

## The Recipe for Creativity



Those of you who are not chemists or chemical engineers probably don't see the Chemical and Engineering News publication which, once a year, reprints the acceptance speech from the recipient of the American Chemical Society's most prestigious award, the Priestley Medal. Dr. Richard N. Zare was recognized for his work in laser induced fluorescence and the study of single molecules in solution that assisted in sequencing the human genome. In his talk, he discussed none of that, but instead chose to discuss creativity. His focus was on the teaching of creativity vs. the learning of it. As most of us in the TRIZ community would agree, creativity CAN be taught and LEARNED. It is a teachable skill and science and not a mystery based on our DNA. This article is on pp 19-21 of Chemical and Engineering News (<http://www.cen-online.org>)

Dr. Zare says that creativity is the intersection of three things: (1) your capacity to think outside the box and putting together existing ideas into new combinations (Amen!), the knowledge and information you have (without that you have nothing to put together), and finally your motivation to think about something different. All of this requires passion, resources, and daring to play with ideas and concepts that risk that what you are doing may completely fail. He showed an example of how difficult it is to think outside the box by using the 9 dot illustration that many of you may have seen where you are asked to connect nine dots with only four lines and the recognition that the only way to do this is to go outside the geometry of the nine box. He goes on to show how the assumption that we must put the lines through the center of the boxes prevents us from seeing how to do this with only three lines and finally, by using a spiral, it is possible to connect all the circles with only one "line". (We assume the line needs to be straight, but no one told us that). The only way to escape the original biases we have about this is to break the inertia in our minds and move on to irritation and the desire to solve a problem (does this sound like resolving a contradiction?). Then we move on to imitation--has someone else solved this problem before? The more and different problems you solve, the easier this is.

Finally, he says we move to "intuition"--a thought process he describes as the balance of wild hypotheses and evaluation, requiring one to be a balanced schizophrenic. Finally, inspiration arrives when you see a connection you did not see before. The ability to do this once leads you to try a more difficult problem, and so on. At a high level, the two key ingredients are confidence (you can solve this problem) and passion (it is important to solve this problem). This again should resonate with both innovators and TRIZ practitioners.

Interesting perspectives on innovation from an industry leader in creativity. What does it say to us? First, take off the blinders in both how you analyze and solve problems. Second, keep your creativity and innovation genes active. They will atrophy just like bones and muscles if you don't use them. There is no shortage of problems in your organization or in the world around you--lots of things to practice on. Third, keep the balance between analysis and hypothesis. I have been in too many "brainstorming" sessions where the judgment about success was how many ideas were generated, not whether a practical solution was obtained. Fourth, look around you for people and industries with similar problems and use their solutions.

Not a bad recipe!