

Knowledge Worker

The Kaleidoscope Effect

(February 2018)

When we are confronted with a problem in the workplace, the situation is rarely crystal-clear at the outset; instead, we are puzzled, and we seek clarity and understanding. Some experts encourage us to rely on this or that step-by-step approach. I take a different view.

In my experience, successful problem-solving efforts are often marked by what some refer to as a “blinding flash of insight” or what I prefer to call “The Kaleidoscope Effect.” More on that in a moment. First, allow me to relate an incident I wrote about in my May 2015 column but, this time, from a different perspective.

While still in the Navy I encountered a big and deeply puzzling problem. We were providing gunfire support for troops ashore in Viet Nam when a spotter made an unusual request. He asked us to “throw a round as far down the gun target line as we could.” I won't bother you with details as to how we did that, but we did, and we apparently hit what he was after because he said, “Hot damn! Secondaries!” (referring to secondary explosions). He immediately called for more rounds.

Later I asked our Fire Control Officer to revisit the coordinates involved - ours and those of the target we were shooting at. It turns out we successfully fired our guns almost 6000 yards (three nautical miles) farther than the supposed maximum range of our guns.

I spent a very sleepless night trying to figure out what was going on. At about 0500, after poring over the book containing the range tables for our guns, I slammed the darn thing shut and put my head in my hands. As I did so the cover of the range tables book caught my eye. Wham! The problem hit me like a ton of bricks. Smack in the middle of the cover of the range table book was the specification for our gunnery system. It indicated our guns had an initial velocity or speed of the round exiting the barrel of 2500 foot-seconds. That was wrong! The actual initial velocity of our guns was 2650 foot-seconds. Unbelievably and inexplicably, the range tables were wrong and that meant the entire design of my ship's gun fire control system was flawed.

I had no idea why or how the range tables were wrong or how or why that had resulted in a flawed design of our fire control system. At that point, my emphasis shifted from figuring out why we had fired well beyond our supposed maximum range to solving a new problem: How could I take advantage of that extra 6000 yards of range? I quickly calculated an adjusted set of range tables using the proper initial velocity and devised a temporary workaround for our computer so as to make use of that extra 6000 yards of usable range. I also wrote up my discovery of the range table issue and the workaround I had developed and sent it up the chain of command. Several months later, the Bureau of Naval Weapons issued a formal modification to the gunnery system in question.

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Call it subconscious at work, call it insight, call it whatever, in many cases there suddenly appears a dawning realization of just what the problem is and what to do about it. That is far from a conscious, rational, logical, step-by-step approach. How do these flashes of insight or kaleidoscope effects occur? Darned if I know but I do know they happen and they are extremely important. The case above is instructive in that regard.

First, there's recognition that a situation requires action. In the case just presented it was a matter of determining that the guns were firing much farther than they were supposedly capable of firing. Second, focus shifts to problem solving. In the gunfire example, I shifted attention to figuring out why and how the guns were sending shells far beyond their supposed maximum range. Next, comes an exploratory stage, a hunting and gathering of information relevant to the situation. In my case, I spent a great deal of time poking around various aspects of the weapons system, often almost randomly.

As the hunting and gathering proceeds understanding and clarity emerge, mostly at an intuitive level. At some point, clarity and understanding spring to the fore of conscious thinking. This is the "Aha!" moment, the flash of insight. I refer to this as the "Kaleidoscope Effect." In my case, it was recognizing that the range tables and the design of the gunnery system were both wrong. And that led to developing a workaround and reporting the problem up the chain of command.



If you've ever played with a kaleidoscope you have probably noticed that while looking into it and slowly turning the outer case what you see is a jumble of shapes and colors; there is no discernible pattern. But, at some point, all those jumbled pieces suddenly fall into place and a pattern is clearly visible. A similar phenomenon occurs in the course of solving a problem; at some point you suddenly

understand what is happening, why it is happening, and you probably have some ideas as to what to do about it.

To recap, when you are confronted with a puzzling situation:

- First, there is a trigger, a sign that something unusual is going on.
- Then comes the hunting and gathering of information that brings clarity and understanding.

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- At some point comes the Kaleidoscope Effect – a sudden understanding of the situation – all the pieces fall into place.
- The Kaleidoscope Effect is followed by the hard work of devising and implementing a relevant course of action.

The key issue, of course, is how to facilitate the Kaleidoscope Effect. Well, I like to think of a problem as a kaleidoscope; keep turning the problem around and around, looking at it from many different angles. Sooner or later, everything will drop into place.

About the Author

Fred Nickols, CPT, is a knowledge worker, writer, consultant, and former executive who spent 20 years in the U.S. Navy, retiring as a decorated chief petty officer. In the private sector, he worked as a consultant and then held executive positions with two former clients. Currently, Fred is the manager partner of [Distance Consulting LLC](#). His website is home to the award-winning [Knowledge Worker's Tool Room](#) and more than 200 free articles, book chapters, and papers. Fred is a longtime member of ISPI and writes this monthly column for *PerformanceXpress*. A complete listing of all Knowledge Worker columns and access to them is available [here](#).