



The New Sciences and the Learning Organization Part 4B: It's the Truth, but I'm Not Sure about That!

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“Humans evolved to be skilled pattern-seeking creatures. Those who were best at finding patterns ... left behind the most offspring. We are their descendants. The problem in seeking and finding patterns is knowing which ones are meaningful and which ones are not. Unfortunately, our brains are not always good at determining the difference.”

— Michael Shermer, **How We Believe: The Search for God in an Age of Science** (2000)

Research in cognitive science, the study of how the brain functions, shows that our brains have an inherent flaw — pattern recognition

— that we can also use to our advantage: The human brain develops patterns in order to deal with the input of massive amounts of information. These patterns manifest themselves in the ways in which people think, learn, and act. The pattern-recognition system also gives rise to *cognitive illusions*. Cognitive illusions are the *illusions of knowing*, when we are convinced that we know, when, in fact, we do not (see **InfoMine**, Vol. 2, No. 2). Massimo Piattelli-Palmarini, a researcher in cognitive science, explains how cognitive illusions work: “... all of us employ, and pursue to their end, some genuine and easy (as well as fallacious) shortcuts in our minds. Finding a shortcut is usually a good thing, but in these cases the shortcuts serve to render our thinking inaccessible to correction; they lead us to a quite different destination from that at which we intended to arrive. What is worse is that we don't even realize that we have arrived 'somewhere else'.”

According to Michael Shermer, these cognitive illusions, or shortcuts in our minds, create two types of *errors in thinking*:

- *Type 1 Errors* occur when we believe *as true* something that is actually false. For example, many people in Canada believe that the crime rate is increasing, when, in fact, it has been on the decline for several years.

- *Type 2 Errors* occur when we reject a truth. For example, in a study of this type of error, Shermer showed people pictures of UFOs that were fabricated by children. Even when shown how the pictures were fabricated, most people chose to believe that the pictures were real UFOs.

In many cases, these errors in thinking do not get us into trouble. In spite of committing errors of thinking, we sometimes do get it right. Shermer calls these occurrences *hits*.

- *Type 1 Hits* occur when we do not believe a falsehood. For example, most people who read the astrology column in a newspaper do not run their lives by what they read.
- *Type 2 Hits* occur when we believe a truth. For example, people may believe intuitively that they are unwell, even if one or two doctors have found nothing wrong. Not believing expert opinion, these people continue to seek answers. A hit occurs when they finally receive confirmation that their intuition was right.

It might seem that making these types of errors is not a good thing, so we may question why this way of thinking evolved. According to the Shermer, “the *process* of forming beliefs is genetically hardwired”, because “The Belief Engine is a *useful mechanism* for survival, not

just for learning about dangerous and potentially lethal environments (where Type 1 and 2 Hits help us survive), but in reducing anxiety about the environments.” We reduce anxiety about uncertain and stressful situations by making Type 1 and Type 2 Errors of thinking, leading us to believe something that is not true. Shermer calls this type of thinking *magical thinking*. “We think magically because we have to think causally. We make Type 1 and Type 2 Errors [when we get it wrong] because we need to make Type 1 and Type 2 Hits [when we get it right]. We have magical thinking and superstitions because we need critical thinking and pattern-seeking. The two cannot be separated. Magical thinking is ... a necessary by-product of the evolved mechanism of causal thinking.” Massimo Piattelli-Palmarini, author of **Inevitable Illusions: How Mistakes of Reason Rule Our Minds**, defines magical thinking as a way of pretending: even when we know something is not true, we still believe that it is true. For example, when the AIDS virus came to the attention of people at the Red Cross, it is likely that many people involved fell prey to magical thinking, pretending that tainted blood would not become a problem.

There are two ways in which knowing about magical thinking is important to us in this time of increasing change and uncertainty. First, recall the story of the humans, the mice, the maze, and the cheese in the last **InfoMine** (see Vol. 7, No. 4). In this story, when the cheese was moved, humans wanted to believe that it would reappear. Thus, they waited for the cheese to reappear, even though there was a good chance that it would not. These humans were exhibiting magical thinking. Their error was in rejecting a truth (Type 2 Error: the

cheese is gone, but I don't want to believe it), and in pretending that this was only a minor problem (Type 1 Error: the cheese will reappear). In organizations, many people wish for the return of the *good old days*. They believe that the uncertainty that is overwhelming them is an anomaly that will correct itself soon. In fact, if we carefully observe how people act in organizations, we may notice something quite strange. In most cases, change and uncertainty have been occurring for at least 5 to 10 years, and yet, many people still believe that this situation will go away.

Second, in his book **How We Believe**, Shermer quotes Bronislaw Malinowski, an anthropologist who lived among the Trobriand Islanders, off the coast of New Guinea, from 1914 to 1918. Malinowski made an intriguing observation: “We find magic wherever the elements of chance and accident, and the emotional play between hope and fear, have a wide and extensive range. We do not find magic wherever the pursuit is certain, reliable, and well under control of rational methods and technological processes.” In other words, as uncertainty increases, so does our tendency for magical thinking. More to the point, most of us are experiencing a great deal of change and uncertainty in both our working and personal lives. The natural conclusion is that we deal with this increasing change and uncertainty by relying more heavily on magical thinking, in order to reduce our anxiety.

Not only do many of us believe that this time of uncertainty will pass, but also we use magical thinking to help us to deal with the anxiety that these times produce. James Lucas wrote a book, **Fatal Illusions: Shredding a Dozen Unrealities that Can Keep Your Organization from Success**, to

explain and address this phenomena. Lucas lists 12 fatal illusions, all of which derive from magical thinking. Here are four of those illusions, any or all of which may be evident in organizations today:

- If we have a mission statement, everyone will know where we are going.
- Everyone knows and understands what is important in this organization.
- I think we can get away with that.
- We can run this thing without sharing that information.

These four illusions demonstrate common errors in thinking. Unfortunately, if we continue to believe these illusions, we prevent ourselves, and our organizations, from achieving full potential.

“... illusions gain and maintain their power, not because we're ignorant of reality, but because we sense or know the reality and choose to avoid it. We might *tell* ourselves that we don't know anything different or have all the facts, while what we're really doing is entering more deeply into a process of illusion building. We don't like parts of reality, so we use the mammoth capacity of our minds to put [reality] in a dungeon.” — James R. Lucas, **Fatal Illusions: Shredding a Dozen Unrealities that Can Keep Your Organization from Success** (1997)

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