The New Sciences and the Learning Organization Part 5A: Complexity Calls for Ingenuity

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"… there's a lot of evidence that our world is becoming enormously more complex, and fast. This change is fundamentally shifting the way we organize ourselves, the way we solve problems, and the way we perceive ourselves and the world around us. Whether, on balance, it's a problem or a good thing remains to be seen. But, at the very least, we can say that humanity must now make more and better decisions faster than ever before. The rising complexity and pace of our world demands more ingenuity from us …"
— Thomas Homer-Dixon, **The Ingenuity Gap: How Can We Solve the Problems of the Future?** (2000)

In this final part of the series, **The New Sciences and the Learning Organization**, we explore how the new sciences of complexity and chaos explain what we are currently experiencing in our organizations. Of the new sciences, complexity and chaos theories give us a better understanding of why the world seems so complex, why change is happening so quickly, and what we need to do to create the future we desire. To do this, however, we need to acknowledge these realities:

- The world we have created is far more complex than humans have ever experienced in their entire history.

- The more we seek progress and improvements in our quality of life, the more complexity and confusion we create.

- When the world becomes more complex, effects caused by the increased complexity and chaos become more powerful.

To set the stage for examining complexity and chaos, consider your work situation and answer the following questions:

- Do you struggle with complex problems that you cannot seem to solve?

- Do you solve problems — only to find them returning with a vengeance?

- Do you feel overwhelmed with the complexity of the problems that you face?

- Do you find that, when you try to solve problems, other problems arise?

- Do you find that you have no time to solve complex problems?

- Do you find that most people around you are feeling the same sense of confusion?

If you answered *yes* to one or more of these questions, you are probably experiencing the symptoms of accelerating change and increasing complexity. As change accelerates, it creates a greater degree of complexity

and uncertainty. This, in turn, increases the speed of change. It is a vicious cycle — with change and complexity feeding off each other to create even more change and complexity! As a result, individuals have general feelings of confusion and loss of control.

To deal with these feelings of confusion and loss of control, we use all of the skills, knowledge, and experience that we have at our disposal. However, in trying to fix problems, we often make the problems worse than they were in the first place. Then, we ask ourselves questions to try to make sense of our confusion: "What is going on? What are we doing wrong? Why can't we make things better? Why do our *fixes* not work?"

Common answers to these questions do not help us either: "It's their fault! We didn't have enough time or resources to do it right! We didn't get any help!" The problem is not that we are not smart enough to deal with accelerating change. The problem is that we are not smart in a way that works when the degree of complexity is so high. Nothing that we have learned up to this time has prepared us to deal with accelerating change and increasing complexity. As we move forward in the 21st Century, we struggle to deal with the reality that the amount of change and complexity will continue to accelerate, at a faster and faster rate.

If we are to match the speed of change, or, perhaps, to slow it down and to change its direction, we need a completely different approach to solving the problems that we face today. We need a different way of thinking and acting that will produce the results we desire, instead of more of the same. The answer lies

in what Thomas Homer-Dixon describes in his book **The Ingenuity Gap**. "As we strive to maintain or increase our prosperity and improve the quality of our lives, we must make far more sophisticated decisions, and in less time, than ever before." According to Homer-Dixon, to do this, we need to be able to access our ingenuity, something that we have done very well in the past. "The ingenuity gap … is a way of thinking about the very real chasm that sometimes looms between our ever more difficult problems and our lagging ability to solve them." *Ingenuity* is the thinking process that gives us solutions to our complex problems. An *ingenuity gap* occurs when we can't seem to solve complex problems in ways that work, and are sustainable over the long term.

For example, when you are faced with a problem to solve, you come up with a number of solutions, some better than others. Once you decide on which solution is most promising, you create a plan for taking action. If the solution is ingenious:

- You will be able to take action to solve the problem.

- You will solve the problem in such a way that it never returns, and the solution itself will not cause any other problems to arise.

This is what we mean when we say the solution is *sustainable over the long term*. If your solution is *not* ingenious:

- You will solve the problem, only to find that it returns with a vengeance.

- You will solve the problem — but your solution will create more problems.

- Even though you know that the solution is a good one, you will not be able to take the action needed to implement the solution.

These are examples of experiencing an *ingenuity gap*. You aren't able to solve the problem in a way that works, and is sustainable over the long term. Ingenuity is necessary not only for the solution to the problem, but also for the set of instructions for taking action to solve the problem. The more complex the problem, the longer the set of instructions needed to solve the problem.

In the next few newsletters, we will:

- Define how complexity and chaos affect us in our daily lives

- Explore what gets in the way of using our ingenuity

- Examine how we can close the ingenuity gap that many of us face in our work and personal lives

"We are losing a sense of our place in the scheme of things; a sense of how strange the world is, and of the limits, ultimately, of our knowledge and control. We are losing the awe, the respect, and the recognition of mystery that remind us to be prudent."
— Thomas Homer-Dixon, **The Ingenuity Gap: How Can We Solve the Problems of the Future?** (2000)

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