Systems Thinking in Learning Organizations

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The term “learning organization” is one that has been around for some time, probably since the early 1990s. For many managers in many organizations the concept is one that is at best somewhat vague in their minds and at worst, it is thought of as “just one more piece of infernal human resources jargon!” Many managers around the world may believe in its value but have yet to experience it. In a large lake, Loch Ness, in Scotland there is reputedly a huge, prehistoric animal (the famous Loch Ness Monster) living in the depths of the lake. Everyone has heard of it, but no one has seen it—a lot like the learning organization.

Before we consider how the discipline of systems thinking can be of use to organizations that wish to become a learning organization and how managers within them can foster a spirit of team learning in their departments, let us consider for a moment what we really mean when we use the phrase learning organization. A good place to start is with Massachusetts Institute of Technology lecturer and author Peter Senge, who popularized the entire concept.

Senge, the author of *The Fifth Discipline*, stated that there are five component technologies that make up the “fifth discipline.” They are as follows: (1) personal mastery, (2) mental models, (3) building shared vision, (4) team learning, and (5) systems thinking. The whole vision will lead you to foster a spirit of team learning within your environment. Systems thinking is a way for teams and individuals to look for changes that will provide long-term improvements. So, what are the five component technologies that make up the Fifth Discipline?

1. **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. As such, it is a cornerstone of the learning organization. An organization’s commitment to and capacity for learning can be no greater than that of its members.

2. **Mental Models** are deeply ingrained assumptions, generalizations, or even pictures or images that influence how we understand the world and how we take action. Very often, we are not consciously aware of our mental models or the effects they have on our behavior. Put simply, it is a case of how I think affecting how I act.

   A case in point is Royal Dutch/Shell, one of the first large organizations to understand the advantages of accelerating organizational learning. The company came to this realization when it discovered how pervasive the influence of hidden mental models was, especially those that become widely shared. Shell’s extraordinary success in managing through the dramatic changes and unpredictability of the world oil business in the 1970s and 1980s came in large measure from learning how to bring to the surface and challenge managers’ mental models.

3. **Building Shared Vision** occurs when there is a genuine shared vision (as opposed to the all-too-familiar imposed-from-on-high vision statement); people excel and learn, not because they are told to, but because they want to. Many leaders have personal visions that never get translated into shared visions that galvanize an organization.

   All too often, a company’s shared vision has revolved around the charisma of a leader or around a crisis that pulls people together temporarily. But, given a choice, most people will opt for pursuing an inspiring goal, not only in times of crisis but at all times.

4. **Team Learning** starts with dialogue, the capacity of members of a team to suspend assumptions and enter into a genuine process of thinking and talking together. To the ancient Greeks, *dialogos* meant a free flowing of meaning through a group, allowing the group to discover insights not attainable individually. Interestingly, the practice of dialogue has been preserved in many “primitive” cultures but it has been almost completely lost to modern society.

   Today, the principles and practices of dialogue are being rediscovered and put into a contemporary context. Team learning is vital because teams, not individuals, are the fundamental learning unit in modern organizations.

5. **Systems Thinking** is the final component of the learning organization concept. It is this discipline that Senge believes is the key that holds all the five concepts together as a coherent whole.

Systems thinking is a conceptual framework, a body of knowledge and tools that has been developed over the past 50 years. It originated in the field of systems dynamics to make the patterns clearer and to help us see how to change them effectively. Systems
dynamics is an offshoot of systems engineering. It was first developed by Jay Forrester as industrial dynamics in the 1950s and 1960s and is still widely practiced around the world today.

When we use the words “system” or “structure,” we are referring to anything that shapes or conditions behavior. Business and other human endeavors are also systems. They, too, are bound by invisible fabrics of interrelated actions, which often take years to fully play out their effects on each other. Since we are part of that pattern, it is doubly hard to see the whole pattern of change. Instead, we tend to focus on snapshots of isolated parts of the system and wonder why our deepest problems never seem to get solved.

Systems thinking is not a panacea to be applied to all the political, economic, societal, and business problems that exist in the world. It does, however, give us a way of seeing what our real problem is and getting a better understanding (often both as an individual and as a team) of where we are right now, or seeing our current reality. However, to be of use to organizations and managers, it has to be more than that.

It also has the ability to enable us to see not only what we have (current reality) but also how we can make real and lasting beneficial change in a structure or system. This is the arena of the high-leverage interventions. We need to be able to understand the system so we can make a targeted intervention to make change. Using the analogy of shooting, it is the difference between using a shotgun with scattershot or a rifle with a telescopic sight.

In many organizations, there are problems. Many teams I have worked with have an overriding problem—they do not know what their real problem is! A problem can be defined as the gap between what I am expecting and what I am experiencing, and a solution (or high-leverage intervention) is the best way to close that gap. However, many problems (ill-defined and not universally understood) have a barrage of solutions (“let’s do enough things and hope something eventually works”) applied to them that do not improve the situation (the gap is not closed at all) or that often serve only to make the original problem even worse.

Many organizations go for the quick fix when faced with a problem, and, over time, the fix creates more problems than it sets out to solve. Systems thinking is a way for teams and individuals to look for changes that will give long-term improvements rather than the quick fix that eventually fails but is reapplied over and over.

So, how can we get to the stage where both teams and individuals fully understand the nature of the problem, resist applying quick-fix solutions, realize the areas they need to target for change, and are able to make effective changes in systems and structures to make them do what we want them to do rather than what they are doing now? To achieve that stage (and start to become a real learning organization), we need to understand a little more of the depth of the discipline and technique of systems thinking.

In essence, systems thinking provides an approach for managing complexity. It is a tool to help decision makers understand the cause-and-effect relationships among data, information, and people. It expands individual and collective thinking skills and improves individual and collective decision making by focusing attention on the causes of performance problems and the systems changes that will produce improved results.

Systems thinking has emerged from significant efforts by leading academics and industry executives to understand how organizations work. It is a way of thinking about the forces that shape the behavior of systems and organizations. It is also a way of looking at the whole and moving the focus and attention away from the pieces and the fragments. It is looking for the interrelationships that shape the kind of behavior and the kind of outcomes that are generated in an organization.

One way to describe how an organization works at its simplest level is by using causal-loop diagrams to show the relationship and interaction of the component parts of a system. The building blocks for understanding systems thinking are as follows:

- **System**—a set of people, regulations, machinery, and other elements that work together to form a process.
- **Variable**—a part of the system that leads logically to the next part of the system. It is an observable and measurable aspect of the behavior of the system, and it changes over time.
- **Causal Loop Diagram**—when the variables are put together in a logical manner, as in “A leads to B and this leads to C,” and so on, they come together to tell a story. This story is the causal loop that diagrammatically explains the way things are and gives a clearer picture of the relationships between the variables. It also can indicate how they could be changed to make the system do what we need. In addition, it can show us the possible unintended consequences of applying quick fixes where we solve a problem in one area and create a bigger problem elsewhere because we were not aware of these relationships.
- **Delays**—the cause of a problem and its effect can be distanced in time and space. This means that the solution I apply today seems to work. But because of the delay effect, I may not see the down side of my solution for some time, and it may occur in another area. Thus, we often fail to see the link between my previously applied solution and my current problem.

Using systems thinking effectively requires that we have a spirit of inquiry and keep asking the questions: Why is this happening or, more simply, why? It requires that we keep thinking of this simple mantra: “I do not have a solution, but I certainly admire the problem” (in this case “admire” is used in the sense of studying something). There can be a natural tendency to jump to solutions without fully understanding the problem and the full impact of any solution we apply. The following questions offer a starting point for inquiry:

- What happened, and what has been happening?
- Why has this been happening?
- How can we improve the performance of this system?

When faced with a problem, we are often tempted to start with the last question. What are we going to do to solve the problem? We jump to a solution and then apply it because in the words of the Nike advertising campaign, “Just do it.” Many managers are under pressure to come up with quick solutions (the mental model here is “that is what they pay me for, so I had better do it and do it quick”) and bypass the first questions, going straight to the third. That is when we can get quick fixes that create more problems than they solve (the universally experienced fix that backfires).

Systems thinking usually adds value when situations are problematic, longstanding, and resistant to change interventions. Systems thinking is often helpful as a planning resource. In particular, a systems view can help you plan for growth, anticipate limits to growth, predict and avoid actions that can undermine partnerships, and avoid shooting yourself in the foot (by producing a worse situation than the one you already have).

In general, systems thinking rarely helps us find the single right answer; other problem-solving tools are more efficient in cases in which there truly is an answer. Systems thinking provides the most value when it illuminates the possible choices embedded in complex, divergent problems and sheds light on their likely consequences.

Let me try to draw the disparate strands of systems thinking together in a real-life example. This example will show the language
and building blocks of the discipline and put them together as a causal-loop diagram, or archetype as it is known in systems thinking. This example shows a frequently recurring pattern of events experienced in many organizations. As I mentioned earlier, systems thinking is about using causal-loop diagrams to tell a story. So, let me tell you a story and then diagram it.

The story is about a project manager in a large frozen-food manufacturing and distribution company. The commercial director was concerned with the steadily rising cost of writing off damaged stock in the distribution centers (large refrigerated cold stores where stock is kept at −28°C before being delivered to retail outlets). So, the project manager was charged with solving the problem. He decided that the solution was to sell the majority of damaged stock (which was sound and edible) at a discount to the staff at the centers. This had many advantages: It reduced disposal costs; it added revenue; and it acted as a motivator, as it was a substantial benefit to the staff at the centers.

Over the next month, the cost of stock write-off and sales value to staff were calculated, and the overall effect of the new system was that costs were going down. The commercial director was pleased, the project manager was talked of highly, and the staff at the centers felt good about the management.

However, 6 months later, the commercial director was less pleased. He went to the project manager and showed him the last 2 months’ stock reports. The value of written-off stock was now higher than it had been before the introduction of the “solution” to the problem! So what had happened?

The unintended consequence of the “solution” was that it had created, over time, a realization in the minds of the staff that the value of what they received in their product bag was variable. It was a random mixture of low- and high-retail-value packets of frozen food. They had now taken steps to remove the random nature of the contents of the bag and ensure that there was a greater presence of high-value packets. But how?

The staff talked to the fork-lift drivers in the cold store and persuaded them to “damage to order” when moving the pallets of stock. Thus, lower-priced items were carefully avoided, whereas high-value items were often targeted. Once this was discovered, it could be seen how a well-intentioned win-win solution resulted in unintended consequences that eventually made the original problem worse.

To bring the story together with the language of systems thinking and show it as a causal-loop diagram, we have one of the most frequently occurring archetypes, the “fix that backfires,” a story of unintended consequences. The whole story can be shown in a diagram (Fig. 1).

Does it seem a familiar story to you? If it does, then perhaps your organization, your team, or you may need to find out more about systems thinking. If you want to find out more about this discipline and how you can use it for your benefit, read Senge’s books *The Fifth Discipline* and *The Dance of Change*.

![Fig. 1—The “fix that backfires.”](image-url)