TOOLBOX

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COACHING AND FACILITATING SYSTEMS THINKING

BY RICHARD KARASH

Systems thinking began as a set of analytic tools, but perhaps its greatest impact is as a language for collective inquiry, learning, and action. Systems thinking is used in a group setting in order for people to *learn* together—that is, to generate knowledge and understanding beyond what any one member of the group already knows. Working in groups not only enables us to create better theories and solutions, but it also ensures better buy-in and implementation of the proposed actions. The crux of the group process—and the place where things can fall apart—is in the creation of a causal loop diagram.

As a process leader or facilitator, how can you use systems thinking as part of an effective group process? The following are some overall considerations that should be addressed.

Engage, Don't Convince

If learning is the objective, then you want everyone to be thinking hard about the problem at hand. To be engaged, people need to feel that their ideas are being heard, examined, and tested. Whether you are presenting a diagram, or facilitating the development of one, it is important to get everyone engaged in creating a shared understanding of the problem. This approach may generate more debate, but it is much better to finish a meeting with strongly felt, irreconcilable differences in the group than to finish with weak acquiescence to an analysis that no one truly believes.

Presume that every view has merit. Whenever anyone makes a suggestion or offers a fragmentary theory, listen to it, inquire into it, and draw out the assumptions. If necessary, help articulate the conditions under which it would be valid. This will draw out more ideas and create a sense of shared problem-solving.

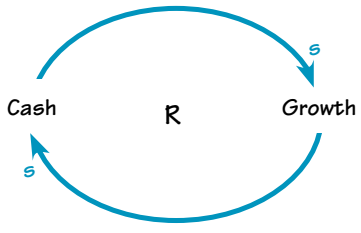
Pursue differences. Areas of conflict often provide the greatest opportunities for learning. One of the most common sources of disagreement in systems thinking diagrams is fuzzy or changing definitions of variables (see "Clarifying Variables"). Work through these issues to gain clarity about what each variable means, and add variables if needed. This process will ensure that the finished diagram represents the collective understanding of the group.

Treat Theory as Theory

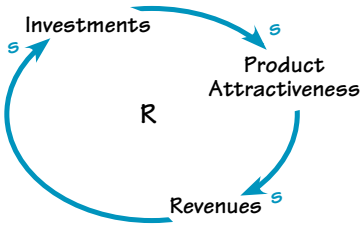
Every causal loop diagram represents a theory (or model) of the way things work. When we create systems diagrams, we are trying to ensure that our solutions are well grounded in a theory of what caused the problem in the first place. In this way, we reduce the possibility that we will end up with solutions that address only the *symptoms* of the problem. Because each loop diagram is a theory:

- It is important to know who is advocating the theory. If it's yours, say so. If it's unclear, ask. A danger signal comes when no one is willing to take ownership of a particular theory. Some groups believe (or hope) that data will point the way to a theory independent of the personal commitment of any person. This rarely happens. Encourage people to suggest a hypothesis, a mechanism, or theory about how things are happening.
- Every theory should be tested vigorously. Since theories are by definition never complete or universally true, it is important to clarify under what conditions or assumptions the diagram will be valid and helpful (see "Testing Theory"). When a model fails a test, ask, "If that theory doesn't work, what explanation might work better?"
- If testing a diagram becomes an issue of right vs. wrong, the discussion can quickly deteriorate into a win-lose situation and learning will suffer. Be careful when presenting your own diagrams—if challenged, it is easy to become defensive and lose the openness which is necessary for real inquiry.
- You can facilitate inquiry by asking, "As you see it, how does X cause Y? What's your rationale? What is the data? Can you give me an example?" (Or just make sure *someone* asks questions like

CLARIFYING VARIABLES



Variables Confused: More cash gives us the resources to grow, and growth increases the need for cash (Note how "cash" has become "need for cash").



Variables Consistent: As our revenues increase, we increase our investments in product development. This increases the attractiveness of our products, leading to even higher revenues.

Listen for the frequent mistake of changing the interpretation of a variable in a loop.

these.) Once you have heard the answers, state your point of view ("Well, that doesn't quite work for me. . . ."), but share *your own* line of reasoning as well.

Remember that an effective group process brings out several alternatives before closing in on one. Without some guidance, most groups will settle for the first reasonable suggestion without investigating other possibilities.

Be Clear About Process

It is usually helpful for a group to have a "roadmap" for the process. Make sure that all participants have a clear understanding of the overall systems thinking process—if necessary, post a chart of the systems thinking steps (see "Six Steps to Thinking Systemically," March 1995). From time to time, make sure the group stops to note where it is situated in the process.

Use the Diagram as a Learning Tool

Groups are often reluctant to add variables and links to their diagram until they're sure that the line of thinking is sound. But the group may need to see an idea in the diagram in order to respond. To avoid this "chicken-and-egg" situation, encourage the group to use the causal loop diagram to *support* group thinking, not just to record finished, tested thoughts.

Show every suggestion or idea in the causal loop diagram. If someone says, "Longer hours will cause more turnover," then add that to the diagram. If someone responds, "I think the improved spirit will keep turnover low," show this as well. If the ideas don't work out, then change the diagram back to its original configuration.

The key to making this technique practical is to use self-adhesive notes (such as Post-Its™). Put each variable on its own self-adhesive note, using a size large enough to be visible to the whole group. Arrange the notes to illustrate a chain of cause and effect. If the chain seems accurate, then ink in the arrows between variables. Magnetic vinyl tiles and a white board are another good alternative.

Being a Systems Thinker

Being a systems thinker yourself is perhaps the most important single factor for supporting systems thinking in your group. If people see that you model the behaviors and skills you are trying to encourage, it will provide a powerful example. If they hear you say one thing, but see you do another (not "walking the talk"), it can have a negative impact on the work. The actions and bearing of a single individual can be a strong force in setting the overall tone for an approach, regardless of that individual's level or position in the organization. ◘

Richard Karash (Boston, MA) is a consultant, facilitator, and trainer in the disciplines of the learning organization.

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TESTING THEORY

Each systems thinking diagram represents a theory of how the system works. When testing the theory, you want to look for validity, explanatory power, relevance, and utility:

Does the theory make sense? Is it internally consistent? If in doubt, ask for an explanation, and probe the suspected link. Ask, "How does this cause that?" Listen for the frequent mistake of changing the interpretation of a variable as you talk through the loop.

Does the diagram explain what's actually happening? Test this by asking, "What patterns of behavior over time would we expect based on this diagram? Do they match what we have been seeing?" If not, investigate. It's surprising how often the diagrams represent things as we want them to be, not as they are. This is fine; but it is important to have both an accurate picture of current reality and a picture of the desired future. Confusing one with the other can create problems.

Does the diagram explain things that are important to us? If not, perhaps you are focusing on the wrong part of the picture.

Does the diagram help guide us to effective action? Ask, "If we came to believe this diagram, what would that tell us to do? Where would we find leverage?" If there's no clear answer, the diagram may be too simplified . . . or it may have so many variables that the essential loops are difficult to see.

