

Tussling with Barry

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Abstract

In the months prior to his untimely death, Barry Richmond and I were arguing. About a month before he died, I traveled to Hanover to have dinner with him and spent that evening and most of the next day in heavy conversation, and we followed that meeting with a lot of emails back and forth. The disagreements were important to both of us, because they involved how we can best help K-12 teachers acquiring systems thinking and system dynamics capabilities and nurturing them in their students. More generally, our disagreements were about crucial foundations of patterns of conceptualization and thought in our field.

We talked about letting others in on the conversation. This paper is my attempt at a “jointly” edited version of our conversations. It is a small “thank you” to Barry for the commitment, intelligence, and unending creativity that always characterized his contributions.

Prolog

In the months prior to his untimely death, Barry Richmond and I were arguing. In fact, about a month before he died, we agreed we should get together and try to work out our differences. I traveled to Hanover to have dinner with him and spend that evening and most of the next day in heavy conversation. The disagreements were important to both of us, because they involved how we can best help, advise, and teach K-12 teachers striving to acquiring systems thinking and system dynamics capabilities and nurture them in their students. Both of us had been trying to help for more than ten years. Barry had committed endless hours of his time and considerable resources of his company, High Performance Systems, to the effort. Both of us viewed the work of the K-12 folk as a vital initiative for the future of education and for the field of system dynamics. Helping in the “right” ways was important to us.

But Barry was saying things I couldn't accept and probably didn't understand, and I was baffling him as well. We appeared to each other, I think, as if we were contradicting positions we had taken in the past. I knew Barry to be one of our most gifted and clever "stock-and-flow" thinkers. I had seen his work up close, occasionally working directly with him, from the time of his early consulting work (before STELLA and HPS), and I had long marveled at the insightful ways he would conceptualize the crucial accumulations in a system. And here he was, getting more and more excited about a new way of teaching budding modelers, which had them starting by thinking of *everything* as a stock or a flow -- no other variables, no algebra, no graphical functions, literally everything either a stock or a flow. Moreover, he was urging people to think of every noun in the system as a stock, while verbs would be flows. That's just wrong, I thought -- all quantities are nouns -- and besides, it sweeps away all the clever insight Barry used to use in deciding what variables in a model ought to be captured as accumulations.

Meanwhile, I was saying things Barry also couldn't accept. He knew me to be a staunch advocate of stock-and-flow thinking, the author of at least two papers uncovering numerous potential pitfalls of causal loop diagrams and the inherent weaknesses (well, OK, flaws) of "S" and "O" notation in CLDs, who as early as 1981 argued in print that the most reliable form of diagram for our purposes is a combination of stocks and flows and words and arrows (Richardson & Pugh 1981). And here was I, telling K-12 teachers that it's OK to use causal loop diagrams, without stocks, for everything from initial conceptualization to communication of results, urging, in fact erasing, the heavy line people seem to want between CLDs and "stock/flow" diagrams, seeing CLDS as just one phase along a continuum from conceptual, imprecise, creative thinking to quantitative, precise, operational thinking. That's just wrong, Barry thought; in fact, while I was advocating their inclusion in the tool kits of K-12 teachers and kids, Barry was saying CLDs didn't even deserve a place on the continuum anywhere; they're confusing and dangerous.

So we began to talk, to go at it, even before the appetizers arrived, even before we thought of asking about each other's families. We continued to talk the next day, but we didn't finish. I didn't "get it;" Barry didn't yield. We agreed to continue talking by email until we understood each other, and most importantly understood how not to get in each other's way when trying to help our friends in K-12 education.

After a number of e-mails back and forth, we talked about maybe letting others in on the conversation, maybe publishing some jointly edited version of the discussion -- it was always a

discussion, even when it was a disagreement. But sadly, that's not possible now, at least not jointly.

So what follows is my attempt at a "jointly" edited version of our conversations, interspersed with clarifying comments and reflections, all of which I earnestly hope presents the issues as Barry would have liked to see them presented. In what follows, there will be some conclusions -- some agreements I think we reached, some learnings one or the other found, some changes of thinking -- as well as some remaining questions. But the purpose of this set of reflections is not to provide a list of who managed to persuade whom about what; it's not a scorecard. Our purpose here is to walk with Barry and me as we tussled over things we found important yet difficult to agree on. On some we never did, and the field might never agree either. Barry and I wanted to let others in on the conversation, so we may all engage these issues with each other with the deep respect and, yes, deep affection that Barry and I shared. For the finest memorial to Barry is for us to try to carry on his work, with our best efforts at reaching for the commitment, intelligence, and unending creativity that always characterized his contributions.