut costs, because these are all obvious things that affect profits. But there might be no leverage in those actions because it is the larger system that is causing the company to lose money. The leverage -- the action that

will fix the problem -- is distant in time and space from the most obvious symptoms of the problem.

We are going through the process of learning that the world is composed of interrelationships, not things. The field of health provides us with some common examples of this.

The average lifetime of a cell in the human body is about six or seven years. You are not the person you used to be, literally. On a physical level, the body is a pattern of interrelationships and interdependencies that shape the way in which physical matter is continually recreating itself.

I believe that we are gradually developing a practical systems perspective in the field of health. We are learning that it may be counterproductive in medicine to treat just the most obvious symptoms or problems. We are used to thinking that if you can't sleep, you should take a sleeping pill. If you have a headache, you should take something to numb the nerve cells in your brain. But we are coming to understand that about 95 percent of our physical maladies are the result of our behavior. They are the result of how we live and what we eat and how much we exercise.

We are learning that our attitude toward our health is absolutely pivotal, but when was the last time a doctor asked you about your sense of purpose? It's possible that many physical maladies may be the result of our losing a sense of clarity about what's important to us.

The Disciplines of the Learning Organization

Systems thinking. Systems thinking is a discipline for seeing wholes. It is a framework for seeing interrelationships rather than things, for seeing patterns of change rather than static 'snapshots.' It is a set of general principles -- distilled over the course of the twentieth century, spanning fields as diverse as the physical and social sciences, engineering, and management.

It is also a set of specific tools and techniques, originating in two threads: in 'feedback' concepts of cybernetics and in 'servo-mechanism' engineering theory dating back to the nineteenth century. During the last 30 years, these tools have been applied to understand a wide range of corporate, urban, regional, economic, political, ecological, and even physiological systems. And systems thinking is a sensibility -- for the subtle interconnectedness that gives living systems their unique character.

Systems thinking teaches how to see things as wholes. Systems language is a way of expressing ideas that subtly retrains the subconscious to structure data in circles rather than straight lines. Systems thinking is more than a problem solving methodology. It does away with boundaries that we invent and then find ourselves trapped inside of.

Why apply systems thinking to business organizations? Because it can keep them from being overwhelmed by complexity, the kind that causes people to say, "there's nothing I can do. It's the system."

Personal mastery. Mastery refers to a special level of proficiency. Personal mastery is the discipline of continually clarifying and deepening our personal vision, of focusing our energies, of developing patience and of seeing reality objectively. Its roots lie in Eastern and Western spiritual traditions, and in secular traditions. Personal mastery is the discipline that connects personal learning and organizational learning.

Mental models. Mental models are deeply ingrained assumptions, generalizations, or even pictures or images that influence how we understand the world and how we take action.

In organizations, such mental models control what people perceive can or cannot be done. Change rarely takes place until management teams change their shared mental models. This section of the book tells how to unearth mental models and open them up to influence.

Shared vision. In an organization, a shared vision binds people together around a common identity and a sense of destiny. A genuine vision causes people to do things because they want to, not because they have to.

The discipline of building a shared vision is something like that act of creating a sculpture from a block of stone. The vision builders uncover "pictures of the future" that are common to all organization players and that inspire commitment.

Team learning. Team learning is a tool for raising the collective IQ of a group above that of anyone in it. Through team learning, the whole becomes smarter than the parts. The disciplines of team learning include dialogue, a form of talking and thinking together. One aspect of this discipline is to recognize and overcome patterns of defensiveness that undermine group learning.

Senge says team learning is vital because teams, not individuals, are the fundamental learning unit in modern organizations; unless the team can learn, the organization cannot learn.

Little by little the practice of medicine is beginning to reflect that we live in a world of interrelationships. It's filtering into our mental models in other areas too. Ecologists have taught us that you don't throw anything away because there is no "away." Everything in the ecology is hooked together.

A symbol for our age is the picture of Earth seen from space. It's an image that has started to transform some of the predominant patterns of our society. And what does the picture of Earth say? That everything is hooked together.

T&D: How would you define a learning organization?

SENGE: A simple definition is that a learning organization is a group of people continually enhancing their capacity to create what they want to create.

That is very different from the way many people talk about learning organizations. It is common to discuss them in terms of a couple of themes: that the world is becoming more complex and unpredictable and that organizations need to become faster on their feet and more adaptive to change.

**"We are literally killing ourselves
because of our inability
to understand wholes."**

That's fine and it's important. I would agree that even on the individual level, a person who is a good learner can continually recognize changes in his or her environment and adapt effectively. But there are levels of learning. The one at the heart of my book is what we call generative learning. It gets to the heart of what we really care about the most.

Certainly we care about survival. That's why reacting and responding are important. But if you reduce a human being to a survival machine, you've lost something. There is more to our intrinsic needs than the desire to survive. There is the desire to create.

T&D: Do you mean a desire to bring something into being?

SENGE: It is a little bit more than that. It is the desire to bring something into being in the context of the community. Fred Kofman would say that learning is the capacity for effective action as assessed by a community.

Organizations that are serious about this will have a tremendous advantage over those that aren't. They will have a creativeness to them in how they serve customers, create products, and create value.

This is not solely idealism. I'm talking about what it takes to allow a group of people in an organization to be truly effective.

As Bill O'Brien, the CEO at Hanover Insurance Company, puts it, "practicing the higher virtues in life is consistent with being successful in business." There are hundreds of O'Briens around who have been working at this for many years.

T&D: The book puts a lot of emphasis on thinking about thinking and the importance of the use of reflection. That's not traditional behavior in most business organizations.

SENGE: No, it's not, particularly in the West where we have a cultural predisposition toward action to the exclusion of thinking. It's the old "ready, fire, aim" syndrome.

In a Japanese organization if you were to see someone sitting and doing nothing, you would never think to interrupt because

obviously that person is thinking. It's perfectly acceptable, however, to interrupt an active person. In the West, we are exactly the opposite.

There are lots of strengths in being action-oriented. Ultimately, learning is related to action. You have to act in order to get some feedback to see if you are on the right track. But in understanding complex issues, the attention span of American managers is abysmal. That's an important cultural maturation we need to achieve.

T&D: In the book, in the section on team learning, you make a distinction between dialogue and discussion. In a discussion, you say, different views are presented and defended and this may provide a useful analysis of a situation. But in a dialogue, different views are presented as a means toward discovering a new view. Is this what you think needs to be learned?

SENGE: The physicist David Bohm has been developing his ideas about dialogue for years. He believes dialogue will never happen in a business organization. He says it's impossible, but I don't agree with him. The notion of dialogue is a group of people who talk with one another often enough and long enough so that they actually start to think together in a very creative way.

Most primitive cultures that we know anything about made talk an important part of their lives. Most native American cultures just sat in a circle and talked for hours or even days. No purpose. No leader. No agenda. Just talk. Then the group would disperse and people would go about their work attuned to what everybody else was doing and thinking. Dialogue let them understand collectively a deeper pattern of reality than any one person could understand.

Consider the kind of commitment it would take to allow dialogue in an organization.

But then think about the time spent trying to solve problems that keep coming back year after year.

T&D: Do you know of organizations in which time is allocated for collective thinking?

SENGE: There are some firms that are moving in that direction, though they haven't necessarily been practicing the discipline of dialogue. Harley Davidson, Herman Miller, and Hanover Insurance are companies that I happen to know allocate significant chunks of time for management teams just to get together to explore and to learn, apart from making particular decisions or solving problems. They have agendas, to be sure, but the groups go away for a day or two and work on one subject.

Hanover, for example, does this at least twice a year to converse about specific themes. The managers don't produce any decisions at these meetings; that is by design. But they do come to a richer shared understanding that subsequently helps them make better decisions.

I don't know of any really large organizations that operate in this way, but there might be some.

What favors the use of dialogue is the fact that the world is becoming more complex and a lot more dynamic. We can keep managers jumping from pillar to post for the rest of their lives in reaction to each day's crisis, or we can try to develop the collective intelligence of decision makers. Probably the latter will have much more enduring impact than the former.

T&D: Do you think that the evolution of learning organization is inevitable in the United States, given the serious state of affairs in so many businesses?

SENGE: I think it is inevitable. My only qualm is about how much time we have.

Some of my sense of urgency comes from having spent time with Dr. (W. Edwards) Deming this past year. He is really distressed about the condition of education and organizations in this country. He does not feel we are getting the message about learning. He absolutely hates the terms "quality management" because people use it to substitute simple slogans and buzzwords for change -- continually enhancing the capacity of groups of people to become intelligent together.

Deming's management philosophy is essentially about creating learning organizations. It is about allowing for intrinsic motivation for learning rather than using extrinsic rewards and punishments. He says we will not achieve quality without "profound knowledge," of which the first cornerstone is "an appreciation of systems."

(Deming's "profound knowledge" has four interacting parts: Understanding a system, statistics, theory of knowledge, and psychology.)

Deming is very pessimistic about this country. I think he wants to see that we have turned the corner. Remember, he is in his 90s and his time perspective is necessarily short.

Looking at some objective data, it is easy to share his concern.

Take the example of Ford Motor Company. For three or four years after it hit bottom in the early eighties, it began making real headway with conventional measures of quality. Defect rates fell. The company began to catch up with the Japanese. But now it is falling behind again. It is as if it fixed all the easy, obvious things that needed only a few simple tools to get the company

moving forward, and that gave it the perception that it had turned the corner. That is proving to be naive, wishful thinking for Ford and for many companies engaged in the quality movement.

T&D: But you have said that the quality movement is a sort of first wave of a true learning organization.

SENGE: I've come to that conclusion from getting to know Deming's work. The quality movement is about learning.

Everybody who goes to a quality course, whether it's three hours or three weeks, learns the "plan, do, check, act" cycle -- the PDCA cycle. In Japan that's called the Deming cycle; Deming called it the Shewart cycle because he learned it from his mentor at Bell Labs, Walter Shewart. Shewart got it from John Dewey, the American Philosopher and educator. In Dewey's terminology, the cycle comprises discovery, inventing a new action based on that insight, acting, and then observing the consequence of the action to gain some new insight. That's how we learn to talk, to walk, and to ride bicycles. It's the cycle of learning.

T&D: You're saying that quality management is about the process of learning, but that is rarely made explicit.

SENGE: I am, and that's what Deming is so concerned about. He knows very well about the tendency of American managers to grab gadgets, techniques, and slogans. He sees people racing around learning statistical process control and charting and other methods he pioneered, and he knows that's only two percent of his work. It's very poignant, especially in his own country.

Does Your Firm Have a Learning Disability?

"Learning disabilities are tragic in children, but they are fatal in organizations. Because of them, few corporations live even half as long as a person - most die before they reach the age of 40."

The Fifth Discipline names seven myths that make organizations poor learners:

- I am my position. (Confusing our job title with the purpose of our work.)
- The enemy is out there. (Blaming someone or something outside ourselves when things go wrong.)
- The illusion of taking charge. (Thinking that an aggressive response is the same as being proactive.)
- The fixation on events, also called "I hit him because he took my ball." (Failure to see the patterns behind the numbers.)
- The parable of the boiled frog. (Maladaptation to threats that are building gradually.)
- The delusion of learning from experience. (Not recognizing when our actions have consequences too far away in time to teach us anything.)
- The myth of the management team. (Squelching disagreement to keep up the appearance of a cohesive team.)

The Japanese mastered the two percent about 30 or 40 years ago. Japanese kids learn basic quality tools in junior and high school. We are playing a catch-up game and they are off in new territory. For the last 10 or 15 years, the "new tools for management" in Japan have been about how people think and interact. What that means is that in Japan the work or management is the work of ideas.

I asked Deming why he thought the Japanese took his message and Americans didn't want to pay any attention to him until recently. He said, "You have to understand that the Japanese had absolutely nothing after the war. No natural resources -- nothing at all. They had no way out but to learn."

That the Japanese are becoming the preeminent economic power in the world is a testament to how the world has changed. They key to everything that they have accomplished as a modern society is their relative capacity to learn.

T&D: Besides writing your book, what are you doing to bring ideas about learning organizations into the mainstream?

SENGE: At MIT we are in the midst of starting a Center for Organizational learning. It will be a consortium of 15 or 20 corporations working in partnership to bring such ideas into the mainstream of management practice. It is the only thing I could think of to get the job done in reasonable time. We can't do this company by company. We have to team up.

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