

Book Review

A review of *Human Natures: Genes, Cultures, and the Human Prospect*, by Paul R. Ehrlich, 2000. New York: Penguin Books, 531 pp. ISBN 0142000531. \$15.00 USD.

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“What is human nature?” Paul R. Ehrlich, Bing Professor of Population Studies at Stanford University and author of *The Population Bomb* (1968), addresses this age-old question by examining genetic and cultural influences on human nature from an evolutionary perspective. Ehrlich posits that an evolutionary lens provides insight into the origin and potential resolution of a suite of global problems presently undermining the planet’s life-support systems. This lengthy book is written for a popular audience in engaging prose and is meticulously researched. The evolution of communities, language, homosexuality, warfare, religion, art, and the state are but a few examples of the topics with which Ehrlich engages.

Although complexity theory is not overtly recognized as an orienting principle in Ehrlich’s work, many of his ideas resonate with complexivist sensibilities. For example, his discussion of the evolution of the brain and mind in Chapter Six parallels Varela, Thomson, and Rosch’s (1991) understandings of embodied cognition. The most prominent connection to complexity theory permeating the text is the notion that complex systems embody their histories. In Ehrlich’s words, “all of our natures are a product of our histories, biological and cultural” (p. 270). Expanding on this thesis, *Human Natures* provides an outline of the history of human evolution that explicates the importance of cultural evolution for our past and future survival.

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Early in the text, Ehrlich challenges the conventional view that humans are “instinctively aggressive, greedy, selfish, duplicitous, sex-crazed, cruel, and generally brutish creatures with only a veneer of social responsibility” (p. ix). He draws on recent developments in genetics to argue that our natures are neither “genetically determined” nor products of “blank slates” (see Ridley, 2003; Pinker, 2002). Rather than a singular human nature determined by a “set of rigid, genetically specified behavioral predilections” (p. ix), Ehrlich asserts that there are pluralities of dynamic human natures that emerge through genetic and cultural coevolution. From this perspective, culture is “the nongenetic information (socially transmitted behaviors, beliefs, institutions, arts, and so on) shared and exchanged among us” (p. 5). The term coevolution denotes the interdependence of genetic and cultural aspects of human evolution. Ehrlich explains that although our capacity for culture arose from genetic evolution, cultural evolution frequently impacts the environments in which our genes are expressed.

In Chapter Three, Ehrlich links the differing rates at which genes and “memes” (i.e. theoretical units of cultural information) (Dawkins, 1989) mutate and reproduce to the origins of numerous contemporary global problems. Cultural evolution occurs at a much faster pace than genetic evolution because memes can be “learned” and, consequently, transferred both vertically (from generation to generation) and horizontally (among all people). Ehrlich articulates the predicament arising from these mismatched evolutionary rates; “the incredible speed with which cultural evolution has altered the human environment, especially in the past century or two, has not allowed biological evolution enough time to make changes that could adapt us genetically to the new conditions” (p. 280–281). Ehrlich also identifies an equally problematic mismatch between technological and ethical aspects of cultural evolution—our capacity to *do* has far exceeded our ability to *understand* the ramifications of our actions.

Ehrlich refers to the problems arising from mismatched rates of evolution and rapid environmental change as *evolutionary hangovers*; “structures or behaviors that once were adaptive but whose positive influence on reproductive performance has declined or disappeared” (p. 34). Stress-related diseases, obesity, and our desire to consume are presented as examples of modern problems stemming from evolutionary hangovers. The human propensity for “quick reflexes” focused on short-term threats (i.e. the appearance of a lion or a rival) is also identified as an evolutionary hangover—one that limits our recognition of long-term threats such as climate change, biodiversity loss, and the proliferation of nuclear weapons.

As a starting point for the potential resolution of these problems, Ehrlich suggests a more deliberate form of cultural evolution or *conscious evolution*, which includes the need to develop “slow reflexes” that are

attuned to gradually emerging changes (Ornstein & Ehrlich, 1990). For Ehrlich, this ultimately involves global efforts to “promote public discussion of crucial issues that are now largely ignored in order to redirect the malign trends now driving the human predicament into trajectories leading to a sustainable society” (p. 329). Ehrlich cites international collaborations on the effects of thermonuclear war in the early eighties and the more recent United Nations Intergovernmental Panel on Climate Change as evidence of the effectiveness of such efforts. He is also, however, acutely aware of the inherent uncertainties involved. Over the course of human history, cultural evolution has led many societies to extinction (Diamond, 2005).

Ehrlich’s suggestion of conscious evolution as a remedy for evolutionary hangovers prompts consideration of the role that education might play in this process. *Human Natures* includes two explicit critiques of formal education. The first critique addresses the “poor or nonexistent education most of us receive in hominid biological and cultural evolution” (p. 276). The misconception of evolution as a goal-oriented progress is widespread and results in both theories of intelligent design and notions of evolutionary superiority. In Ehrlich’s view, “understanding more about our biological and cultural evolution will enable people to more readily see through and refute racist and sexist arguments based on evolutionary misapprehensions” (pp. 290-291). Evidence of the deeply rooted nature of these misconceptions is found in Ehrlich’s own occasional use of language implying that genetic evolution has been purposefully directed; e.g. “...would defeat the purpose of the complexity” (p. 125). Ehrlich’s second suggestion for education echoes Davis and Sumara’s (2006) call for complementary interdiscursive educational research focused on “how discourses intersect, overlap and interlace” (p. 159). *Human Natures* advocates the need for a similar kind of border crossing in its critique of higher education’s division “into static, antique disciplines that actively work against badly needed interdisciplinary approaches to the most serious human problems” (p. 325).

Although Ehrlich limits his discussion of education to these points, his focus on the crucial relationship between culture and evolution provides a unique perspective on education itself. From this vantage point, culture is understood as an integral aspect of the complex living system in which humanity is enmeshed and learning is a form of memetic mutation that impacts the diversity required for continued cultural evolution. Formal education thus becomes a process of socially mandated enculturation that can take up the challenge of addressing evolutionary hangovers by facilitating conscious evolution. According to Ehrlich, not only *can* human natures change, they *must* change in order to alleviate many of the global problems presently threatening planetary life-support systems. Any attempt to change peoples’ natures will undoubtedly involve the resolution of conflicting

cultural views—a feat which may pose one of the greatest challenges for education in the twenty-first century. Ehrlich's text is a remarkable accomplishment that portrays the depth of our genetic and cultural roots, and opens new possibilities for understanding formal education as a crucial site of cultural evolution, capable of prompting the emergence of more sustainable societies.

References

- Davis, B., & Sumara, D. 2006. *Complexity and education: Inquiries into learning, teaching and Research*. London: Lawrence Erlbaum Associates.
- Dawkins, R. 1989. *The selfish gene*. Oxford: Oxford University Press.
- Diamond, J. 2005. *Collapse: How societies choose to fail or succeed*. New York: Penguin Books.
- Ehrlich, P. R. 1968. *The population bomb*. New York: Ballantine Books.
- Ornstein, R., & Ehrlich, P. R. 1990. *New world new mind: Moving towards conscious evolution*. New York: Touchstone.
- Pinker, S. 2002. *The blank slate: The modern denial of human nature*. New York: Viking.
- Ridley, M. 2003. *Nature via nurture: Genes, experience, and what makes us human*. Toronto: HarperCollins Publishers.
- Varela, F.J., Thompson, E., & Rosch, E. 1991. *The embodied mind: Cognitive science and human experience*. London: MIT Press.

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