

## Evolutionary Psychology and Developmental Dynamics: Comment on Lickliter and Honeycutt (2003)

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Evolutionary psychology provides a cogent metatheory for psychological science. It has furnished compelling theories of major domains of human functioning, including mating, parenting, kinship, morality, cooperation, conflict, aggression, and aesthetics. It has produced hundreds of empirical discoveries missed entirely by prior psychologists. Developmental dynamics, properly conceived, can add to the theoretical foundation of evolutionary psychology. But it has not provided alternative theories capable of explaining the many detailed empirical discoveries made by evolutionary psychologists. Nor has it generated a comparable bounty of new empirical discoveries. By critical scientific standards— theoretical cogency, predictive accuracy, interdisciplinary consistency, and empirical harvest—modern evolutionary psychology fares well compared with alternatives.

Charles Darwin is properly considered to be the first evolutionary psychologist. He offered these prophetic words at the end of his classic book, *On the Origins of Species*: “In the distant future I see open fields for far more important researches. Psychology will be based on a new foundation, that of the necessary acquirement of each mental power and capacity by gradation” (Darwin, 1859, p. 399). Adaptation and natural selection, he suggested, would become the foundation for the field of psychology. Darwin’s theories and subsequent elaborations of them have been resisted mightily from 1859 to the present. Lady Ashley, a contemporary of Darwin, was reputed to have said upon hearing the theory, “Let’s hope that it’s not true; but if it is true, let’s hope that it doesn’t become widely known” (as cited in Buss, 2004, p. 9). Although similar sentiments sometimes echo through the halls of modern academia to this day, Darwin’s theory turned out to be true. Now it is widely known.

Modern evolutionary psychology represents the most recent set of developments toward the fulfillment of Darwin’s prophecy. It has emerged as a compelling metatheory for psychological science (Buss, 1995; Tooby & Cosmides, 1992). If a more powerful metatheory exists for psychological science, it has not been made known to the scientific community. As noted by many evolutionary psychologists, there is no such thing as “nonevolutionary psychology,” in the sense that there are no known causes other than evolutionary ones that have any currency as candidates for the emergence of species-typical psychological mechanisms at a fundamental level of description. These truisms have not stopped the continued cascade of criticism, often presented in emotionally strident forms coupled with sanctimonious outrage, name calling, and gross mischaracterization. Darwin knew that his views were

heretical, so much so that he felt like he was confessing to a murder (Desmond & Moore, 1991).

Evolutionary psychology is the integrative study of behavior and its underlying psychological mechanisms, including their development, activation, and expression, guided by insights provided by modern evolutionary theory. The discipline represents a true theoretical synthesis, combining the best insights from modern psychological science with those of modern evolutionary biology. It is interactionist in several senses and includes conceptions of environmental influences through the history of selection, ontogenetic input into development, and specific situational inputs that activate mechanisms, as well as aspects of the “internal” environment such as interactions with other mechanisms.

Subsumed within the broad rubric of evolutionary psychology is an array of diverse perspectives, approaches, middle-level theories, and competing hypotheses (Buss, 1995). Although unified by insights provided by modern evolutionary theory, there exist within the metatheory provided by evolutionary psychology conceptual disagreements of the sort that occur in all sciences, particularly rapidly developing ones. Competing hypotheses often exist for any particular phenomenon, such as whether male sexual jealousy is an adaptation or a by-product of other evolved emotions, whether women have mating adaptations entrained to their ovulation cycle, and whether various forms of sexual aggression are adaptations or by-products of other mechanisms (Buss, 2003; Gangestad & Cousins, in press). Some evolutionary psychologists emphasize domain-general mechanisms (Geary & Huffman, 2002) and others, domain-specific mechanisms (Symons, 1992; Tooby & Cosmides, 1992). Many evolutionary psychologists endorse the view that evolved mechanisms “have both modular qualities and connectedness with other [mechanisms]” (West-Eberhard, 2003, p. 12), although there is legitimate disagreement, and much lack of knowledge, about the precise form of modular qualities and nature of connectedness to other mechanisms.

Most evolutionary psychologists endorse the view that “plasticity, or environmental responsiveness, is a universal property of living things” (West-Eberhard, 2003, p. 34), including humans

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(e.g., Buss, 1995; Tooby & Cosmides, 1992), but they differ in the forms of plasticity posited. Some evolutionary psychologists contend that modern environments have altered selection pressures sufficiently so as to make some evolved adaptations no longer “adaptive,” whereas others emphasize the continuity of human adaptive problems and their evolved solutions from the deep past through modern times. The key point is that within the unified framework of evolutionary psychology, there is a range of legitimate scientific disagreements about important conceptual and empirical issues—precisely the sort of intellectual ferment one expects in an exciting, emerging hybrid discipline.

In this broad context, the perspectives offered by those who emphasize the importance of developmental dynamics (Lickliter & Honeycutt, 2003; see also Johnston & Edwards, 2002) are welcome and fully in keeping with the field of evolutionary psychology—they are proposals about the indispensability of evolutionary theory in understanding human psychology. Indeed, most evolutionary psychologists would fully endorse many of the views expressed by Lickliter and Honeycutt (2003) such as, “There is little doubt that the incorporation of evolutionary principles and perspectives into the psychological sciences can provide a useful heuristic framework for exploring the origins and nature of human psychological mechanisms” (p. 819). Evolutionary psychologists all seem to be in agreement that “a sound theory of human psychological mechanisms must be consistent with the central principles and empirical evidence of both developmental and evolutionary biology” (Lickliter & Honeycutt, 2003, p. 820).

The merits of these newer proposals within evolutionary psychology, as well as the competing conceptual premises against which they are purportedly opposed, should be evaluated by the standards that hold in all scientific disciplines: Do the theoretical perspectives guide researchers to new and important domains of discovery? Do they lead to specific predictions about phenomena not yet discovered? Do they explain existing scientific findings in a parsimonious manner better than alternative theories? Do they yield a rich empirical harvest? And in the domains frequently explored by evolutionary psychologists—human mating strategies, patterns of parental investment, cooperation and conflict within families, the emergence of cooperative alliances, human aggression, acts of altruism, the psychology of aesthetics—do the new offerings of developmental dynamics provide cogent competing theories?

### Conceptual Advances in Evolutionary Psychology

Modern evolutionary theory, starting with Charles Darwin and continuing through the theoretical developments in the 20th and 21st centuries, has provided conceptual advances leading to startling new predictions not provided by any prior theories within the field of psychology. As noted by one prominent evolutionary psychologist, “In the study of humans, there are major spheres of human experience—beauty, motherhood, kinship, morality, cooperation, sexuality, violence—in which evolutionary psychology provides the only coherent theory” (Pinker, 2002, p. 135).

Prior to the theories anchored in evolutionary psychology, the state of theory in many of these domains can be described charitably as impoverished. Theories of mating within psychology, for example, posited single and simple motives—people mate because of proximity; people mate because of similarity; people mate because of “the equity motive.” All these mainstream psycholog-

ical theories failed miserably. They failed to explain why humans would be motivated in the directions posited. They were extraordinarily simplistic, positing typically a single process. The generality of the theories precluded the generation of specific predictions in particular domains. Each assumed that men and women were identical in their mating motives. Each of these theories was context blind, positing the same mating tendencies regardless of circumstances. And none posited a menu of mating strategies that included short-term sexual strategies, long-term committed strategies, mixed mating strategies, mate poaching strategies, and mate expulsion strategies—all features of modern evolutionary theories of mating (e.g., Buss, 2003; Schmitt & 118 Members of the International Sexuality Description Project, 2003). Although theories of mating continue to grow more complex and sophisticated, evolutionary psychology has provided the most compelling existing theories of human mating strategies that dwarf the nonevolutionary theories that preceded them in scope, precision, and empirical support (e.g., Buss & Schmitt, 1993; Gangestad & Cousins, in press).

Similar conceptual developments have occurred in many other domains: social exchange (Cosmides & Tooby, 1992), social conflict (Daly & Wilson, 1988), family interactions (Davis & Daly, 1997), kin altruism (Burnstein, Crandall, & Kitayama, 1994), aggression (Campbell, 1999), and dozens more (Buss, 2004). Many controversies and unanswered questions remain, of course. For every new discovery, there are scores of unanswered questions. But mainstream nonevolutionary psychology has offered no compelling alternatives to these fundamental theoretical developments. Nor do the proposals of Lickliter and Honeycutt (2003).

### Empirical Discoveries of Evolutionary Psychology

Although vigorous empirical research programs founded in principles of evolutionary psychology are scarcely more than 15 years old, they have already produced an astonishing array of empirical discoveries. These include universal sex differences in long-term mate preferences (Buss, 1989b; Kenrick & Keefe, 1992), short-term sexual strategies (Greiling & Buss, 2000), the reasons women engage in extrapair copulations (Gangestad & Cousins, in press), stepparenting as the most important risk factor for preschool child abuse (Daly & Wilson, 1988), cheater-detection procedures in social exchange (Cosmides & Tooby, 1992), the specificity of social betrayal depending on relationship context (Shackelford & Buss, 1996), why men and women have trouble being “just friends” (Bleske & Buss, 2000), waist-to-hip ratio as a universal standard of attractiveness (Singh, 1993), the importance of symmetry in human mating (Gangestad & Thornhill, 1997), the centrality of genetic relatedness to the performance of life-or-death acts of altruism (Burnstein et al., 1994), the importance of mate-value discrepancies in predicting dramatic acts of mate guarding (Buss & Shackelford, 1997), and many others (see Table 1). By any reasonable standard, evolutionary psychology has discovered an impressive array of empirically documented phenomena that were not discovered by prior mainstream nonevolutionary psychologists. The proposals of Lickliter and Honeycutt (2003) for developmental dynamics, although welcome, have not generated comparable empirical discoveries. Nor have they offered alternative explanations for these scientific discoveries.

Indeed, the view of developmental dynamics offered by Lickliter and Honeycutt does not appear designed to answer functional

Table 1  
*Illustrative Empirical Discoveries Made Within Evolutionary Psychology*

Discovery	Study
Evolved landscape preferences	Orians & Heerwagen (1992)
Human mate poaching tactics	Schmitt & Buss (2001)
Stepchild abuse by stepfathers is 40 times higher than by biological fathers	Daly & Wilson (1988)
Cheater detection in social exchange	Cosmides & Tooby (1992)
Relationship-specific betrayal sensitivities	Shackelford & Buss (1996)
Sex differences in sexual fantasies	Ellis & Symons (1990)
Waist-to-hip ratio as marker of fertility and beauty	Singh (1993)
Symmetry linked to attraction	Gangestad & Thornhill (1997)
Deception in mating tactics	Tooke & Camire (1991)
Superior female spatial location ability	Silverman & Eals (1992)
Mate guarding linked to female reproductive value	Buss & Shackelford (1997)
Universal sex-linked mate preferences	Buss (1989b)
Profiles of male sexual harassers	Studd (1996)
Frequentist reasoning in human cognition	Cosmides & Tooby (1996)
Patterns of grandparental investment	Euler & Weitzel (1996)
Universal sex differences in desire for sexual variety	Schmitt & 118 Members of the International Sexuality Description Project (2003)
Sex-linked socialization across cultures	Low (1989)
Universal causes of divorce	Betzig (1989)
Specific fears, phobias, and anxieties	Nesse (1990)
Specific causes of suicidal ideation	de Catanzaro (1995)
Context effects on female mate preferences	La Cerra (1994)
Context effects on male mate preferences	Kenrick et al. (1994)
Sexual desire linked with female ovulation cycle	Stanislaw & Rice (1988)
Lowered risk taking linked with ovulation cycle	Chavanne & Gallup (1998)
Predictable responses to personals ads	Baize & Schroeder (1995)
Derogation of competitors	Buss & Dedden (1990)
Benefits to women of short-term mating	Greiling & Buss (2000)
Sex differences in causes of affairs	Glass & Wright (1992)
Possible functions of female orgasm	Gangestad & Thornhill (1997)
Effects of sex ratio on mating strategies	Pedersen (1991)
Who newborn babies are said to resemble	Daly & Wilson (1982)
Parental investment depending on paternity certainty	Anderson et al. (1999)
Child homicide as a function of genetic relatedness	Daly & Wilson (1988)
Powerful predictors of infanticide	Daly & Wilson (1988)
Patterns of life or death helping	Burnstein et al. (1994)
Patterns of inheritance of wealth	Judge (1995)
Investment by aunts and uncles	Gaulin et al. (1997)
Sex differences in opposite-sex friendship	Bleske & Buss (2000)
Rival characteristics predict jealousy	Buss et al. (2000)
Women's aggression toward women	Campbell (1999)
Causes of women's aggression toward men	Daly & Wilson (1988)
Triggers of homicidal fantasies	Duntley & Buss (1998)
Falsification of mate deprivation hypothesis	Lalumiere et al. (1996)
Sex differences in elicitors of anger	Buss (1989a)
Sex differences in status striving	Pratto (1996)
Benefits of inducing jealousy	Sheets et al. (1997)
Mating effort as function of attractiveness	Waynforth et al. (1998)
Facial symmetry and physical health	Shackelford & Larsen (1997)
Food sharing as function of variance of food resource	Hawks et al. (2001)
Determinants of willingness to engage in casual sex	Surbey & Conohan (2000)
Impact of sex and birth order on contact with kin	Salmon (1999)
Link between father absence and short-term sexual strategy	Chisholm (1999)

questions about human psychology and behavior. Developmental dynamics appears designed to reveal how underlying mechanisms unfold over time not why specific psychological mechanisms and the behaviors they produce have been favored by selection over competing designs. If so, then developmental dynamics offers the promise of yielding insights that are complementary to, not mutually exclusive with, the functional explanations already provided by evolutionary psychology. Failure to recognize the complementarity of developmental accounts and functional explanations, and

the necessity of both, has long been recognized as a major source of confusion within biology (Tinbergen, 1953; Reeve & Sherman, 1993).

### Criticisms of Evolutionary Psychology

As with any field of science, there exists a range of quality among its practitioners. Some formulate hypotheses in a precise and falsifiable manner, others in ways that are vague and unfalsifi-

fiable. Some hypotheses are solidly anchored within well-documented theories, others are conceptually untethered. Particular hypotheses, particular research programs, and particular findings can all be challenged, as is true of all normal and vigorous sciences. Legitimate criticisms, competing hypotheses, and methodological disagreements signal healthy scientific debate and often lead to more cogent theories, more precise hypotheses, and novel empirical discoveries.

Many criticisms of evolutionary psychology, however, appear not to accord with standards of reasonable and legitimate scientific discourse. Thus, evolutionary psychology is sometimes grossly mischaracterized, tarred and feathered with unwarranted labeling and name calling, and tied to irrelevant but emotionally arousing associations that denigrate the field unfairly. And in its stead, many critics offer vague, nonpredictive, unfalsifiable, and sometimes downright obscurantist conceptual alternatives as replacements.

Lickliter and Honeycutt (2003), unfortunately, succumbed to several of these problems. The first was mischaracterization. For example, they argued that “the preconceptions of evolutionary psychology . . . center on the assumption that basic aspects of an organism . . . are best understood as the products of its genes” (Lickliter & Honeycutt, 2003, p. 820). In contrast, evolutionary psychologists argue for complex and specialized forms of interactionism in which environments at many levels of analysis play a causal role at every step in the causal chain, including the selective environment of evolutionary history, the ontogenetic environment of the developing organism, the immediate inputs into evolved psychological mechanisms, and many aspects of the internal environment such as influences from other psychological mechanisms (Buss, 1995; Daly & Wilson, 1988; DeKay & Buss, 1992; Tooby & Cosmides, 1992; see also West-Eberhard, 2003). Lickliter and Honeycutt (2003) argued that evolutionary psychology views the environment of an organism as “secondary to the role of genetic factors” (p. 821), whereas in fact evolutionary psychologists do not partition genes and environment into primary and secondary roles (Buss, 1995; Tooby & Cosmides, 1992). In fact, evolutionary psychology has been at the forefront in rejecting these dichotomies, as well as those of social versus biological, genetic versus environmental, biological versus cultural, all of which have no warrant within the metatheory of evolutionary psychology (Tooby & Cosmides, 1992; Pinker, 1997). Lickliter and Honeycutt failed to mention that all of the influential theories of social evolution from at least the past 2 decades (see any edition of *Behavioral Ecology: An Evolutionary Approach*; e.g., Krebs & Davies, 1991) emphasize the context-sensitivity of social behavior, suggesting that selection has acted on evolved decision rules that influence which behaviors are produced in different ecological contexts. The current emphasis in evolutionary psychology on the context-dependency of behaviors entails the foundational premise that genes and the environment interact in complex ways in the development of organisms, as also suggested by developmental dynamics, although one would never guess this from the strawman arguments made by Lickliter and Honeycutt. In sum, Lickliter and Honeycutt attributed to evolutionary psychologists positions that evolutionary psychologists simply do not hold.

A second unfortunate form of argumentation was pernicious labeling. Although they avoided the obviously false characterizations of evolutionary psychology as genetic determinism, Lickliter and Honeycutt (2003) invented the new label of *genetic predeter-*

*minism*, which serves as its conceptual equivalent. In doing so, they perpetrated an egregious myth and implicitly confused genetic determinism with gene selectionism (Dawkins, 1982). In fact, most evolutionary psychologists endorse this view: “The belief that genes are somehow super-deterministic, in comparison with environmental causes, is a myth of extraordinary tenacity” (Dawkins, 1982, p. 11). Lickliter and Honeycutt (2003) erroneously branded evolutionary psychology as a “preformationistic view” (p. 821) and denigrated it by using labels such as “the central dogma” (p. 824) of evolutionary psychology. And they used the usual labels of “instructionist themes” (p. 826) and “an unnecessarily reductionistic view” (Lickliter & Honeycutt, 2003, p. 830). These labels are outmoded and inaccurate; they obscure rather than clarify the central conceptual issues in contention.

### Obscure Alternatives to Evolutionary Psychology

The alternative proposed by Lickliter and Honeycutt (2003) to the (mischaracterized) foundational premises of evolutionary psychology invokes the following: ongoing transactions, the entire developmental system, reciprocally interactive developmental system, complex nested and contingent paradigms, bidirectional dynamics, dynamic processes, regulatory dynamics, a self-regulating multilevel system, and a distributed and contingent network of control. Then as further clarification, Lickliter and Honeycutt (2003) offered “the complex interplay between a number of organismic and environmental factors” and “dynamic and contingent processes that involve a complex array of endogenous and exogenous features” (p. 826). And as further clarification, they offered “the distributed causal relations among . . . multiple factors” (Lickliter & Honeycutt, 2003, p. 828). Unfortunately, they never stated what these multiple factors are. They never proposed a clear hypothesis. They never generated a precise prediction. But they did repeat that they were proposing “complex interactions among developmentally relevant components both internal (including genes) and external to the organism” (p. 828) and that their foundations for evolutionary psychology resulted from “a dialectical interaction between organisms and environments” (Lickliter & Honeycutt, 2003, p. 829). Psychologists all agree that development is complex, contingent, and the result of many interacting factors; no one thinks otherwise. Unfortunately, Lickliter and Honeycutt have not made apparent to readers whether they can generate any precise hypotheses or falsifiable predictions from these phrases.

How does Lickliter’s and Honeycutt’s proposed replacement of the current principles of evolutionary psychology by developmental dynamics fare when evaluated by scientific standards? Does it lead investigators to new domains of inquiry about the evolution of behavior? Does it propose specific, testable, and falsifiable evolutionary predictions? Does it better account for existing findings discovered by evolutionary psychologists in the domains of mating, altruism, cooperation, aggression, parent–offspring conflict, dominance hierarchies, and so on? Does it offer more parsimonious explanations? The answer to all of these questions appears to be a resounding “no.”

All evolutionary psychologists agree that humans are complex, that development is important, that many causal factors are in play, and that they interact in complex and not-yet-understood ways. Indeed, entire books have been devoted to evolutionary developmental psychology (e.g., Bjorklund & Pellegrini, 2002; Geary,

1998; Segal, Weisfeld, & Weisfeld, 1997; Weisfeld, 1999), and complex dynamic models of mutualistic and antagonistic coevolution are increasingly guiding research within evolutionary psychology (e.g., Buss, 2004; Kenrick, Li, & Butner, 2003). Most evolutionary psychologists would agree that the dynamics of development are extremely important and that more serious attention should be directed toward “evo-devo.” Unfortunately, the proposals by Lickliter and Honeycutt (2003) fail to provide much direction—they are vague, lack precision, fail to guide researchers to important domains of inquiry, and lack predictions that could be subjected to empirical test. When evaluated by standard scientific criteria, their repeated invocations of a complex, dynamic, bidirectional, contingent, self-regulating, transactional, interactive, multilevel developmental system must be found scientifically wanting. They do not explain any of the hundreds of findings discovered using the principles of evolutionary psychology, and they do not appear to be not logically structured to generate functional explanations, which are at the heart of the evolutionary understanding of adaptation and natural selection (Williams, 1966).

### The Future of Evolutionary Psychology

Evolutionary psychology has emerged within the past decade as an exciting, powerful, and indispensable perspective. Although much work needs to be conducted, evolutionary psychology has already proved its merit by its rich conceptual and empirical harvest. Competing hypotheses, competing foundational premises, and legitimate scientific criticisms are always welcome as the field of evolutionary psychology matures. One would hope that scientists such as Lickliter and Honeycutt will refine their approach with sufficient precision so that it can make contributions to understanding how human psychological adaptation unfolds over the course of development. Pitting developmental dynamics against evolutionary psychology, branding evolutionary psychology with erroneous labels, and distorting its foundational premises only serve to impede scientific progress. In the meantime, practitioners of evolutionary psychology will continue to make advances in understanding where people came from, the causal processes involved in their creation, and the mechanisms of mind that define what it means to be human.

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