

SOCIAL LEARNING AND THE LONG JOURNEY TO CULTURE

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A Review of the Book

Culture Evolves

by Andrew Whiten, Robert A. Hinde, Christopher B. Stringer & Kevin N. Laland. 2012.
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What is culture? This question is deceptively complex and would be challenging to sufficiently address in a single book. However, the editors of *Culture Evolves* attempt to answer this question by discussing new discoveries and research findings from a broad variety of disciplines. These conclusions include the insight that cultural transmission is more abundant in the animal kingdom than was previously thought. Coincidental new archeological findings suggest a new emerging date for human culture as early as 3.4 million years ago, which may also explain the subsequent diversification of human cultures.

The editors Andrew Whiten, Robert A. Hinde, Christopher B. Stringer and Kevin N. Laland try to create a cohesive picture of cultural evolution by bringing together a selection of papers which cover a number of scientific fields, for example archeology, animal behavioral sciences, social sciences and psychology. All four editors are frequent contributors in the field of cultural evolution. Andy Whiten is the Director of the Center of Social Learning and Cognitive Evolution at the University of Saint Andrews, Robert A. Hinde is an Emeritus Royal Society Research Professor of Zoology at the University of Cambridge, Christopher B. Stringer is a Research Leader in Human Origins at the Natural History Museum, and Kevin N. Laland is a Professor in the Center of Social Learning and Cognitive Evolution at the University of Saint Andrews.

The 454 pages of *Culture Evolves* are divided into 25 chapters. Each chapter consists of an independent research article with topics ranging from titles like “From Fish to Fashion: Experimental and Theoretical Insights into the Evolution of Culture” (Laland & Atton, 2011) to “How Do We Use Language? Shared Patterns in the Frequency of Word Use Across 17 Word Languages” (Calude & Pagel, 2011). The editors have structured the book into four main themes. The first theme stretches from chapter 2-9 and focuses on how social learning and traditions are transmitted throughout the animal kingdom. Using this perspective, we are able to understand evolution in all its complex forms. The focus here lies on the inheritance of cultural traits. Further on, in chapter 7 “The Scope of Culture in Chimpanzees, Humans and Ancestral Apes”, states that different species may show the same characteristics and highlights the similarities and differences in chimpanzees, children and their common ancestors. Another important point is made in chapter 9 “The evolution of primate general and cultural intelligence“ by Simon M. Reader, Yfke Hager and Kevin N. Laland. They identify general intelligence as a specific skill, including factors like the understanding of language or "working memory." They assume that there is a general intelligence in primates that can be shown by testing innovative problem solving skills simulating variations of social learning in nature.

The next section concentrates on human evolution and how it was influenced by cultural changes. Chapters 10-13 present new archeological findings that date stone tool manufacturing and use to 3.4 million years ago, as Ignacio de la Torre emphasizes in chapter 10 “The Origins of Stone Tool Technology in Africa: A Historical Perspective.” It is stressed that two discoveries were crucial for this calculation: the “retro-manufacture” of tools and reconstruction of knapping techniques described in Naama Goren-Inbar’s “Culture and Cognition in the Acheulian Industry: a Case Study from Gesher Benot Yaaqov” and the revelation that symbolic culture may have emerged much earlier as previously thought.

Part 3, chapters 14-21, highlight how new scientific methods like mathematical modeling, statistic evaluation and systematic methodology can be used to further describe cultural evolution and regional diversity. These quantitative methods are able to show how language and other cultural products came to be what they are today. In chapter 14, Stephen Shennan underlines with his article “Descent with Modification and the Archaeological Record” Richard Dawkins’ idea of the meme (Dawkins, 1976). The meme, as a unit of cultural transmission, might be the only accessible data about transmission in the past and was therefore one of the first steps necessary to further develop growth models of cultural evolution.

The last papers, chapters 22-25, shine a light on social learning in humans. The contributors pay special attention to how these cognitive processes shape the development of young children in hunter-gatherer societies, as well as in western societies. This is highlighted in chapter 24 “Social Learning Among Congo Basin Hunter-Gatherers” (Hewlett et al, 2011). Further on it is describe how social learning might be one of the first stepping-stones to cultural evolution, which, in regard to the content, brings us back to the beginning of the book.

Overall, *Culture Evolves* is targeted at a purely scientific audience. Given that it is a collection of research papers, it might not be attractive for people simply interested in the topics of culture and evolution. We should also mention that the selection of articles clearly represents a biological and ethological point of view. At the first glance, the titles of the 25 chapters might seem a bit incoherent but when the reader delves deeper, the common thread of how social learning is influencing the evolution of culture emerges. Another nice touch is the additional online material, which allows readers to download each paper accompanied by further reading materials, graphics and data sets. Therefore, all of those interested in social learning and cognitive evolution will find this book to be a good overview of recent developments in the field of cultural evolution.

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Christoph Weinlinger is a graduate student at the University of Vienna, Austria. His main research area is human ethology with a focus on urban ethology. He is currently writing his master thesis about minimal territorial functioning.

Anna Ennsberger has recently graduated from the University of Vienna with a master's degree. The title of her thesis is "Danke fürs Blumengießen - Die positiven Auswirkungen eines Guerilla Gartens auf das prosoziale Verhalten". Her main research area is human ethology with a focus on urban ethology.

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