

Culture and the Evolutionary Process

Robert Boyd, Peter J. Richerson
*audiobook | *ebooks | Download PDF | ePub | DOC*

Robert Boyd and Peter J. Richerson

ess Culture an
ure and the Ev
Evolutionary
ry Process Cu
e and the Evol

 Download

 Read Online

#1146005 in Books 1988-06-15Original language:EnglishPDF # 1 9.50 x .85 x 6.631, 1.20 #File Name:
0226069338340 pages | File size: 16.Mb

Robert Boyd, Peter J. Richerson : Culture and the Evolutionary Process before purchasing it in order to gage whether or not it would be worth my time, and all praised Culture and the Evolutionary Process:

7 of 7 people found the following review helpful. Culture using evolutionary modelsBy Jen BadhamRicherson and Boyd present the same argument in (at least) two books. Culture and Evolutionary Process is the earlier mathematical treatment. Not by Genes Alone: How Culture Transformed Human Evolution is the later nonmathematical version, though it is informed by the same mathematical models as the earlier work. I am reviewing them together because the key concepts are the same, I read them almost together, and which version you prefer will probably depend on your background.The core argument has several elements. First, culture constrains and shapes human behaviour (social

scientists may be surprised that this is not immediately evident to all). Second, that the way that culture spreads can be understood using mathematical models based on evolutionary principles: competition between different ideas and behaviours (social norms) spread through inheritance from cultural parents (parents, teachers, social leaders). Importantly, this means that culture can evolve relatively quickly, allowing populations to adapt, but can also persist within a population even where the particular idea is no longer appropriate. Finally, the authors argue that the importance of culture for humans has led to greater fitness of genetics that favour culture (eg language facilitation), which has in turn supported a greater role for culture and further genetic pressure and so on. In many ways, *Culture and Evolutionary Process* is the easier book, particularly if you are comfortable with mathematics. The mathematics is not hard, just very long and extremely tedious, particularly as the authors have attempted to make it accessible to non-mathematicians. Each section is well organised with an introduction that explains what the mathematics is going to demonstrate, and a conclusion about the implications of the mathematical results. *Not By Genes Alone* dispenses with the mathematics and makes the same arguments with examples and text. However, there is a sense throughout that the authors are responding to some unseen critics of their theory and there are many very detailed arguments about issues that don't appear to be important to the main thrust of the argument. This is probably also because *Not By Genes Alone* was written much later and the authors' thinking has evolved. All this detail interferes with readability and makes it unclear for whom the book is intended. However, the later book has the advantage of more thoroughly discussing the implications of the theory. I enjoyed both books, though I found them both hard work and heavy going (for different reasons). I also think that the main argument is important and has deep implications for how we understand the role of culture and social sciences. While I would normally subtract a star due to the difficult reading, I am adding one for the importance of the ideas. This means 4 stars for *Culture and Evolutionary Process*, and 5 stars for *Not By Genes Alone*. The difference is because the earlier work does not fully flesh out the implications.

2 of 3 people found the following review helpful. Pioneering work on cultural evolution by Tim Tyler. This book was published in 1985. It is the best book on cultural evolution from the 1980s. It builds on top of earlier work by Cavalli-Sforza and Feldman, who had outlined a similar approach, in less detail in 1981. Boyd and Richerson do a better job than previous authors did of placing their material in its historical context, and offered a better review of other related material. However, the book has quite a few problems: It is full of densely-presented mathematical models. I think that these hinder more than they help. Maybe some people will be impressed by them, but I'm not really among them. The book introduces terminology for cultural evolution. Much of this has not dated well. It uses the term "guided variation" - where, these days, most people would say "directed mutation". The book uses the term "biased transmission", whereas these days we would just say "cultural selection" or just "selection". Hardly anyone uses the term "biased transmission" these days. The book uses the term "cultural parents" and the term "cultural offspring" - but these are not used to refer to memes, but rather to their associated hosts. This does not seem like good terminology to me. The book is almost entirely free of symbiology. This is unfortunate, since any sensible modern theory of cultural evolution must necessarily be heavily based on symbiology. They do mention the concept at one point. They say: "Horizontal transmission is analogous in some ways to the transmission of a pathogen and Cavalli-Sforza and Feldman have used epidemiological models as a starting point for their development of theory. The item of culture being spread horizontally acts like a microbe that reproduces and spreads rapidly because it is "infective" and has a short generation length compared to the biological generation length of the "host". Fads and fashions and technical innovations are familiar examples." This material is fine - as far as it goes. However three sentences is not really adequate coverage for this concept. You really need to cover cultural parasites, mutualisms, immunity, arms races - and so forth. Many biologists were still getting to grips with the significance of symbiology in the 1980s. However Cloak and Dawkins had previously managed to present a symbiology-aware version of cultural evolution in the 1970s. Boyd and Richerson failed to pick up on this. What do they offer instead? They say: "This does not mean that cultures have mysterious lives of their own that cause them to evolve independently of the individuals of which they are composed. As in the case of genetic evolution, individuals are the primary locus of the evolutionary forces that cause cultural evolution and in modelling cultural evolution we will focus on observable events in the lives of individuals." This is not a good approach. It is like saying: to study the evolution of smallpox, we should focus on the human victims. The problem with this is that insufficient attention is given to the smallpox virus. You could say that smallpox exhibits horizontal and oblique transmission between its hosts. It exhibits "biased transmission" - due to different levels of resistance from host immune systems. These processes can all be modeled. While this sort of approach would result in some progress, it seems like a fundamentally misguided way of viewing the situation. Cultural information exists apart from its human hosts. As well as spending some of its time residing in host brains. It exists in libraries, on discs, inside computer memory, in air vibrations and as radio waves. Libraries can burn down, sounds can suffer from interference, and computer memory exhibits senescence. Culture partly evolves outside its primary hosts. The result is a symbiosis between two different kinds of living and evolving systems. If you focus on observable events in the lives of individuals, you are likely to miss all this material. Though this book presents a closer link between evolutionary processes in the organic and cultural realms than most previous authors managed, Boyd and Richerson don't really take the links far enough. The main problems seem to be that, at this stage in their thinking, they didn't appreciate

symbiology properly, and they didn't understand that evolution happens within minds, during individual learning - as well as between them, during social learning. The authors have a section at the very start of their book comparing genetic and cultural evolution. They argue that humans get genes from their parents, but their memes come from a range of individuals. However, humans get viral and bacterial genes from a wide range of individuals as well. This is not really a valid difference between genetic and memetic variation. They argue that meme lifespans are different from host lifespans. However, this is true for DNA genes inside parasites too, and isn't a special feature of cultural evolution. They argue that humans get their genes at birth, while they acquire their culture gradually. However, humans acquire DNA genes gradually as well - it is just that these genes are sometimes inside parasites. They argue that cultural transmission occurs after some development has taken place. Yet this too also happens when acquiring parasites. They argue that cultural variation may be affected by life events, and then transmitted to others. Yet again, this happens with parasites. If you consume antibiotics, you may subsequently transmit antibiotic-resistant bacteria that you have acquired during your lifespan to others. Boyd and Richerson's list of differences between cultural and organic evolution seems almost entirely invalid. This would not matter, except for the fact that much of the project of studying cultural evolution revolves around the issue of what the differences are. Where cultural and organic evolution exhibit the same dynamics, we can mostly use existing models. The rest of the book is largely devoted to mathematical models of the differences they identified. While it would be interesting if researchers needed a broad array of new mathematics to model cultural evolution, for the most part, the dynamics of cultural evolution are largely shared with epidemiology and symbiology - and models from these fields can be adjusted to deal with culture with relatively minor tweaks - to cover phenomena such as conformist transmission which have few parallels in the organic realm. What needed doing in the 1980s was strengthening and expanding the models of epidemiology and symbiology to cover culture. Instead what we got was an attempt to drive a mathematical wedge between our models of cultural and organic evolution. In the book, Boyd and Richerson put in a plea for simple mathematical models. Can their approach be excused on the grounds that they are simplifying? Not really. It isn't "simpler" to develop many unnecessary mathematical models based on illusory differences. Rather it results in increased complication through the proliferation of models. Nor is it simpler to only focus on one symbiont in a symbiotic relationship. The result is a byzantine maze of horizontal and oblique transmission vectors. Best to recognise both partners in the relationship and stick to two types of lineage with pure-vertical transmission within each of them. This is what is done with parasites and symbionts in the organic realm. The cultural realm is no different in this respect. Overall, this was an important book. It probably wasn't as influential it could have been - since its mathematical models and technical style probably presented a barrier for many readers. Still, most modern workers in the field do cite it, recognising its pioneering role. Since its publication, Boyd and Richerson have continued plugging away at the topic. They have produced a steady stream of papers on the subject - including many valuable ones - along with a few more muddled ones. Despite its virtues, this book's problems - or perhaps the perspective of its authors - seems to have resulted in a bit of a hangover for cultural evolution within academia. Dawkins had clearly presented a framework which was more correct in a number of respects many years before. However, over time, these two camp's relationship increasingly turned into a rivalry. Instead of a synthesis, the result seemed to be tribalism and conflict. The book was probably the first detailed treatment in academia of maladaptive forms of culture - the insight that Cloak and Dawkins originally presented. It pointed out that kin selection applies to memes. It applied runaway selection processes to memes. It modeled memetic conformity. It discussed the possibility of memes sterilizing their hosts and diverting their reproductive resources away from gene propagation and into meme propagation. Overall, there is much of interest in it. 3 of 3 people found the following review helpful. Excellent book at a great price! By Matt Walsh This book is a classic of dual-inheritance theory concepts and the evolution of cultures and information transmission. A must have for cultural anthropologists and anyone interested in evolutionary concepts in archaeology.

How do biological, psychological, sociological, and cultural factors combine to change societies over the long run? Boyd and Richerson explore how genetic and cultural factors interact, under the influence of evolutionary forces, to produce the diversity we see in human cultures. Using methods developed by population biologists, they propose a theory of cultural evolution that is an original and fair-minded alternative to the sociobiology debate.