

Evaluating Perceptual Control Theory (PCT)

By Dag Forssell

Has it ever occurred to you to question the idea of the solar system? The idea is highly counter-intuitive and caused a scientific revolution just a few centuries back, but in today's world this idea is taught in elementary school, so you likely take it for granted.

Another idea that may seem counter-intuitive is that all living organisms are control systems. In today's world this (actually rather simple) idea is not yet widely accepted and taught in elementary school. So when you get exposed to this idea it has to fit into your existing weave of knowledge, just as you have woven everything that you have experienced and learned since infancy into your personal understanding of the world you live in.

If you have not studied contemporary psychology as taught in universities the world over, you may have a very easy time learning how control works and incorporating the PCT explanation into your weave of understandings, concluding that it amounts to common sense. Just read the literature and work with the computer simulations to get full benefit from the insight that PCT offers.

If, on the other hand, you have studied and internalized any of the multitude of theories in contemporary psychology, and if these are now important to you, integrating PCT into your personal weave of understandings may present a challenge. PCT is a very different kind of theory. See *Descriptive vs. Generative Scientific Theories*.

Evaluating PCT by reading about it

Philip J. Runkel's odyssey is perhaps the best guide on the path from conventional psychology to PCT.

Back in the summer of 1985, one year away from retirement as professor of psychology and education at the U of Oregon in Eugene, Phil sent a six page, single space letter to William T. (Bill) Powers, with questions about an article published seven years prior.

Bill replied just six days later with a nine page letter. So began a very instructive correspondence.

You can follow Phil's careful exploration, questions and emotional upheaval as he repudiated most of his professional publications and began writing his major

work, *People as Living Things*. This book, 18 years in the making, is not just a detailed review and critique of contemporary psychology in light of Perceptual Control Theory, it provides much more.

In his review of this work, Len Lansky, Emeritus professor of Psychology at the U of Cincinnati, wrote:

Runkel has written a book on Perceptual Control Theory (PCT) which is at one and the same time: a text book for graduate and undergraduate psychology; an introduction to perceptual control theory (PCT) for the general reader; a paean to William Powers and his achievement—PCT; a memoir about his (Runkel's) exposure to PCT; and an integration of the research and theoretical work on PCT for those familiar with the theory.

The entire correspondence that led to *People as Living Things* was published in 2011 as *Dialogue Concerning the Two Chief Approaches to a Science of Life*.

Bill Powers strove his entire life to give PCT to the world. In this spirit, although they are easier to read as paperbacks or hardcover, all books on PCT that I publish can be previewed at Google Books. See www.livingcontrolsystems.com: **Click here to read several titles on-line**. To help you find your way, 30+ papers and tables of contents from 20+ books, with sample chapters from most, are included in the free pdf download *Perceptual Control Theory: An Overview of the Third Grand Theory in Psychology*.

To see what *Dialogue* is about, I recommend page i, right column, page xxxiii, right column, the following page and Phil's reply Jan 8, 1986. The full letters excerpted here are printed on pages 72-75 and 85.

To sample *People as Living Things*, I suggest the Preface on page xiii, Modeling and Theories on page 97 ff, Chapter 10 on page 123 ff, Chapter 16 on page 177 ff, and about the sometimes glacial pace of adopting new insights, page 479, right column, bottom.

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Bill Powers' seminal work *Behavior: The Control of Perception (B:CP)* was published in 1973. His article *Quantitative Analysis of Purposive Systems* (the one Runkel asked questions about) followed in 1978.

A number of psychologists have published books featuring what they call control theory. Incorporating a superficial understanding of PCT into their pre-existing weave of conventional understandings, they lost the functional aspect. These efforts have hindered rather than helped the adoption of PCT. Other prominent psychologists have taken these non-functional versions as evidence that the original was flawed, and have published critiques without ever reading B:CP or any other actual PCT literature.

A huge resource for serious students of PCT is CSGnet (Control Systems Group network), an unmoderated mailing list started in August 1990 and still going strong. A complete archive is available at pctrresources.com. Here you can search for discussions on numerous aspects of psychology. Bill Powers' contributions are prolific, patiently helping people through fundamental changes in their understanding.

While attempting to build a business teaching PCT in the 1991-1994 time frame, I took the time to collect numerous threads from discussions on CSGnet. See *Threads from CSGnet*. Some are funny (StarTrek.pdf, AprilFool.pdf), some metaphorical (FableOfRadio.pdf), and some discuss the distortions that present obstacles to an adoption of PCT (DevilsBibliography.pdf).

Evaluating PCT by running simulations

PCT is a theory in the mold of the 'hard' physical sciences. Because it provides a functional model, not merely a flow-chart kind of "model" as is the norm in conventional psychology, Bill Powers began in the late 1980s to write programs that demonstrate fully functional simulations of behavior. These are available for download at livingcontrolsystems.com.

Starting in the 1990s, Rick Marken, using Java, developed demonstrations that run in your browser. See <http://www.mindreadings.com/>.

By 2008, with the assistance of Bruce Abbott, Bill Powers created an updated series of teaching demos for Windows that are explained by and included with *Living Control Systems III: The Fact of Control*.

Fully functional models simulating the performance of human beings are unique in the realm of the life sciences. This sets PCT apart from the huge field of psychological theories, where every psychologist worth his salt offers his or her theory of some aspect of psychology.

A scientific revolution in progress

From time to time, some prominent psychologist calls for a meta-theory capable of integrating the vast multitude of theories in conventional psychology. But rejecting conventional psychology, suggesting that psychology start over (discarding a huge body and continuing flood of published books and papers) is not acceptable, so the eminent suitability of PCT for that purpose is not recognized.

As Thomas S. Kuhn explains in his seminal work *The Structure of Scientific Revolutions*, the confusion, distress, and failure throughout the community of contemporary psychology is typical of the early stages of a scientific revolution. Kuhn explains that during a revolution, people already committed to the old paradigm don't let go, while newcomers adopt the new. Therefore, a scientific revolution usually requires a generation change.

This revolution has begun but will take more time, several decades no doubt. As you evaluate and study PCT, you will discover its considerable explanatory power. You may agree that PCT lays a foundation for the science of psychology to leave its descriptive past behind and turn into a generative natural science that can take its place alongside the other natural sciences we can rely on, such as physics and chemistry.

About the future

The day will come when our children are taught in elementary school about control and how it works; that living organisms act to control what they experience without focusing on how they do it; that you cannot know what other people want to experience by watching their actions or, put another way, you cannot know what others are doing by watching what they are doing; how to resolve conflict, which as controllers we are prone to create.

When this day comes, the world will be a better place.

Please be very careful as you evaluate PCT.

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Terminology is an important issue when comparing different theories. Phil Runkel discusses the different meanings of "theory" and "model" in descriptive and generative theories. Bruce Nevin expands this awareness to other fields in his paper: *The Future of PCT*.
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