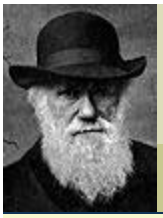

The Evolution of Morality — Teaching Strategies

by Douglas Allchin

from EVOLUTION*of*MORALITY.net

Understanding the evolution of human morality seems essential for a complete understanding of evolution itself, especially in a humanistic context. Yet for the teacher interested in addressing this topic, current textbooks offer limited resources. How, then, can one teach this central topic effectively?

On this website, I hope to have provided some basic resources — an illustrated text (organized in textbook format around benchmark concepts), an image bank, and an image-based presentation with both accompanying questoins (inquiry mode) and text (didactic mode). Here, I hope to share some teaching strategies and perspectives based on my experience teaching biology at both high school and college levels. (It is also informed by my background in history and philosophy of science and in teaching bioethics.)

Any good teacher draws on their personal strengths and styles of instruction, and contextualizes material for students, taking into account their background knowledge, level of ability, academic orientations (majors v. non-majors) and the educational aims of the course. So my comments here are best viewed as a rough guide, to be adapted to local context.

First, teaching the evolution of morality is not all that different from teaching any biological topic, when framed appropriately. It also offers a great occasion to discuss research, the nature of evidence and the nature of science. One major difference is that, unlike many standard concepts in introductory biology, students care profoundly about this topic. You will have their attention. Use it well.

Student Background

In my course (for college non-majors), evolution of morality filled one 50-minute class as the targeted conclusion to 2 weeks (6 hours) on Behavior and Sociality. The topic was a comfortable extension of the content now found in every standard textbook. However, emphasis on certain particulars in the first five classes helped deepen the foundation for later interpreting moral behavior. The important benchmarks (which are largely assumed as background for the text presented here) include:

- the genetic basis and adpative role for some innate behaviors (phylogenetic relationships, behavioral genetic variants, etc.);
- learning, with the role of operant conditioning and the adaptive role of open (versus closed) behavioral programs; and
- non-human sociality, especially without any outright sharing or costly helping.

Ideally, the students become exposed to how learning may occur through the cultural transmission of knowledge. Striking and informative examples from the recent scientific literature include:

- adult meerkats (*Suricata suricatta*) providing their young with practice as handling wld prey (Thornton and McAuliffe, 2006); and
- chimps (*Pan troglodytes*) not only using tools (stone hammer and anvil to crack nuts), but also guiding young chimps in learning the tool use (Boesch 1991; Mercader, Panger and Boesch 2002).

Earlier, of course, students had encountered:

- the basic principle of adaptation through natural selection, including the concept of reproductive fitness

Ideally, students may also have been introduced to:

- the concept of emergence, or new properties and dynamics at higher levels of organization and their potential for shaping causes at the lower level (Holland 1998; Camazine et al 2001).

Probing Student Preconceptions

Educationally, students learn more effectively if they are appropriately primed. (Biology teachers, above all, may well appreciate what cogntive science tells us about the mechanics of learning!) Foremost, preconceptions are powerful filters. So probing student perspectives and background knowledge at the outset is generally helpful for both students and instructor alike. Questions to help prime orientation might include:

- How would you know if you were observing moral behavior in a chimp or monkey? (Is that even possible?) What about an insect?
- How do you define conscience? Is it observable in others? How would you study it?
- Do you think morality is about what people actually do, or how they are motivated?

Other fruitful questions are included in the Guiding Questions for the inquiry-mode presentation. At the outset, misconceptions often arise. It is pre-instruction, after all. *Acknowledgement* of student beliefs, in a journalistic mode (without judgment or immediate correction), helps open the way for future lessons: "Well, it will be interesting to find out what biologists have to say about that, won't it?" One aim is to avoid addressing *particular moral principles or their apparent justification* (whether they are deemed right or wrong), and instead focus attention on morality *as a biological phenomenon*, or behavior. Developing orientation is an aim in the opening frames for each style of presentation.

Inquiry Mode versus Didactic Mode

Most instructors are most familiar with lecturing. Didactic presentation is certainly one of the more efficient forms of transferring information. But it does not always promote learning. We learn best when we engage problems and work towards finding solutions to those problems. Such engagement can also be a fruitful occasion for learning problem-solving skills — through practice and through observing how others approach problems. An educationally healthy alternative, then, is to present students with authentic, open-ended questions and relevant information, and guide them in developing responsible interpretations. This is the framework behind the inquiry-mode presentation included here, which is organized aroung a set of images and accompanying questions for initiating analysis and discussion.

Concepts through Case Studies

Although the presentations here are organized around basic concept statements (in a textbook style), learning is typically more vivid through case examples, which students may use as interpretive models and from which they may generalize. Accordingly, I have included numerous concrete examples, towards illustrating each concept. Anecdotes are typically eschewed by scientists as evidence, yet they can be effective as tools in teaching. Particular cases are also helpful for profiling the nature of scientific investigation, as well as for analyzing the nature of reasoning from available evidence (and perhaps even proposing follow-up studies). Accordingly, this website uses illustrations extensively.

Interpretations and Social Applications

Some teachers may well be tempted to conclude once the "basic" biological concepts have been elucidated. A central reason for addressing this topic, however, is in interpreting the biology, and especially evolution, in a social context — and possibly addressing the misleading images promoted by many critics of Darwinism. Revisiting any flawed preconceptions and articulating the cultural meaning of the scientific knowledge at the end is essential to teaching the evolution of morality fully. For example, "Does science ultimately tell us what ethics to follow?" The distinction between facts and values is conceptually very simple yet sometimes quite difficult for students to grasp in practice. The aim of teaching social applications would be far less important if popular culture did not "teach" its own version of natural selection. The crudely socialized version of "survival of the fittest," so deeply entrenched culturally, needs to be "untaught" through active intellectual engagement with more well informed concepts. The concluding sections of each presentation function as a minimal guide for locally contextualized discussion.

Possible further extension activities include:

- Comment on Herbert Spencer and his social ideology, and how he "hijacked" Darwin's biology in an inapproprirate effort to naturalize a social ideology (Allchin 2007b).
- Invite discussion on competition and progress as social ideologies or moral theories, in the context of (simple) organic Darwinism (Allchin 2007b).
- Invite discussion of "surivival of the fittest" as a metaphor (Allchin 2007c).

Evaluation

Finally, how does one evaluate this knowledge? My level of accountability was relatively modest. In the unit exam, I asked students to chose *one* of the three types of explanations and give their own short-essay account of it, including at least one example involving a non-human species. A more rigorous approach might involve a summary description for each. Note that calling on examples can often help students convey what they have learned.

The presentations here are organized explicitly around concept statements and other key concepts (identified in bold) — both are highlighted in the table of contents/outline — to enhance clarity in student focus and instructor assessment.

References

- Allchin, D. 2007b. Social unDarwinism. *American Biology Teacher* 69(Feb.): 113-115.
- Allchin, D. 2007c. A more fitting analogy. *American Biology Teacher* 69(Mar.): 174-176.
- Boesch, C. 1991. Teaching among wild chimpanzees. *Animal Behaviour* 41, 530-532.
- Camazine, S., Deneubourg, J.-L., Franks, N. R., Sneyd, J., Theraulaz, G., & Bonabeau, E. 2001. *Self-Organization in Biological Systems*. Princeton, NJ: Princeton University Press.
- Holland, J. H. 1998. *Emergence: From Chaos to Order*. Cambridge, MA: Perseus.
- Mercader, J., Panger, M. and Boesch, C. 2002. Excavation of a chimpanzee stone tool site in the African rainforest. *Science* 296, 1452-1455.
- Thornton, A. & McAuliffe, K. 2006. Teaching in wild meerkats. *Science* 313, 227-229.

Last updated 8 February 2009.