

Evolutionary Psychology is Not Evil! (... and Here's Why ...)

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Abstract

Evolutionary psychology has faced ‘implacable hostility’ (Dawkins, 2005) from a number of intellectual fronts. Critics of evolutionary psychology have tried to paint this perspective variously as reductionist and overly deterministic, at best, and as sexist, racist, and downright evil at worst. The current paper argues that all psychological frameworks which assume that human beings are the result of the organic evolutionary forces of natural and sexual selection are, essentially, evolutionary in nature (regardless of whether they traditionally fall under the label of evolutionary psychology). In other words, the perspective presented here argues that all psychology is evolutionary psychology. Two specific mis-characterizations of evolutionary psychology ((a) that it is eugenicist in nature and (b) that it is a fully non-situationist, immutable perspective on behavior) are addressed here with an eye toward elaborating on how these distorted conceptions of evolutionary psychology are non-constructive and non-progressive. A final section focuses on how the social sciences in general could benefit from being evolutionized.

“Evolutionary psychology (is) ... subject to a level of implacable hostility which seems far out of proportion to anything even sober reason or common politeness might sanction” (Dawkins, 2005, p. 975).

If you are a modern scholar of human behavior who uses evolutionary theory to help guide your research and, accordingly, label yourself an evolutionary psychologist (as I do), you may find Dawkins’ aforementioned quote as capturing the essence of how evolutionary psychology (EP) is perceived in many modern academic circles. In fact, based on my experiences, this quote captures the current state of affairs regarding EP in the broader landscape of academia in general so well that it is actually a bit unsettling.

Worded another way, this implacable hostility seems to result from scholars across disparate disciplines who conceptualize EP as downright evil. EP is often framed as evil by all sorts of people for all sorts of reasons. In terms of purely academic critiques, EP is often framed as overly deterministic and reductionistic

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(see Pinker, 2002) while social critics of EP with more applied concerns paint EP as a sexist, racist, and even eugenicist doctrine designed with a hidden political agenda that should serve the status quo by, presumably, justifying such amoral acts as sexual harassment, murder, and war (see Hagen, 2005).

An unfortunate outcome regarding the current state of affairs pertains to the fact that EP is attacked from people holding political perspectives that span the spectrum of ideologies. Fundamentalist Christians, who necessarily reject ideas that are premised on evolution as an accepted theory of speciation, reject EP simply due to its reliance on evolutionary theory. This ideological hurdle is by no means small: A recent survey found that 87% of United States citizens do not believe that evolutionary forces in general (and natural selection, in particular), unaided by a supernatural deity, are responsible for human origins (CBS News Poll, November 2004). Such individuals, whose numbers are, simply, daunting, are likely to reject EP as a sustainable perspective on any aspect of human functioning.

However, in addition to the resistance to EP presented by fundamentalist religious individuals, there is, in effect, a new kind of creationist (Ehrenreich & McIntosh, 1997), so to speak, rooted in secular intellectualism. These so-called new creationists are, in fact, very different from fundamentalist Christians in their ideological foundation. The new creationists may be conceptualized as academics and scholars who study varied aspects of human affairs from the perspective of the Standard Social Science Model (SSSM; Pinker, 2002), a model for understanding human behavior which is largely premised on the notion of the blank slate. The SSSM essentially conceives of human psychology as qualitatively different from the psychology of all other species. The SSSM presumes that there is no basic human nature – that the mind (and its corresponding physiological substrates) are fully malleable based on environmental stimuli and that all behavioral and psychological aspects of people are the result of experiences with environmental stimuli across ontogenetic time.

This denial of human nature (see Pinker, 2002), which is prevalent in many of the social sciences, has come to serve as the only politically acceptable paradigm in much of academia. Champions of this perspective are often more critical of EP than are adherents of fundamentalist Christianity. From the perspective of the SSSM, EP is problematic largely because its basic premises focus on understanding the nature of human nature.

For instance, consider David Buss' work which revolves around understanding sex-differentiated mating strategies in humans (see Buss, 2003) from an evolutionary perspective. Research by Buss and his colleagues has documented many basic sex differences in the psychology of human mating. Several different studies, using varied methods, have replicated Buss' basic finding that men desire more lifetime sexual partners than do women (see Schmitt, 2005). Buss' evolution-based explanation of these findings is rooted in Trivers' (1972) parental investment theory which suggests that males and females should differ in their mating tactics as a result of fundamentally different costs faced by each sex associated with

bearing and raising children across the evolution of our species. From this perspective, women in our ancestral past who were driven to pursue short-term sexual strategies would have, on average, had less reproductive success compared with males pursuing similarly promiscuous strategies. A result of this sex-specific differential reproduction associated with variability in promiscuity over deep time would have led to sex-specific mating strategies (favoring promiscuity in males over females).

Critics of EP who may be thought to represent new creationism (e.g., Buller, 2005) have tried hard to argue that findings which demonstrate such sex differences in mating strategies are based on flawed research. Further, such critics argue that even if such phenomena as sex differences in number of sex partners desired have been documented via sound research, these findings are best understood as resulting completely from environmental conditions during ontogenetic time. In other words, the SSSM perspective argues that all differences between the sexes in number of sexual partners desired results from males and females learning different messages about sexuality across their lifetimes. In short, this perspective argues that this phenomenon does not reflect basic and natural differences between male and female mating psychology – it only reflects differences in socialization between the sexes (differences that exist, in varying degrees, across human cultures).

Adherents of the SSSM perspective argue that appealing to evolutionarily shaped differences between the psychologies of men and women to explain something such as universal sex differences in desire for multiple sex partners is an inherently sexist approach. In short, these new creationists believe that any appeals to an evolutionarily shaped human nature to explain psychological phenomena (regardless of how well the said phenomena are documented) imply that human behavior is highly constrained by our nature, is genetically determined, and is, in effect, immutable. As such, adherents of the SSSM feel something of an obligation to fight EP, as they believe they are fighting an intellectual doctrine which sees human behavior as largely immutable and which ultimately provides a scholarly rationale for the status quo (which inherently treats people unfairly).

From the SSSM perspective, EP paints a picture of humans as fully under the control of genes. Further, the SSSM perspective sees EP as a doctrine that endorses all aspects of the status quo related to sexism. As seen through the lens of the SSSM, all phenomena documented by evolutionary psychologists and, subsequently, framed as resulting from evolutionary forces, are implicitly endorsed by evolutionary psychologists. As such, phenomena such as male promiscuity (Schmitt, 2005), filicide (Daly & Wilson, 1988), rape (Malamuth, Huppin & Paul, 2005), murder (Buss, 2005a), and war (Tooby & Cosmides, 1988) are seen, from the SSSM perspective, as phenomena that are, essentially, supported, condoned, and, perhaps, encouraged by evolutionary psychologists as they are phenomena that evolutionary psychologists have studied from an evolutionary perspective and have tried to explain in terms of the nature of human nature.

Let me go on the record saying that I am very uncomfortable (on both moral and intellectual grounds) with any perspective that sees humans as fully incapable of choosing their own behaviors. Further, I am ardently opposed to sexism – ardently opposed to the idea that men and women (and boys and girls) should be treated differently by rules created by a society and should be given different opportunities within a society. I am, further, from a personal standpoint, not someone who encourages males to engage in promiscuous behavior and not someone who supports men who fly into violent jealous rages with females as targets of their anger and aggression. Additionally, I am strongly opposed to war, murder, rape, and filicide. I would feel a moral obligation to reject outright any doctrine which is inconsistent with these fundamental aspects of my belief system. In sum, I would see such a doctrine as downright evil.

So herein lies the problem, a problem which, as I see it, is largely one of perspective. If EP were the kind of intellectual doctrine that I describe in the prior paragraph, then it would be a morally disturbing framework. However, as several scholars have argued before me (e.g., Pinker, 2002), EP is simply not such a doctrine. In the remainder of this paper, I argue that EP is the following:

- A. A basic intellectual framework for understanding all psychological phenomena
- B. A set of principles which, at its core, simply asserts that the human nervous system and resultant behavior are ultimately products of organic evolutionary processes
- C. One of the most situationist/contextualist perspectives that exists within psychology writ large
- D. Altogether different from the notion of eugenics
- E. A perspective that has the potential to serve as an underlying meta-theory to guide all the behavioral sciences in the future.

Evolutionary Psychology is Not Evil

In engaging in the thought exercise of trying to empathize with academics who characterize EP as downright evil, I have concluded that the problem seems to lie largely in the naturalistic fallacy (see Buss, 2004). Often, when people hear that some phenomenon is being framed as part of our nature, shaped by evolutionary forces across thousands of generations, they infer that the scientists who are documenting said evolutionarily shaped quality see this quality as something about us that should be the case. In other words, for instance, if one hears Daly, Wilson, and Weghorst (1982) argue that male sexual jealousy, and violence that has been directed toward countless women as a result of such jealousy, may be part of our evolutionary heritage, one may infer that these authors are arguing that men should show marked, intense, and emotional jealousy when faced with cheating partners

and, further, that they should use violence against women as a solution to such problems.

Of course, Daly *et al.* (1982) believe nothing of the kind. Documenting that something is part of our nature is not synonymous with arguing that it should be condoned by society. Similarly, when David Buss (2005a) argues that natural selection has shaped patterns of homicide and murder in a non-random way, such that our ancestors were most likely to murder when murder was likely to have increased the possibility of passing on genes of the murderer (i.e., under conditions in which murder had fitness benefits), he is not arguing that murder is good and/or that society should support murder. He is, rather, using evolutionary theory, the most powerful intellectual framework that exists in the life sciences, to help understand behaviors that are of high relevance to the functioning of society.

In sum, the naturalistic fallacy corresponds to conflating phenomena that naturally are with phenomena that should be. As evolutionary psychologists are charged with the task of understanding the nature of human psychological processes, they are at particular risk of having their work mis-characterized by others who are employing the reasoning that typifies the naturalistic fallacy. Further, for someone who is conflating some findings and ideas from EP with statements by evolutionary psychologists regarding how things should be, EP is likely to come across as appearing morally deficient and, yes, perhaps even evil!

What Evolutionary Psychology Is?

While there are different brands of EP, with some variability in basic assertions (see Buller, 2005), EP is, in its most basic form, simply an understanding of behavior that is guided by evolutionary theory. In the words of Richard Dawkins (2005): “The central claim ... (that evolutionary psychologists) ... are making is not an extraordinary one. It amounts to the exceedingly modest assertion that minds are on the same footing as bodies where Darwinian natural selection is concerned” (p. 978).

As such, EP is an explanatory framework that has implications for understanding all psychological phenomena. It essentially conceptualizes humans as products of natural selection - thereby not conceiving of our species as somehow immune from the laws that govern the natural world. It is a humbling perspective in some respects.

In any case, this perspective is monistic at its core; it conceives of human behavior as resulting from the nervous system - including the brain - which was, according to this perspective (and to most modern scientists who study psychological phenomena), shaped by evolutionary processes such as natural selection.

If the nervous system were shaped by natural selection, then individual humans with certain neuronal qualities in our ancestral past (e.g., those with features of the autonomic nervous system) were more likely to survive and reproduce compared with conspecifics (other humans) with nervous systems that were less likely to ultimately lead to reproduction.

Ancestral humans with features of the autonomic nervous system were more likely to respond optimally to immediate threatening stimuli in requisite situations (e.g., running from a predator). Thus, they were more likely to survive than others with less advanced autonomic nervous systems. A simple logical truth is that being more likely to survive necessarily increases the likelihood of reproduction (corpses are not very good at successfully mating). As such, this (partly) genetically shaped feature of human anatomy (with integral implications for human behavior), the autonomic nervous system, was 'naturally selected' and has thereby come to typify our species.

This same reasoning applies to all domains of psychology. Human behavioral patterns are part of the natural world - and human beings are living organisms that have come about by evolutionary processes. As such, attempts at understanding such basic aspects of the human experience - mind and behavior - without understanding the broad evolutionary factors that have given rise to our species and, ultimately, to our psychology, is, from the perspective of EP, simply misguided. We can do better in understanding human psychology by understanding the nuances of evolutionary principles.

From my perspective, these are the basic ideas of EP. Note that I provide a list of resources (mostly developed by others; see Table 1) to introduce the reader to this field from various angles that fall under the general umbrella of EP. In sum, EP is simply a framework for understanding human behavior that has the capacity to unite all areas of psychology more so than any other paradigm that has existed in the history of psychology as a discipline. It is not driven by ideology; it is driven by the basic scientific motive of increasing understanding of the natural world.

Table 1. Web-Based Resources that Provide Basic Information about Evolutionary Psychology

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- 1 Glenn Geher's Evolutionary Psychology Course Website:
<http://www.newpaltz.edu/~geherg/classes/archive/evolve/evolve.htm>
 - Information on the Evolutionary Studies Program at the State University of New York at New Paltz
 - 2 <http://www.newpaltz.edu/~geherg/evos>
 - Information on the Evolutionary Studies Program at Binghamton University
 - 3 <http://bingweb.binghamton.edu/~evos/>
directed by David Sloan Wilson (<http://biology.binghamton.edu/dwilson/>)
 - Ed Hagen's Chapter on Controversies Surrounding Evolutionary Psychology
(published in David Buss' (ed., 2005) Handbook of Evolutionary Psychology)
 - 4 <http://itb.biologie.hu-berlin.de/%7Ehagen/papers/Controversies.pdf>
 - Leda Cosmides and John Tooby's Introduction to the Field of Evolutionary Psychology
 - 5 <http://www.psych.ucsb.edu/research/cep/primer.html>
 - Ed Hagen's "Frequently Asked Questions about Evolutionary Psychology (e.g., "Is Evolutionary Psychology Sexist?")"
 - 6 <http://www.anth.ucsb.edu/projects/human/evpsychfaq.html>
 - Russil Durant and Bruce Ellis's Introduction to Evolutionary Psychology:
 - 7 http://media.wiley.com/product_data/excerpt/38/04713840/0471384038.pdf
 - Human Behavior and Evolution Society page introducing the field:
 - 8 http://www.hbes.com/intro_to_field.htm
 - Personal Accounts about Applying for Academic Jobs While Branded as an Evolutionary Psychologist (by Fisher, Kruger, Platek, & Salmon, 2005)
 - 9 <http://human-nature.com/ep/articles/ep02160173.html>
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Evolutionary Psychology Mischaracterized as an Immutable, Hyper-Dispositionist, Non-Situationist Perspective

One of the beliefs that many people tend to hold about EP is that it is a non-situationist doctrine, suggesting that organisms have just a few immutable, invariant ways of responding which are under the direct control of genes. This portrait of EP is simply inaccurate (see Kurzban & Haselton, 2005). EP posits that species-typical psychological design features with some heritable component have been shaped by natural and sexual selection. Often, many (but not all) evolutionary psychologists will conceive of such design features as adaptations. In any case, such adaptations are rarely understood by evolutionary psychologists as being context-independent.

Evolutionary psychologists and biologists make an important distinction between non-conditional and conditional strategies that describe the phenotypes of

different organisms. A classic example of a non-conditional, fully genetically determined (and immutable) strategy is found in male sunfish (Gross, 1982), which come in two varieties. The first variety includes large males who have the ability to acquire sufficient territories in intra-sexual competition. The second variety includes smaller, sneaker males, who are nearly indiscernible from females and who do not elicit aggressive responses from territory-holding males. While territory-holding males reproduce by honestly attracting females, sneaker males use a somewhat dishonest strategy: they blast their gametes after a female has released her eggs in a large male's territory, thereby using deception as a tool for reproduction. It turns out that the differences between these kinds of males is attributable to genetic differences. As such, the strategies employed are non-conditional.

The notion of conditional strategies, on the other hand, corresponds to situations in which an organism modifies its strategy *vis a vis* variability in situational factors. For instance, male tree frogs (Perrill, Gerhardt & Daniel, 1978) use strategies similar to the male sunfish when it comes to mating. Sometimes, a male will carve out a territory and croak loudly. At other times, a male will hide near a territory-holding male and try to mate with females that are attracted to the croaking, territory-holding male. Importantly, in this species, males have been documented to show strategic pluralism (Simpson & Gangestad, 2000); they modify their choice of strategy depending on the nature of such situational factors as the number of male territory-holders at a given time.

The use of a variety of strategies by male wood frogs does not suggest that their repertoire of mating behaviors is somehow outside the bounds of natural law or that these strategies are not designed with for 'purpose' of reproduction. Clearly, these mating strategies are related to optimal reproduction, a fact that speaks to their selection by evolutionary processes. As such, evolutionary geneticists (e.g., Maynard Smith, 2002) and evolutionary psychologists (e.g., Simpson & Gangestad, 2000) have come to apply evolutionary reasoning to our understanding of mixed behavioral strategies that are highly context-sensitive.

In fact, modern-day EP is an extraordinarily situationist perspective. Consider, for instance, evolutionarily informed research on homicide and familial violence. All of the most highly cited work in this area focuses on situational factors that underlie family violence. For instance, Daly and Wilson's (1988) often-cited work on violence toward children is all about contextual factors that covary with this atrocious act. Simply, the presence of a step-parent in a household has been shown to be the primary contextual factor that predicts fatal violence toward children. Another contextual factor that Daly and Wilson document as having a significant relationship with such violence has to do with the age of a given child (another contextual factor). In fact, their research, which is, in this regard, very prototypical of much work in EP overall, is all about contextual factors that underlie behaviors.

Consider, as another example, research on factors that predict promiscuous behavior on the part of women. Evolutionary psychologists have uncovered such

important contextual factors as localized sex ratios, ovulation cycles, a woman's age, and the presence of children from prior mateships (see Buss, 2003) – each such contextual factor serving as an important statistical predictor of female promiscuity. In short, EP is, in fact, a highly situationist perspective, generally conceiving of human behavioral strategies as being extremely flexible and as falling within the realm of this general idea of strategic pluralism.

EP does not conceptualize humans as genetically guided automatons whose conscious decision-making processes are irrelevant or non-existent. Rather, this perspective sees humans as capable of extraordinary conscious decision-making. Further, with its roots in strategic pluralism, EP is situationist at its core. Importantly, EP has lessons to provide regarding the nature of situationism as an epistemological doctrine. While situationism in the social sciences is often framed as conceiving of human behavior as highly under the influence of situational influences (both small and large; see Ross & Nisbett, 1991), this generic brand of situationism has generally been framed in a manner that is devoid of any insights into how important psychological design features have been ultimately shaped by evolutionary forces for the purpose of reproduction.

The kind of situationism that characterizes modern-day EP may be thought of as a sort of evolutionary situationism. This particular brand of situationism suggests that while human behavior is largely under the control of situational influences, the particular situational factors that should matter most in affecting behavior are ones that bear directly on factors associated with survival and reproductive success. As such, Daly and Wilson (1988) did not document just any factors that underlie familial violence – they specifically uncovered the role of step-parenting, a situational factor with clear and theoretically predictable relevance to issues tied to genetic fitness (from a strictly genetic-fitness perspective, a step-child shares no genes with a step-parent, and is, thus, costly).

Given the tremendous potential for EP to inform the search for contextual factors that underlie human psychological outcomes, this idea of evolutionary situationism has the potential to create extraordinary bridges between traditional social psychology and EP.

Evolutionary Psychology Mischaracterized as a Eugenicist Doctrine

An atypical, ardently negative criticism of EP that I have recently become aware of (from several of my students) suggests that EP is, in fact, a form of eugenics. As I argue in this section, EP is absolutely not synonymous with eugenics. Period. Eugenics is all about how human societies should selectively breed people so that only relatively fit individuals are the ones to reproduce. The goal of eugenicist is to create an optimal species. What a disturbing idea this eugenics is! Further, how far from EP it is! Consider, for instance, male sexual jealousy (Daly *et al.*, 1982) - the tendency, documented across cultures, for males

to be particularly upset by thoughts of their female romantic partners engaging in sexual infidelity coupled with a proclivity toward committing relatively aggressive acts tied to sexual infidelity in violent ways (relative to females). EP is interested in how this phenomenon may be species-typical and how it may have been shaped by natural selection. Further, evolutionary psychologists are interested in understanding the detrimental impact of this phenomenon on society and are interested, further, in using knowledge gleaned from evolutionarily guided research to help solve social problems associated with this phenomenon.

On the other hand, someone adopting a eugenics perspective would be focusing on improving the species in terms of optimizing the gene pool - thus, a eugenicist would see such jealousy as bad insofar as it may work to preclude the most fit among us from having more mates than others!

An evolutionary psychologist is focusing on human behavior as shaped to optimize individuals' own chances of reproduction. EP is (generally) a decidedly non-group-selectionist approach to understanding behavior. It very much focuses on behavior as largely serving the purpose of getting one's own genes into the future - with essentially no regard for 'saving the species.' A eugenicist, on the other hand, believes that we should use our understanding of the effects of genes on behavior and bodies to consciously choose who should reproduce and who should not for the good of the species. This perspective suggests that we should optimize the gene pool of the species via selective breeding - that is the goal of eugenics. That is not at all the goal of evolutionary psychology.

From the perspective of eugenics, we should all work to have people like Arnold Schwarzenegger and Britney Spears do all the mating for our species. From the perspective of Evolutionary Psychology, people were shaped by natural selection to endorse nothing of the kind - rather, from this perspective, we were shaped to work to reproduce our own particular genes, regardless, in fact, of whether we believe ours may actually be the best in the pool! As is delineated in Table 2, EP and eugenics differ in:

- (a) the level of selection (for EP, selection happens at the level of the individual whereas eugenics is generally a group-selectionist idea)
- (b) the selector (for EP, the selector of heritable qualities is blind natural selection; for eugenics, the selector is a group of humans with conscious intent) and
- (c) their basic goals (the goal of an evolutionary psychologist is to use insights gleaned from evolutionary theory to understand human behavior; the basic goal of eugenics is to improve the human gene pool for the purposes of some small, powerful group).

Table 2. Distinguishing Evolutionary Psychology from Eugenics

	Evolutionary Psychology	Eugenics
Level of Selection	<p>Natural selection happens at the level of the individual organism. Psychological qualities viewed as 'adaptations' are qualities that confer survival and/or reproductive benefits to the organisms possessing the particular qualities.</p> <p>The entity that is presumably 'benefiting' here is the individual.</p>	<p>In large part, eugenics is a group-selectionist doctrine. It suggests that people should work together in selectively breeding humans to make it so that the species will benefit in the future.</p> <p>The entity that is presumably 'benefiting' here is the species.</p>
The Selector	<p>The process of natural selection (and, perhaps, other evolutionary processes such as sexual selection). Natural selection is a blind process with no intention and no plan.</p> <p>The selector here is a natural process fully devoid of human intentions and political agendas.</p>	<p>Individuals or groups of individuals with particular intentional plans/objectives and, often, particular political agendas.</p> <p>The selector here is a fully human entity, replete with intentions and political agendas.</p>
Basic Goal	<p>Evolutionary Psychology represents a basic scientific endeavor. The goal is to use our understanding of evolutionary principles so as to optimize our ability to understand human behavior and psychological processes.</p> <p>This basic scientific paradigm does not have a specific political agenda; increasing understanding of human psychology is the agenda.</p>	<p>The goal of eugenics is quite applied in nature. The point of this perspective is to apply our understanding of genes to a program of selective breeding of humans.</p> <p>This applied perspective has a very specific agenda.</p>

Table 2. Continued

	Evolutionary Psychology	Eugenics
Consciousness	<p>Many psychological processes that are studied by Evolutionary Psychologists are unconscious in nature. For instance, Cosmides and Tooby (1992) argue that we differentially apply rules of logic, unknowingly, when we are faced with highly evolutionarily relevant versus relatively evolutionarily non-relevant judgments. Such unconscious processes were shaped by natural selection to serve the purposes of individual reproduction.</p>	<p>The basic idea of eugenics is a highly conscious one. There is not a focus on unconscious psychological processes. Rather, from this perspective, there is a clear and highly conscious plan. The plan is for members of society to selectively breed in a way that would lead to an optimized gene pool for the society at large in the future.</p>
Thoughts on Arnold Schwarzenegger	<p>From the perspective of Evolutionary Psychology, this man has been endowed with highly adaptive genes. Good for him. Evolutionary psychologists do not want (consciously or not) him to out-reproduce them. Heterosexual male evolutionary psychologists involved in monogamous relationships would not prefer that their female partners would mate with Arnold rather than with themselves.</p>	<p>A eugenicist might see Arnold as a horse breeder would see a blue-ribbon stallion: He should be used as a stud and should be encouraged, from this perspective, to mate with as many (relatively fit) females as possible in hopes of improving the species.</p>

In addition to Table 2, which delineates the important distinctions between EP and eugenics, I have provided an example of a multiple-choice test question which addresses this distinction further (see Table 3).

Table 3. A Multiple-Choice Examination Item Demonstrating the Basic Distinction between Evolutionary Psychology and Eugenics

From the perspective of Evolutionary Psychology, psychological characteristics _____ with the primary function of increasing the likelihood that the _____.

- A. are selected by natural selection; species in which the adaptation exists will not go extinct
 - B. should be selectively bred by people; broad group of organisms to which individuals belong (e.g., animals versus plants) will likely out-compete other broad groups of organisms
 - C. are selected by natural selection; specific individuals displaying such characteristics in ancestral contexts were particularly likely to out-compete conspecifics (i.e., other humans) and thereby reproduce in relatively higher frequencies
 - D. should be selectively bred by people; fittest members of the species are most likely to survive and reproduce.
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The correct answer here is C. Evolutionary Psychologists focus on qualities that are 'adaptive' from the perspective of individuals. However, if the question started with the phrase, "From the perspective of eugenics ...," the answer would be D.

In thinking about eugenics, a reader might be thinking about who modern-day eugenicists are. While I am clearly arguing that anyone looking to EP for hints of eugenics is barking up the wrong tree (so to speak), there are clearly eugenicist implications found in many modern social movements. Given the historical atrocities associated with eugenics and the potential mis-use of modern technologies, I think it is very much worth our time to consider current technological, social, and intellectual trends that may ultimately provide a basis for future eugenicist endeavors.

One strikingly large such social movement concerns observations in sperm-donation trends. In sperm donation, women are able to choose qualities of their offspring based on phenotypal features of genetic fathers who have donated sperm. Consider a recent article published in the New York Times (Egan, 2006) dealing with the prevalence of women choosing to have children via sperm donation with no paternal care to assist in the parenting process. According to this article, "The California Cryobank, the largest sperm bank in the country, owed a third of its

business to single women in 2005, shipping them 9,600 vials of sperm, each good for one insemination.”

In addition to the relatively large economic niche that sperm donation is filling in industrialized societies, this New York Times article addresses the nature of the donors who are selected as fathers. The results presented in this article are eye-opening. For instance, Egan writes that, “Short donors don't exist; because most women seek out tall ones, most banks don't accept men under 5-foot-9.” Further, the article goes on to describe a woman who chose sperm from a tall German rugby player (who the mother in question describes as ‘Aryan’). One could argue that the mothers who are choosing sperm in this way are engaging in eugenicist practices. In fact, the parallels between sperm choice and eugenics are made quite explicitly by this allusion to the ‘Aryan’ sperm donor.

This line of thought, interestingly, extends to all non-random mate-choice processes in any sexually reproducing species (see Miller, 2000). Once individuals within a species are using criteria to selectively choose to mate with individuals based on the presence of certain phenotypal qualities, parallels regarding eugenics may become apparent. In writing on this topic, Miller writes that “Finding mates with good genes is one of the major functions of mate choice (across all sexually reproducing species)” (p. 431). He further writes that “We could outlaw genetic screening for heritable traits, but I imagine that our jails would have difficulty housing all of the sexually reproducing animals in the world that exercise mate choice – the female humpback whales alone would require prohibitively costly, high-security aquariums”.

My point in describing the parallels between the sperm-donation industry, mate-choice in general, and eugenics is not to sound alarm bells (although this analysis does raise concerns that should be addressed!). Rather, my point here is that there are existing practices in all societies which potentially do have some eugenicist overtones. Further, importantly, work within the domain of EP that is conducted by scholars who are interested in helping us understand human nature, simply, has no conceptual and/or empirical overlap with eugenics whatsoever.

The Future of Evolutionary Psychology

Evolutionary psychology has proven extremely powerful in (a) providing coherent explanations for many basic human behavioral patterns, (b) generating new research questions that simply would not be on the radar screen without EP as a guiding framework, and (c) generating novel findings about what it means to be human.

In terms of providing coherent explanations for basic psychological processes, consider Ekman and Friesen's (1986) landmark work demonstrating the universal nature of emotional expression. The evolutionary reasoning that these authors draw upon, arguing, essentially, that emotional-expression abilities must have been

positively selected for across the evolution of our species due to the fitness-related benefits of such abilities, provides an extremely useful and coherent framework for understanding human emotion in general. I am fully confident that it is very much in the interest of all the behavioral sciences to ultimately support efforts designed to understand human behavioral patterns in light of our evolutionary history.

In generating novel research questions, consider Haselton and Miller's (2006) research demonstrating that women are particularly attracted to indices of creativity in potential mates during peaks in their ovulatory cycles. This research is excessively rooted in evolutionary ideas. First, the general idea that female mating psychology should vary as a function of variability in fertility across the ovulatory cycle is an idea that only makes sense when we think of psychological processes as being designed for the purposes of successfully reproducing. Additionally, the fact that this research focuses on attraction to indices of creative intelligence is rooted in Miller's (2000) theory of higher-order human cognitive abilities (such as creative intelligence) as having resulted from sexual selection pressures across evolutionary time and as serving the function of affording individuals benefits in the domain of intrasexual competition. Again, without guidance from EP, which suggests that basic psychological processes likely serve a reproductive function, the questions addressed in this research simply never would have made it onto the radar screen.

Just as EP allows novel questions to be asked, it allows such questions to be answered, thereby providing the world with all kinds of discoveries regarding our nature. While research in the domain of adaptations to ovulation strongly demonstrates several novel findings regarding human mating behavior (see Gangestad, Thornhill & Garver-Apgar, 2005), such research only provides the tip of the iceberg when it comes to novel findings obtained by evolutionary psychologists. In fact, evolutionary psychologists are responsible for uncovering novel findings across the entire range of psychological phenomena such as the inter-play between mating and homicide (Buss, 2005a), the neuropsychological substrates underlying the detection of individuals who cheat in social-exchange situations (Cosmides & Tooby, 2005) the phenomenology of stranger anxiety experienced by babies (Heerwagen & Orians, 2002), and the nature of altruistic tendencies across species (e.g., Burnstein, 2005; Sherman, 1985).

(For a reader interested in reading more about the scientific utility of EP across the modern landscape of the behavioral sciences, I strongly recommend Ketelaar and Ellis' (2000) paper which conceives of EP as a meta-theory that guides research in a coherent manner and a paper by Schmitt and Pilcher (2004) which provides a model regarding the thorough methodology employed by evolutionary psychologists when they are at their best in trying to uncover human nature.)

In light of the powerful nature of EP in generating new questions and findings, I believe, strongly, that psychology writ large can only reach its potential by incorporating an evolutionary perspective across all its areas. Further, I believe that there is reason for optimism regarding the future of EP and the future of an evolutionarily informed psychology in general. Consider, for example, a recent

analysis of articles published in a leading journal in the behavioral sciences, Behavioral and Brain Sciences, which revealed that more than 30% of articles published in the last decade include evolution in the title or as a keyword (Wilson, Garruto, McLeod, Regan & Tan-Wilson, unpublished manuscript). These findings suggest that evolution is, in fact, making its way into the behavioral sciences.

However, with that said, an analysis regarding the education of the authors of these evolutionarily informed articles tells a different story. When authors of these articles were interviewed about their education, they generally reported being self-taught with regard to evolutionary principles. Such an effect is consistent with the portrait of academic institutions as less than fully embracing of the incorporation of evolution into the realm of human behavior.

Taken together, the different ideas presented in this section paint a variegated picture with regard to the inclusion of evolution into the behavioral sciences. On the one hand, a great deal of research on the evolutionary origins of human behavior and psychological processes is being conducted. This research is leading to novel findings regarding topics that cut across all areas within psychology (see Buss, 2005b). On the other hand, EP is a target of hostility from adherents of multiple political and ideological perspectives. Such implacable hostility emanates from characterizations of EP as overly deterministic, reductionistic, sexist, racist, and, simply, evil.

Importantly, there are several critiques of EP that are reasonable and that should be addressed. For instance, Panksepp and Panksepp (2000), argue that evolutionary psychologists could improve their work by taking a less modularistic approach, working more closely on neurological substrates of behavior, and paying more attention to research regarding the neuroplasticity which seems to characterize much of the human brain. To be fair to these critics (and to others), I strongly believe that EP is not perfect and this approach to psychology has room for improvement. However, I see no reason to throw the baby out with the bath water. As Dawkins (2005) writes regarding recent critiques of EP: “Some individual evolutionary psychologists need to clean up their methodological act. Maybe many do. But that is true of scientists in all fields” (p. 978).

In short, EP has proven itself as having extraordinary abilities to (a) yield novel ways of thinking about who we are and to (b) generate new findings that shed light on the depths of our minds. While this approach may not be perfect, and while certain studies conducted under the general banner of EP may need improvement, the overall approach to understanding human behavior – focusing on understanding how basic psychological processes ultimately bear on issues tied to reproductive success – has an enormous capacity to improve our understanding of ourselves. I urge psychological researchers and students to go down the path of evolutionary enlightenment so as to allow psychology to realize its full potential – ultimately allowing our discipline to best help people deal with the many problems associated with what it means to be human.

CONCLUSION

My intellectual passions permeate my teaching and my research. After learning about applications of evolutionary theory to issues regarding behavior in Benjamin Sachs' Animal Behavior course in 1990 at the University of Connecticut, I came to see the evolutionarily informed approach to psychology as the most coherent and powerful framework for understanding behavior across species (including *Homo Sapiens*). This intellectual approach to understanding psychology has permeated my teaching and my research since that time.

As stated prior, I do not believe that all EP is perfect. In the future, evolutionary approaches to psychology will surely benefit from better understanding the inter-relationship between cultural and genetic forces that underlie behavior, studying the nature of neuroplasticity from an evolutionary perspective, teasing apart psychological qualities that were shaped for survival versus reproductive purposes, and addressing the interplay between behaviors that emerge in an ontogenetic timescale versus behaviors that are the result of thousands of generations of selection across our phylogenetic history. Further, I am certain that other improvements to an evolutionary approach to psychology are out there!

However – my student Warren Greig tells me that I need to be less apologetic when it comes to my passion for EP. And, as usual, he is right. As such, I end by making some simple points. First, EP is not an inherently evil approach to understanding human behavior. It is not overly immutable in its portrait of humans. It is, alternatively, one of the most situationistic/contextualistic doctrines that exists regarding human behavior. EP is not the new eugenics. In fact, EP and eugenics have virtually no commonalities whatsoever (see Table 2).

Evolutionary psychology is an extraordinarily coherent framework for understanding virtually all of human psychology. Its basic assumptions, suggesting (a) that fundamental human psychological processes were shaped by evolutionary forces and that (b) such psychological processes and behavioral patterns can be best understood in light of such evolutionary forces, are as solid and reasonable as the theory of evolution itself. Acknowledging this point is sure to benefit all work conducted in the realm of psychology.

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