

The Future of PCT

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Philip Jerair Yeranorian:

Could everyone describe what the future of PCT research is? Ok, we can have more and more people designing Rick's demos. But what's the real endgame in PCT? What's it going to look like?

Bruce Nevin:

I don't see the future of PCT as its endgame.

PCT provides a theoretical and conceptual foundation for all the sciences that investigate any aspect of living things: their behavior, the processes within them, their interactions, the social and organizational systems in which they participate, and perhaps more. Anything to do with life and living. That's an awfully big umbrella. Exploring all that comes under that umbrella will take a very long time, and I think we will continue to discover more. I say 'we' meaning us humans, or those of us who engage in this discovery; the farther developments will come after the end of this lifetime.

A very exciting development is the work that Kent McClelland is doing with collective control. He has developed the conceptual framework and he and Martin Taylor have proposed a nomenclature for the environmental stabilities that are brought about and maintained by collective control.

Stabilization of the environment is a major benefit of collective control at all scales—at small scale, cells combining to form complex multi-celled organisms and viruses evolving to mitochondria within cells, and the evolutionary path generally from pathogen to parasite to symbiote to e.g. enterome. At large scale, we are ignorant of anything beyond human social systems, and I think necessarily so for the same reason that a cell within the body necessarily

does not perceive or control the same inputs that the body does. That reason, assuming such perceptions were somehow physically possible, is that pathological conflict would ensue. One or both would be unable to survive more than a generation or so because of disturbances and environmental destabilization at both levels of organization.

If we survive as a species over the next century of environmental destabilization called climate change, it will be because we learn to participate more intelligently and deliberately in the processes of developing and changing human social arrangements by collective control. I believe that the development, broad acceptance, and above all practical application of PCT is essential for this.

Equally important, in a complementary way, will be the increasing PCT sophistication of neuroscience, and the increasing PCT sophistication of its practical applications. We do not know what neuroscience research informed by PCT may disclose and make possible.

Without collective control for the common good, the applications of research in this more sophisticated neuroscience could be disastrous. Think only of technologies that have already been put into the childish hands of those whose most important CV in life is accumulation and retention of wealth and power, and in the hands of the politicians and generals who serve them. So far, these folks have known only about reward and punishment as handles for manipulating the public by influencing what perceptions they control at what references.

We will have to learn to heal the polarization that has been so assiduously cultivated for political and economic gain. This polarization exploits especially

those whose childhood was ruled by authority and fear, reward and punishment. This experience during the years of most extensive cognitive development has physiological and cognitive consequences.

A number of studies in the past couple of decades have concerned cognitive differences between conservatives and progressives. Characteristics associated with conservatives are also associated with what used to be called the limbic system, including the amygdala: for example, a stronger preference for predictability and familiarity, a greater avoidance of cognitive dissonance, more aggressive response to uncertainty and threat, etc.

In one study in England, students who self-identified as conservatives had larger amygdalae than those who self-identified as liberals. (R. Kanai; et al. (2011-04-05). "Political Orientations Are Correlated with Brain Structure in Young Adults". *Curr Biol* 21 (8): 67780. doi:10.10016/j.cub.2011.03.017. PMC 3092984. PMID 21474316.) I surmise that this is a consequence of a childhood that was ruled by authority and fear, reward and punishment.

I wrote about the amygdala in a prior post. The amygdala mediates establishment of long-term memory as well as processing of emotional states (sensations in the body associated with remembered and imagined perceptions). Not least for reasons that I think are evident in sex-differentiated properties of the amygdala which I noted in a previous post, I am certain that full participation of women in the processes of developing and changing our social arrangements by collective control is essential to our survival in the face of climate change.

As is well known in principle but all too often forgotten in practice, collective control is much more difficult in an email environment, because without nonverbal communication channels superficial differences degenerate too easily into the email equivalent of chest-bumping. If we do indeed control a perception of PCT being accepted in that vastly encompassing umbrella role over so many scientific fields, as we claim to do, then as means to that end we must negotiate many conceptual and terminological prior commitments in a—dare I say it?—in a more compassionate way. Getting extricated from such

commitments on the way to grasping PCT is not an easy process. Bill's correspondence with Phil Runkel is exemplary (*Dialogue Concerning the Two Chief Approaches to a Science of Life*).

A few examples of terminological commitments in other fields:

- Neuroscientists have got used to talking about feedback meaning afferent vs. feedforward meaning efferent, and their knowledge of negative feedback control may be pretty much limited to homeostasis. So we need to be careful that we understand what they mean, and that they understand what we mean.
- In the statistical methodology of IV-DV research, a controlled variable is one that is controlled by the experimenter so as to have null effect on the dependent variable DV, so we need to acknowledge their use of the term and the importance of the experimenter maintaining the integrity of the experiment while emphasizing that the focus of PCT research is on what the observed organism controls.
- To a programmer we may need to make clear that the controlled variable is not a 'control variable' regulating order of execution of program steps
- In my work with language, I have to acknowledge the 'information' of information theory (communication theory) in relation to the objective information in utterances: the latter is collectively controlled, and may be included among the means by which an individual may reduce uncertainty (one definition of the former).

When they are made explicit, terminological differences such as these are superficial, even trivial, but if they are unnoticed people talk past each other, each convinced of the other's obtuseness. Any place where we give precise PCT definitions of terms and concepts, the words we use have other meanings outside of PCT. As an example of addressing these problems of communication in a helpful and constructive way, I offer this paragraph from some recent writing by Martin Taylor (I hope with your permission, Martin):

When some people hear the word “control”, they take it to be the opposite of “freedom”, and therefore that a psychological theory based around “control” is a theory to be opposed on principle. Others may think of “self-control”, a modicum of which is the core of civilized behaviour; too much self-control prevents people from seeing your true feelings and renders you untrustworthy; too little, and you thoughtlessly do things that damage other people and your physical environment.

Perceptual Control is neither of those.

To get a feel for what Perceptual Control is ...

Any time there’s disagreement or argument, assume first that one or more words being used by one party do not mean the same as the identical words being used by the other party. You can’t tell what a person is saying by just looking at their words. That’s a special case of “You can’t tell what a person is doing by watching what they’re doing.” Apply the Test. If we spend our time bickering and blowing one another out of the metaphorical water, what benefit are we for our avowed aim of seeing PCT accepted?

There are important areas of potential research and understanding which have not even been considered yet (so far as I know). So there is no question of the future of PCT being its end game. One such area which to my knowledge has been completely unexamined so far in PCT is hypnosis. The range of hypnotic phenomena, many of which are rather startling.

An example is time dilation, in which for example an artist accomplished 70 hours of slow, painstaking trial-and-error work, solving tricky problems of color and technique, producing a painting on a theme on which he had been blocked for many years—in 6 hours of clock time (paper 27 in vol. II of Milton Erickson’s collected papers). The vexed question of awareness is a central element in hypnosis. What makes the difference between those who are ‘good’ subjects for hypnosis and those who are not?

A few more thoughts on our political environment: PCT makes large claims. PCT neuroscience will underwrite these large claims with greater authority. Conservatives—and my impression is that they include most of those folks who hold the purse strings—respect authority. Conservative values are equivocal about the essential freedom of control systems to set their own reference values for CVs from within themselves.

On the one hand, this perception sort of jibes with the narcissistic myth of the independent individual, dear to conservative ideologies. It also jibes with a perception, commonly controlled by conservatives, that human nature is unruly, even depraved, and must be constrained and directed by institutions and authority.

On the other hand, it conflicts with the desire to control other people and make their behavior predictable (“prediction and control of behavior”, the behaviorist/cognitivist marketing slogan).

If PCT social science can inform social activism with real insights and new forms of participation, this will put conservative politicians into the kind of conflict that we see in their denial of climate change. In this, of course, the politicians are defending stabilities in the environments of businesses and institutions.

The manipulations of public opinion by PR and propaganda have engendered a populist tiger, which threatens to bite them. To the extent that applications of PCT to the direction of social change are effective and gain recognition there will be attempts to make use of them to preserve those environmental stabilities that favor those whose most highly valued CVs concern the accumulation and preservation of wealth and power. It will be fascinating to see how this all plays out.