Available online at www.sciencedirect.com
ScienceDirect
Futures 39 (2007) 1067–1083
FUTURES
www.elsevier.com/locate/futures

Evolutionary psychology, complexity theory, and quantitative social epistemology

Graham Chapman*

Department of Geography, Lancaster University, Lancaster LA1 4YB, UK

Available online 11 April 2007

Abstract

The human brain is the instrument by which we observe the external world (correspondence), and by which we communicate our interpretations of it to each other (coherence). Only a small part of the brain's behaviour is amenable to introspection, and subsequent linguistic articulation to other people. The vast majority of our perception and behaviour is shaped by subconscious compartmentalised functions which are the result of 2 million years of human evolution prior to the last 10,000 years of 'civilisation.' Both individually and collectively this behaviour is complex—full of non-linearities, feedback, and emergent effects. There is thus an overlap between evolutionary psychology and complexity theory. However, it may be that our ideas about complexity are not an independent tool with which to appraise evolutionary psychology, because they are instead the products of it. This evolved subconscious brain, about which we know so little, has the greatest channel capacity for both correspondence and coherence. It has evolved as a survival strategy to match our long generational deadtime, but may not be appropriate for new challenges to survival. It is suggested that we need to re-instate mankind and his brain as the central element of study, so that we can learn who we are that threaten our own existence.

1. Introduction

A recent Special Edition of *Futures* [1] was dedicated to an exploration of the relationship between knowledge and complexity theory. What complexity theory has shown conclusively is that there are limits to our knowledge, because complex non-linear systems cannot be modelled exactly, and more importantly, we can never know whether we

*Tel.: +44 1524 593737; fax: +44 1524 847099.
E-mail address: g.chapman@lancaster.ac.uk.

0016-3287/$ - see front matter © 2007 Elsevier Ltd. All rights reserved.
doi:10.1016/j.futures.2007.03.013

have even modelled them approximately. "In building representations of open systems, we are forced to leave things out, and since the effects of these omissions are non-linear, we cannot predict their magnitude." (Cilliers [2, p. 608]). If there are limits to knowledge, then what does that say about our ability for 'transparency' and 'accountability'? (Allen and Torrens [1]).

The different papers in the issue put many aspects of dynamical system analysis under the microscope—so that the ideas of adaptive and evolving systems, closed and open systems, memories and history (path dependence) get their full measure. But nearly every paper could have been written by a theorist from planet Zog or planet Beetlejuice, rather than planet Earth. There is virtually nothing that is said about what is distinctive about human beings from planet Earth, yet we are the only agents we know of, capable of writing and editing such an issue. And, in this case, the papers were all written in just one of many human languages (English), in one serial dimension, even if elaborated occasionally by two-dimensional diagrams.

I too wish to relate complexity theory to knowledge. But in this paper, but I ask other questions about the *human nature* of human knowledge, and relate complexity theory to that. I wish to augment rather than supplant the 'limits' to knowledge arguments of the Special Edition. Indeed, I wish to complexify them.

2. The limits of self-knowledge

The human brain can handle more information than that of any other animal. But the conscious "I" of any one of us human beings is aware of only the smallest fraction of all the sensing and processing that goes on. Our ability to see colour is the result of this processing, of millions of bits of information. Our extraordinary ability to recognise faces is the product of spectacular computation, as any computer scientist who has tried to emulate the skill full-well knows. Our ability to sense mood, and dissembling, in our friends and associates, is the result of huge amounts of computation—all beyond the reach of conscious awareness for nearly all of the time. The disparity between the little that the "I" can say in language and this much, much greater amount of information processing that goes on subliminally, has led Nørretranders [3] to distinguish between the "I" and the "me," and has led Wilson [4] to entitle his book Strangers to Ourselves. We know that most of what we do is determined by the subconscious "me," not the "I."

But "I" and its language(s) dominate our conscious understanding of the world, and the way we communicate this understanding to each other. Both consciousness and language have very little bandwidth. Two people who know nothing about each other find it difficult to have meaningful conversations—everything has to be carried through this narrow bandwidth. By contrast, two people who know each other intimately can express a huge amount in a few words and the subliminal language of another known body, where the few words or gestures relate to large stores of shared knowledge and experience.

Thus we, the human beings on this planet, are the choke points in the connection between planet and culture. We need to be aware that the choke point is determined on one side by the capacities of our embodiment. On the other side it is determined at rock bottom by the minimal capacity of linguistic communication, even if this can be augmented by cultural affinity.

The use of language as a connecting medium of understanding traps us in what Bortoft [5] in his exposition of Goethe's Wholeness of Nature calls the linear-analytical mode.