VIEWPOINT

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NEW PERSPECTIVES ON "TRAGEDY OF THE COMMONS"

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Does the way out of "Tragedy of the Commons" (TOC) situations have to do just with teaching people about the structural deficiencies of their predicaments? Or does it have more to do with ensuring their capacity to learn about such things for themselves—on an ongoing basis? Given my strong interest in organizational learning, knowledge management, and adaptive systems theory, I have recently begun to think that systems that exhibit TOC patterns of behavior may be suffering from *broken or missing learning systems*. Surely, a system cognizant of its own self-destruction would not behave in such ways, so its learning systems *must* be somehow disabled.

These questions are important in my work—particularly in my role as board chair of the Sustainability Institute (www.sustainer.org). Founded a few years ago by a friend and mentor, the late Dana Meadows, SI studies "tragedies" found in commodity industries and works with actors inside these systems to find ways of breaking the pattern. We do so by first modeling their worlds through computer simulations. We then engage them in a process of revealing the operating dynamics of their own systems, the mental models that lie behind them, and the potential impact that changes in their assumptions or behaviors might have on the sustainability of their industries. By working with those who are trapped in dysfunctional systems such as modern agriculture, forestry, and fishing, we engage in mutual learning and try to identify leverage points for altering the cycle of unsustainable rates of resource use and destruction to create lasting and constructive change.

Testing My Theories

Because questions about structures such as TOC are pivotal to our work at SI, I recently decided to test my theories by posting the following questions to the learning organization listserv (learningorg@world.std.com):

1. Is anyone aware of any cases of the "Tragedy of the Commons" in the natural world in which human activity is not *involved? Or are instances of TOCs only found in connection with human behaviors?*

I have recently begun to think that systems that exhibit Tragedy of the Commons patterns of behavior may be suffering from *broken or missing learning systems.*

2. In the human domain, is anyone aware of any instances of TOCs within *an organization, as opposed to* between *them? In other words, can TOCs be found inside individual companies or human organizations, or do they only emerge as a consequence of interactions* between *companies, organizations, and individuals?*

What interested me most were the circumstances behind "tragedies" in society at large, because of our work at SI. At the same time, it occurred to me that "tragedies" might be endemic to one environment (inter-organizational), but not another (intra-organizational)—or at least *less* endemic.

A fascinating dialogue followed on the presence and influence of TOCs in everything from pure chemistry to ecologies to the animal world to the immaterial realm of human consciousness. "Tragedy" patterns are as likely to appear in inert chemical systems as they are in biological communities or human social psychologies. They also occur as often within organizations—such as when the IT staff suffers from high turnover because of the unrelenting demands on their services by the other departments—as between them. Moreover, in each of the different arenas, the pattern of the "tragedy" is similar, involving unintentional consumption of shared, critical resources of one sort or another.

I received from the folks on the listserv many examples of TOCs in nature, as well as in and between organizations in the human domain. But what interested me most were the contributions by Don Dwiggins, a software developer in Los Angeles, whose posts included references to two papers, one by Donald R. Leal, "Community-Run Fisheries: Avoiding the 'Tragedy of the Commons'" (Political Economy Research Center Policy Series Issues #PS-7) and the other by Elinor Ostrom entitled, "How Inexorable Is the Tragedy of the Commons? Institutional Arrangements for Changing the Structure of Social Dilemmas" (presented as a Distinguished Faculty Research Lecture, Office of Research and Graduate Development, Indiana University, April 3, 1986). Both contained reports of sustainable behaviors in social systems that usually exhibit "tragedy" patterns. The systems described were *not* declining; they were stable. Why?

Before reading these two papers, I was struck by Dwiggins's own observations concerning how the societal systems discussed by the authors apparently managed to avoid

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the "tragedy." Dwiggins wrote: "Something that I've read into the examples (perhaps incorrectly) is that the communities in question were acting as learning organizations. Either the structures they used arose over considerable time as social institutions, or the people affected came together and explicitly worked out viable structures."

This comment intrigued me. Upon closer inspection of the two papers, I found several specific examples that seemed to support Dwiggins's view, as well as my suspicions that "tragic" systems suffer from broken or missing learning systems. For example, in Ostrom's paper, I found the following analysis:

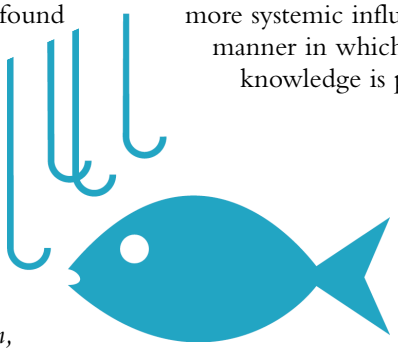
"The problem in understanding institutions is that one must use multiple levels of analysis. Several ways exist to identify levels. One method is to separate levels of operational choice, collective choice, and constitutional choice (see Kiser and E. Ostrom, 1982). The typical way of modeling a Commons Dilemma is at an operational choice *level. Analyzing how individuals might change the rules of an operational choice situation is at a* collective choice *level. And, further, analysis of the rules for making rules is at a* constitutional choice *level. When we move from an analysis at one level to a prescription for changing the rules used by people to structure that level, we must self-consciously use multiple levels of analysis."*

This paragraph really resonated with my thinking about what we were discussing at SI, because most of our models and interventions are designed to have impact at the "operational" level, while simultaneously engaging those involved in conversations about what rules to enact in practice. This latter step happens at what Ostrom refers to as the "collective choice" level.

But if a system is so far down the "tragedy" path that it needs interventions from analysts at the collective choice level to resolve its problems, what does that suggest about the condition of what Ostrom refers to as its "constitutional choice" level—that is, the level at which "rules for making rules" operate? In other words, what does that tell us about the system's capacity to learn? Well, it tells me that something's missing, and no number of consulting interventions to change behavior at the other levels will cure the problem. As soon as the consultants leave, the system will very likely slide back into its old, dysfunctional ways. I think we can do better than that.

Having a Deeper Influence

By expanding our focus to include interventions at the constitutional choice level, we can have deeper and more systemic influence on the manner in which operating knowledge is produced, thereby increasing the chances that our efforts will have lasting and sustainable impact. Unless we confront the problematic behaviors at their origin, we should not expect interventions made only at the level of their downstream consequences to produce any sort of meaningful or lasting change. Indeed, even if we are successful in effecting change at the operational level, the underlying constitutional level will remain unchanged, free to engage in the further production of dysfunctional behaviors, if not the resumption of old ones. The issue is treating the disease, not its symptoms.



The second article, by Donald Leal, gives many examples of deliberate cooperation between users of shared resources, particularly fisheries. Community-run fisheries feature active collaborations among fishermen who willingly restrict their own take through the use of quotas and lotteries. All of these schemes, in turn, are supported by shared learning systems that provide their members with a view of the "commons," its current state of affairs, and shared knowledge of its carrying capacity. In other words, there's a coherent organizational learning system going on in these communities that forestalls the onset of a "tragedy" from one day to the next. In a very real sense, it's not their knowledge of what *to* do or what *not* to do that keeps the fishermen's activities in check; it's their capacity to *learn* that does.

As we continue to examine the role of organizational learning in sustainable systems, it seems reasonable to scrutinize not just the structure of operations in complex systems, but also the presence and quality of learning regimes within them. This approach occurs at a different level of analysis, as Elinor Ostrom's work suggests. I believe that the link between learning and operational sustainability is a valid one of profound importance, because learning is what makes intelligent, or informed, adaptation possible.

In the absence of well-running learning, we can expect to continue to see dysfunctional behaviors such as the "Tragedy of the Commons" in multiple arenas and industries. Well-meaning course corrections along the way cannot prevent a system from falling back into its old, self-destructive ways if what's really missing is not just good decisions, but good learning. According to this theory, what "tragic" systems may need more than action learning is a good dose of action "deuterolearning," a way of helping social systems *learn how to learn* by fixing broken learning systems or establishing them where we find them to be missing. ■

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