The Many Varieties of Experimentation in Second-Order Cybernetics: Art, Science, Craft

Laurence D. Richards
Indiana University – Purdue University Columbus, USA •
laudrich/at/iupuc.edu

> Upshot • Scholte proposes using the theatre as a laboratory for experimenting with ideas in second-order cybernetics, adding to the repertoire of approaches for advancing this way of thinking. Second-order cybernetics, as art, science and craft, raises questions about the forms of experimentation most useful in such a laboratory. Theatre provides an opportunity to "play" with the dynamics of human interactions and relations and possibly demonstrate value in second-order cybernetic thinking.

« 1 » Tom Scholte expresses concern that second-order cybernetics (SOC) is being marginalized within mainstream academia. The implication seems to be that if SOC was recognized as a legitimate and mainstream approach to science and design, it could contribute significantly to many types of human endeavor. Scholte proposes that the theatre could provide a laboratory for experimenting with ideas in SOC as a way to add some legitimacy and demonstrate value. I find this to be a novel and intriguing proposal and encourage its further development. Scholte has the unusual combination of expertise in theatre studies, directing and cybernetics necessary to pull it off. I am unsure how many people with these abilities and interests there might be; perhaps Scholte's work will stimulate more interest. In this commentary, I wish to question the prospects for, and even the desirability of, pushing SOC into "mainstream" academia.

« 2 » SOC is distinguished by the new questions it asks, not by the answers it might supply to current questions. Its legitimacy lies in the logic(s) embedded in these questions and the desirability of the consequences of exploring the questions further. Its method is deductive. Looking for empirical support for cybernetics concepts in current systems is not of value in responding to questions about systems that do not yet exist, but that might be desirable if they did exist. The activity of designing and exploring new systems invokes the realm of the un-decidable question – questions only we can decide, questions of desirability. Artistic performance, as in the theatre, provides a vehicle for creating new systems and then experimenting with them. The form of experimentation, however, may not be in the tradition of the scientific experiment, where empirical results are used to support or oppose pre-formulated hypotheses and theories; on the contrary, the more appropriate experimentation might be in the form of "playing" with the dynamics of interactions and relations. Opportunities for playing with dynamics reside in the composition of the script/score; in the interactions among the actors, between actors and director, between performance and audience and among audience members and others; and in the scheduling of a performance as an event among other events.

« 3 » Experimental composition and experimental theatre are common subjects in university programs in the fine and performing arts. In fact, the movement arts, and all the arts, are experimental. Ideas are tried, consequences explored and new ideas generated. The controlled experiments of science, on the other hand, use the word "experiment" in a different way: scientific experiments are intended to prove or disprove an explanation of a current phenomenon. The controlled aspect of these experiments requires the specification of a current system in which the explanation will be tested. The idea of a craft merges art and science and adds action. For the craftsperson, the repetition of an activity – that is, learning through doing – could be regarded as a continuous process of experimentation: through practice, the craftsperson develops her craft.

« 4 » There is, of course, an art, science and craft involved in all these activities, but it is the focus on experimentation in the sciences that increasingly gives legitimacy to an academic field of inquiry. Cybernetics has always been trans-disciplinary, even anti-disciplinary, in approach, treating all systems (existing or imagined) as potential subject matter. The approach of SOC involves art, science and craft together, simultaneously and without bias. Mainstream science is disciplinary, empirical and oriented toward questions that can be decided through observation and controlled experiment. SOC does not belong in the mainstream and is not likely to carve out a place for itself there; rather, it provides an epistemology for an entirely different system of inquiry, one that focuses on the observers/listeners themselves, their ways of thinking, their desires and their interactions with each other. The hope of SOC is in the prospect of a new way of thinking and talking about our world, our society and ourselves.

« 5 » Why focus on experimenting with the "dynamics" of human interactions and relations when speaking of SOC? Three features unique to cybernetics come to mind.

Dynamics and relations

« 6 » Cybernetics attempts to address two domains of inquiry simultaneously: the domain of dynamics (experience) and the domain of relations (explanation) (Richards 2010, 2013). Bridging the domains requires the observer/listener to select a clock by which observations are to be made and explanations formulated. I use the word "clock" to speak of a way of sampling a dynamics. In science, the commonly accepted tradition is to select an external standard clock (years, weeks, days, hours, minutes, seconds, milliseconds and so on – equal increments based on revolutions of the earth around the sun, rotations of the earth on its axis or other fixed reference points, which self-referentially already require the selection of a clock in order to call them "fixed"), with the only choice being how often to record observations of states or structures in the phenomena being observed. For example, observing the growth of a culture in a petri dish requires a decision about whether to record observations every day, every hour, every ten minutes or some other interval (sampling rate), so that causal relations among the variables under consideration can be inferred from the changes in state or structure observed. Different sampling rates produce different relations, with different consequences for science, for the scientist and for the world that accepts the results. In the arts, many possible clocks (or con-

http://constructivist.info/11/3/598.scholte

ceptions of time) are employed or invoked, often without explanation or justification by the artist. For example, spray painting carries a different conception of time than splattering with a brush. Music plays with conceptions of time in the performer and the audience. Artists accept neither the regularity of time nor the desirability of the standard clock, preferring to challenge accepted notions of time. Invoking multiple conceptions of time can create an out-of-synch-ness among composer, performer and audience – a situation of conflict to be resolved and an opportunity for new ideas to emerge. This is the role of the arts in society (Richards 2010). SOC deals explicitly with the choice of clocks, placing responsibility for the consequences on the observer/listener.

Recursion

« 7 » Cybernetics deals with recursive processes and closure in the dynamics of operations of systems, rather than with the whole systems and open systems approaches more common in the sciences and humanities. SOC suggests that focusing on the dynamics of operations of systems – patterns of changes – can throw light on the human predicament in ways no current science does, but that it does so by including the observer/listener, and their selection of (a) clock(s), in the system of interest.

Conversation

« 8 » Cybernetics is enacted in conversation: a particular dynamics of interaction in a language such that the dynamics moves from an asynchronicity (a friction, conflict, contradiction, disagreement, being on a different plane, being out of synch) towards synchronicity (including agreement or agreement to disagree). This dynamics is the realm of SOC.

« 9 » I have often talked of the cybernetician as a craftsperson in and with time (Richards 2016). All artists manipulate time; the cybernetician does so thoughtfully and deliberately. For scientists to deviate from the standard clock in their research would be to insert, deliberately, the observer and the observer's desires into the system being observed. This would be a new science, one where the theatre and other arts could become a playground for research. At present, this conception of science is so far removed from what is accepted that it makes little sense to push the SOC agenda onto it. SOC will become appreciated by the desirability of the consequences realized when people employ this way of thinking – namely, a reduction or elimination of violence. I use the word "violence" to speak of any action that reduces the participation of some by eliminating their choices and alternatives. I regard the reduction or elimination of violence as a consequence most of humanity (even if not all) could agree on as desirable and therefore what experiments with SOC need to demonstrate. The theatre is a place to practice and hone this craft.

« 10 » I would also like to make the case that SOC implies an approach to experimentation with language that is different from traditional approaches. Specifically, treating signs and symbols as fundamental units of analysis in the study of language, as in semiotic research, does not recognize them as objects generated by the very language being studied. SOC recognizes languaging as a process (the coordination of the coordination of action), with the language produced then serving as a medium through which the dynamics of a conversation can happen. If there is to be a unit of analysis in SOC experimentation, it should be the entire conversation. In theatre, the conversations could be those that actors or directors have with themselves – namely, those that generate thinking; those that occur on stage as modulated by a script or score; those between actors and between the actors and director in preparation of a performance; and those between actors/directors and audience, or between audience members, or between audience members and others not in attendance. In all cases, the opportunity is to play with the dynamics of interactions and relations. Characteristics to observe include amplitude, speed, frequency, rhythm, emphasis, pivots, events and, of course, synchronicities and asynchronicities, among others – anything that would distinguish a pattern of dynamics.

« 11 » In conclusion, Scholte lays out for us a challenge: let us advance SOC by doing it. Our ability to generate significance through scientific experiments on minds, societies and the world in general is limited by current conventions and resources and complicated by constant change in conditions, factors and desires. The theatre (and all the arts) offers the opportunity to create micro-worlds where these complications can be accounted for and experimented with, without the same constraints of convention and resources that limit the traditional sciences. Current best available knowledge can be applied and the artist's skills brought to bear on the creation of a performance, while also applying the craft of the cybernetician. The results will speak for themselves. I look forward to hearing about the experiments, if not participating in them.

Larry Richards is currently Interim Vice Chancellor and Dean of the Indiana University–Purdue University Columbus (IUPUC) campus in Columbus, Indiana. He will return to Indiana University East in July 2016 and then retire from Indiana University at the end of August, 2016, at which time he hopes to write some books and create an alternative approach to higher education from those that are offered by current colleges and universities.

Received: 8 June 2016
Accepted: 10 June 2016