

Ongoing Discussion “Thought Piece”

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HANDLING UNCERTAINTY

The world convincingly became uncertain during the first third or so of the 20th century. Yes, I'm being facetious, but only mildly. The work of the quantum-mechanical physicists in the 1920's and 1930's made uncertainty theoretically and practically respectable. Of course, you and I know the world was uncertain from the very first, irrespective of how you think the world came into being, big bang or otherwise. Nonetheless, the work of Max Born, Pascual Jordan, Werner Heisenberg, Erwin Schrödinger, and others (The End of the Certain World) brought uncertainty to the surface. No longer could the worldview be rigidly deterministic. Now, chance, probability, freedom and non-linearity came into play.

If all of this was not cruel enough for the certainty seekers, around the same time along came the mathematician/physicist Kurt Godel with his incompleteness theorem. If you grant me a little non-mathematician's license it goes something like this: *NO SYSTEM CAN AT ONCE BE CORRECT AND COMPLETE*. "A system perceived as completed is no longer responsive to its environment and thus contains error." Granted, his theorem was not directed at social systems, such as organizations, nonetheless, the application holds. Translating this into plain English it means: *Regard all decisions as temporary, there are no final answers*. Or, as that well known sage, Yogi Berra, says, "When it's over...It's not over."

The world is not and never was linear, systematic, and certain. Regrettably, that's how most of us were taught to think, unless you were lucky enough to escape the preponderance of what passes for structured education or had an enlightened teacher. If you believe, as I do, that one purpose of education is to enable students to effectively deal with previously unencountered situations and events or uncertainty, then education has failed. And herein is the crux of the problem: humans evolved and were taught to think linearly, but must function in a non-linear, uncertain world.

Humans have trouble with uncertainty. We're simply not genetically programmed to be comfortable with it. This is the origin of the human obsession with trying to predict the future, despite the commonly understood extraordinary difficulty, if not the impossibility, of doing so accurately. Rousseau wrote that only humans have the ability to imagine a future. Leaving alone what many mammalian creatures do to prepare for seasonal change, imagination is far different than prediction. There are no limits to imagination, save one's audacity. In contrast, there are limits to prediction. We can predict the likelihood of events in the very large, the universe, and in the very small sub-atomic realm, reasonably. But, not much else with certainty. Tom Stoppard, in his play, Arcadia, put it this way:

"People were talking about the end of physics. Relativity and quantum looked as if they were going to clean out the whole problem between them. A Theory of Everything. But, they only explained the very big and the very small. The

universe, the elementary particles. The ordinary-sized stuff which is our lives, the things people write poetry about--clouds, daffodils, waterfalls, and what happens in a cup of coffee when the cream goes in--these things are full of mystery, as mysterious to us as the heavens were to the Greeks. We're better at predicting events at the edge of the galaxy or inside the nucleus of an atom than whether it'll rain on auntie's garden party three Sundays from now."

Because of *nonlinearity*, complex systems (organizations) are basically unpredictable (*uncertain*). *Unpredictability is due to unusual and unexpected events, not lack of information*. Gathering as much information as you can won't make you a better forecaster. In a complex, uncertain world trying to know as much as you would like before you start something significant or make a crucial decision is wasteful effort. Worse, too much information may cause you to direct implementation to justify all that information. *Don't drown in your data!* The relevant information, knowledge and understanding needed will be revealed as implementation unfolds, not before. Keep in mind, strategic, direction changing, decisions are almost always made in the face of incomplete information.

Don't waste your time trying to predict the future - you can't, not with any certainty, anyway. Most predictions are extrapolations from the past. To extrapolate means to assume that what has happened before will continue as is or existing trends will persist. If you believe that you can make accurate predictions in the face of an unprecedented rate of technologic change and new information and the constant bombardment of unexpected events and societal turbulence, *uncertainty*, well, good luck.

Still, humans have an inherent need to wrest order out of disorder. We are hard wired to do so. Importantly, order and disorder lie within the whole of any dynamic, complex system. Complete order leads to deterioration; complete disorder is chaos. Some disorder is necessary for organizational health. Complex systems adapt to change better if they function on the boundary between order and disorder. This is sometimes referred to as being "far from equilibrium." Doing so, though, necessitates some tolerance for uncertainty. Uncertainty is not the enemy. Expecting and frantically searching for certainty is. The real matter is how to live and function under the conditions of uncertainty. Let me offer some suggestions.

GETTING ALONG WITH UNCERTAINTY

Be flexible. (~~rigid adherence to rules~~); I realize suggesting that you be more flexible is like saying "don't worry." No one ever stopped worrying because someone else said so. And you won't or, more likely, can't add flexibility to your persona because of words. The extent of one's flexibility may be an inherent part of one's emotional and intellectual makeup. But, it may not. So,

it's incumbent on me to suggest some ways to be flexible or if you already are, more so. The first suggestion is next.

Have alternatives. Our penchant to find the best is imbedded in us by virtue of the culture we live in. We're number one, first in the class, second to none, who won, one answer examinations all through our schooling, winning or losing, all and more are familiar parts of our societal mores and vernacular. In the service of looking for the best idea, the best strategy or the best method, usually a futile exercise, we neglect the many answers and ideas that might work as well or better than what we think will be the best. Once an idea that seems good is put on the table we tend to stop thinking about other possibilities, other alternatives. Voltaire and a whole bunch of other guys said. "The best is the enemy of the good."

Especially in an uncertain world there are few things more powerful than the power of an alternative. Having alternatives If you're in a lousy job, for example, or having choices when facing a serious decision puts you in a better position than if your eggs are in one basket, to poach a phrase. There is no one best or right answer to most complex problems. There are many right answers. The search for THE best answer is wasteful and generally fruitless. Moreover, when we believe there is no one right answer, that instead, there are many good answers, we become less attached to the answers we have; this enables us to abandon them sooner when they no longer work.

Accept error; learning and innovation depend on it. It's in vogue now for a manager to say don't worry about making errors. But, in most instances you'd better worry, not because errors are bad, but because most errors even those that enable you to learn from them carry a promise of punishment. It's easy to say errors are OK. It's something else not to suffer because of making one. You know if your boss means it after you make an error. As for the person who says he doesn't make errors is either delusional or doesn't do anything. Error is a part of life. We're here because of error in the form of mutations (errors) that occurred during the long course of our evolutionary history. Embrace *error* as a part of uncertainty, the part that facilitates learning, don't eschew it out of hand.

Accept redundancy; accept redundancy; sloppy systems may be better. A tightly wound system loses its *flexibility* to change direction, introduce an innovation, and respond to environmental event. As Peter Drucker wrote, there is a difference between efficiency (doing things right) and effectiveness (doing the right things). Organizations spend too much time doing wrong things right. It's far better to do the right things wrong because that can be corrected.

Use creativity and design, not prediction. Be in the present. Think

about it; we spend more time in thought about the past and using it to make decisions and plans about the future, whether immediate or distant, than the present. (Blaise Pascal cited in Damasio) Actually, our bodies may be in the here and now but our minds spend almost no time in the present. Yet, one might think that because the future is uncertain we would be more concerned about the 'now.' A Chinese proverb speaks to this beautifully; "Too many people spend too much time looking back with regret, and forward with fear, that they fail to realize that the present is there offering them flowers."

All of the planning mechanisms save one that I know of focus on the future as uncertain and abstract it may be. The process of Idealized Design, formulated by Russell Ackoff, is the exception: it brings its practitioners into the present. The process focuses our thinking on what we would have now, not at some time in the future, if we could have whatever we want. At the same time, the process is extraordinarily creative. In it, we start from scratch and think without the constraints that inhibit typical planning efforts, much as children do before they start school. Idealized Design helps us consider an uncertain future by idealizing about the present. (This is the briefest of brief descriptions of the process. For a comprehensive explanation see Ackoff and Rovin.)

Act reflectively, not reflexively; a little marinating helps; *thinking is hard work, not thinking is harder*--in the long run; Remember, speed kills! I am aware of no evidence that supports speed for its own sake as a path to success, particularly speed with little or no thought attached. But, don't think alone, involve others as I describe next.

Use the wisdom of crowds. Groups of people can be more creative and make better decisions than just a few PROVIDED they fulfill 3 conditions: 1) the group is diverse; 2) they gather the information that leads to their decisions and inputs independently and are not unduly influenced by others in the group or organization; and 3) are decentralized but at the same time have a process for aggregating their information, knowledge and activities. The central idea is that a decentralized, diverse, group of self-interested people working independently, on the same problem are more likely to come up with better solutions than if they are directed from the top down. And the group's solutions are more likely to be better than those coming from the few people at the top. (James Surowieki)

Question assumptions that drive decisions and action, constantly. Circumstances, personnel, technology, environments, internal and external, change constantly. The assumptions that fueled the decisions then may no longer have merit. Look at them again and again even your most cherished ones.

Confront fear: uncertainty is fear producing. The unknown is scary and

heightens insecurity for many people. Nothing reduces fear as well as accurate, clear communication. Separating myth from fact and especially signal from the huge amount of noise that passes for communication. Remember. *“Good communication takes time—poor communication takes longer.”*

These are some of the things to think about when trying to find your way in an uncertain world. So I'll bring these thoughts to a close, at least for now, with another quote. This from Richard Feynman, Nobel physicist,

“It is in the admission of ignorance and the admission of uncertainty that there is a hope for the continuous motion of human beings in some direction that doesn't get confined, permanently blocked, as it has so many times before in various periods in the history of man.”

Readings

Nancy Thorndike Greenspan. *The End Of The Uncertain World: The life and Science of Max Born: the Nobel Physicist Who Ignited the Quantum Revolution.* Basic Books, 2005.

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Peter F. Drucker. *Management: Tasks, Responsibilities and Practices.* Harper & Row, 1974.

Antonio Damasio. *Descartes Error: Emotion, Reason and the Human Brain.* Penguin Books, 2005.

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James Surowiecki. *The Wisdom of Crowds.* Anchor Books, 2005.

Biography

Sheldon Rovin is Emeritus Professor of Healthcare Systems at the Wharton School of Business and past Director of Healthcare Executive Management Programs at Wharton Executive Education and the Leonard Davis Institute of Health Economics. He is Emeritus Professor and past chair of the Dept. of Dental Care Systems, School of Dental Medicine. All of these positions are at the University of Pennsylvania. Among the programs he directed at the Wharton School are the Johnson & Johnson-Wharton Fellows Program in Management for Nurse Executives, the SmithKline Beecham Executive Management Program for Directors of Hospital Pharmacy, the Wyeth Ayerst-Association of Professors of Gynecology and Obstetrics Program in Management, and the Wyeth Ayerst-APM Executive Management program for Chairs of Medicine. Dr. Rovin's publications include over ninety journal articles and book chapters, and nine books. His latest three books are Medicine and Business: Bridging the Gap (2001) published by Aspen Publishers; Redesigning Society (2003) written with Russell Ackoff and published by Stanford University Press; and, Beating the System: Using Creativity to Outsmart Bureaucracies, written with Russell Ackoff, was published by Berrett-Koehler in July, 2005. An earlier book entitled Managing Hospitals: Lessons from the Johnson & Johnson-Wharton Fellows Program in Management for Nurse Executives (1991), won the Journal of Nursing Administration's 1992 Management Book of the Year Award. Dr. Rovin's principal consulting interests are the application of systems thinking, idealized design, interactive planning and creative thinking to the design, management and leadership of organizations. He has won several teaching awards. He was the Dean of the University of Washington, College of Dentistry from 1973 to 1977. Prior to this he was professor and chair of the Dept. of Oral Pathology and professor of General Pathology at the University of Kentucky Colleges of Dentistry and Medicine, respectively. Dr. Rovin is a diplomat of the American Board of Oral Pathology and holds DDS and MS degrees from the University of Michigan.