



Grand challenges of evolutionary psychology

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What we've got here is a failure to communicate

"Cool Hand Luke," 1967

SHARED CHALLENGES

Researchers in evolutionary psychology face the same grand challenges as researchers who eschew the evolutionary approach in their own fields of study. Why, and when, do people behave altruistically? How do people make decisions, economic or otherwise, and what role do emotions play in decision-making? How do people choose their mates? How do people acquire information, from basic physical knowledge about objects and forces to important local knowledge about particular people and artifacts? How do these processes differ from – or resemble – learning processes among non-humans? How do the answers to all of these questions depend on properties of the individual, such as sex, life history phase, genetic endowment, developmental history, and context? And what are the physiological and neurophysiological substrates of the mechanisms that underlie all of these processes?

Evolutionary psychologists share these challenges with researchers from other disciplines because the field is not, of course, distinguished from others in terms of the domain of inquiry. Evolutionary psychologists study economic decision making (like economists), interpersonal and group dynamics (like social psychologists), cultural processes (like anthropologists), and endocrine effects (like physiologists).

The questions evolutionary psychologists ask are not only our questions, and the methodological hurdles we must overcome are faced by our colleagues with non-evolutionary approaches because we share the same toolkit, from ethnography to behavioral lab studies to neuroimaging.

What, then, are the challenges uniquely faced by evolutionary psychology?

UNIQUE CHALLENGES

I would argue that perhaps the field's greatest challenge lies less in coaxing nature to give up her secrets, and more in communicating

the insights from evolutionary psychology to those outside the field.

Taking an evolutionary approach has elicited hostility from audiences since the field's inception. The story has frequently been told of the pitcher of water dumped on E.O. Wilson's head at a meeting for the American Association for the Advancement of Science in 1978 (Segerstråle, 2000). This incident can be seen in retrospect as a harbinger of things to come. While the water pitcher has been replaced by the written word, the level of discourse has not always improved. In addition to the political attacks on the field, whether from the left or the right (Segerstråle, 2000; Pinker, 2002), the scientific attacks are so strong that they include the charge that evolutionary psychology isn't even a *science* (Tattersall, 2001).

Indeed, antipathy for the view that doing psychology can be improved with the idea of evolved function has spawned an array of articles and books with more or less provocative titles, including allusions to the "Sins of Evolutionary Psychology" (Panksepp and Panksepp, 2000), a collection of *Arguments Against Evolutionary Psychology* (Rose and Rose, 2000), Richardson's (2007) *Evolutionary Psychology as Maladapted Psychology*, and so on.

Antagonism to the field takes the form of a deep skepticism about work that derives from its principles. Kenrick et al. (2005) report an anecdote in which a textbook author found that reviewers insisted he present criticisms of evolutionary research, but not of non-evolutionary research backed by less evidence. Conway and Schaller (2002) made similar observations, suggesting that it is in the context of evolutionary ideas that have consistently been subjected to and resisted falsification "that charges of nonfalsifiability and other declarations of disbelief are most often aired" (p. 154).

Indeed, the skepticism faced by evolutionary psychological hypotheses is stunning set against the credulousness with which other ideas are greeted. Baumeister and colleagues (e.g., Baumeister et al., 2007)

have been advancing an Eighteenth century, pre-enlightenment notion that there is such a thing as "mental energy;" psychology's own phlogiston (c.f., Van den Berg, 1986). This idea is absurd in the context of the computational theory of mind, but its absurdity does not seem to have slowed the pace of publication. From this, it can be inferred that ideas in psychology, even if they are fundamentally incompatible with known facts, don't arouse such skepticism *as long as the idea don't derive from a systematic analysis of evolved function*.

Daly and Wilson (2007) suggest that critics of the field "are not just skeptical, they are angry" (p. 396), and that the skepticism of their research agenda "appears to be motivated by something other than a humble search for the truth" (p. 390). Critics' anger translates into practices that ought to evoke scientific outrage. To take just one of many possible examples, Thornhill and Palmer (2000) wrote that "whether rape is an adaption or byproduct cannot yet be definitively answered" (p. 84), but their position has been consistently portrayed as the *opposite*, as Lloyd's (2001) claim that they "*begin* by assuming that rape is a single trait, and that this trait is an adaptation" (p. 1542, emphasis original). A decade on, editors continue to allow authors to perpetuate this misrepresentation: Leiter and Weisberg (2010, p. 72) recently did so, ironically enough in the context of taking another author to task for misrepresentation¹.

THE CHALLENGE OF THE CHALLENGES

Debate and discussion are, of course, all to the good. Conflict helps distill truth, as champions make their cases for their favored proposition, allowing their views to be judged by observers.

¹This paper gave me an unusual opportunity to interact personally and directly with critics because one of the authors (DW) is at my institution, the University of Pennsylvania, and because both authors presented the paper at a colloquium series at Penn's Law School. In February of 2007, well before publication, I pointed out various errors in the manuscript, including this misrepresentation. The authors chose not to make corrections.

The challenge faced by evolutionary psychology, however, is that the critics do not participate in this dialectic. Interlocutors engaging with evolutionary psychologists frequently don't engage with evolutionary psychology, preferring instead to fabricate evolutionary psychologists' views, and then attack the imagined positions (see Kurzban, 2002).

Why is this the case? At this point it is unclear. A recent survey potentially illustrates one aspect of the problem. Park (2007) investigated 10 social psychology texts' presentation of Hamilton's (1964) theory of kin selection. This is a good test case because kin selection is central to modern evolutionary biology and directly relevant to human social behavior (family and altruism), and, at least in its broad strokes, is not particularly difficult to master, deriving from one inequality with three terms ($C < rB$). Park reviewed 10 texts. Of the 10, 0 got it right. As Park put it: "Rather than presenting purely scientific theories of evolution and kin selection, many textbooks seemed to be presenting a mixture of theory and intuition" (p. 868). If kin selection cannot be conveyed at an undergraduate textbook level, it is perhaps not surprising that more complex ideas have not been sufficiently well understood by the field's critics to enable them to engage properly.

Indeed, two areas of confusion that stand out. The first area is adaptationism (Williams, 1966). As many people have explained, adaptationism links evidence and hypotheses, relating observations – behavior, morphology, etc. – to hypotheses of evolved function (e.g., Tooby and Cosmides, 1992). The failure to understand the logic of adaptationism – about how hypotheses about function require evidence of design – probably gives rise to worries about "just-so story-telling" (Gould, 1997) and related worries about epistemology (see Ketelaar and Ellis, 2000). Similarly, many critics continue to think, perhaps misled by the word "evolutionary" in the field's moniker, that evolutionary psychologists' hypotheses are about phylogeny, or evolutionary history (e.g., Leiter and Weisberg, 2010, pp. 38–39). Because the logic of adaptationism is central to the discipline, critics' failures to understand it represents a significant impediment to progress.

Indeed, substantial progress will have been made when debates focus on putative functions of computational mechanisms, as

in the non-human animal literature (Alcock, 2001); however, this productive framing of discussions can only occur after the relevant scholars have fully understood the logic of adaptationism and its role in hypothesis construction and testing (Cosmides and Tooby, 1997).

Secondly, critics routinely and incessantly – and incorrectly – assert and insist that evolutionary psychology is genetic determinist, from Gould (1983), to the present day (Quartz and Sejnowski, 2002; Lickliter and Honeycutt, 2003; Smith and Thelen, 2003). This is emphatically not the position of evolutionary psychology, as has been made clear any number of times (Symons, 1992, p. 140; Tooby and Cosmides, 1992; Dennett, 1995, p. 338; Pinker, 1997, p. 33).

This short piece is not the place to wonder why the central animating idea of the field – that the components of the mind have functions – is taken to mean that development occurs without any influence of the environment. Alcock (2001) remarked that "the myth of the determinist sociobiologist has been carried forward by some opponents who avoid acknowledging even in passing the long history of rebuttal to this caricature. Why? Because the genetic determinist is too convenient a strawman to be discarded" (p. 44).

A singular challenge is to make progress despite the fact that critics do not appear to have any interest in discarding this convenient strawman.

MOVING FORWARD

The key challenge evolutionary psychologists face is how to interact with the scientific community in a way that does not elicit the usual errors described above. This is not, of course, to say that evolutionary psychologists are always right or that any given functional hypothesis will turn out to be correct. Evolutionary psychologists, like other social scientists – or any scientists for that matter – are obviously going to be wrong with great frequency. Favored hypotheses will turn out to be incorrect, errors in reasoning will become clear, and lines of research will have to be reevaluated and abandoned.

As things currently stand, however, the typical process of correction is retarded because interlocutors with evolutionary psychology ignore the dialectic of science.

Instead of challenging ideas and hypotheses, critics challenge assumptions and commitments no one holds.

This suggests that the real challenge for evolutionary psychology is *to get others to challenge them on scientific grounds*. People who disagree with evolutionary psychologists are welcome; competition and considered debate will only make the field better.

Having said that, and in stark contrast, challenging the just-so story-telling ghouls and genetic determinist ghosts so many hallucinate helps no one.

As long as disagreements are honest, respectful, and about genuine points of conflict, there really is only one challenge that matters: explaining human behavior.

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