

The Future of Psychology: Evolutionary Approach to Scientific Psychology

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“Evolutionary psychology is an *approach* to psychology, in which knowledge and principles from evolutionary biology are put to use in research on the structure of the human mind” (Cosmides & Tooby, 2001, p.1). The approach can be used to study and to provide broad theoretical framing of nearly all of the issues and topics within the traditionally defined fields of psychology. The 19 papers included in this special issue on evolutionary psychology are written by leading scholars in the field and address topics that can be organized by the familiar divisions of cognitive, developmental, and social psychology.

Evolutionary cognitive psychology. The author of *The origin of mind* (Geary, 2005), David Geary leads the discussion on evolutionary cognitive psychology. His paper lays out the foundations and principles for understanding the brain and its cognitive and behavioral systems. Differing from the all-purpose general cognitive model, an evolutionary account of human cognition, as the paper asserts, emphasizes individual and specialized cognitive processing modules that have been naturally selected for solving recurring environmental and social problems. Geary provides detailed accounts of some of the familiar modules known in mainstream psychology as folk physics, folk biology, and folk psychology, and outlines how domain-general systems (e.g., working memory) may have evolved. Four other papers presented under this section are from Gary Brase, Wang Xiao-tian, Michael Corballis, and Steven Pinker. Gary Brase investigated the rather classical cognitive topic of Bayesian reasoning. Consistent with evolutionary theorizing, his empirical findings suggest that recurrence of the format and context in which a problem is presented improves human statistical reasoning. Wang’s empirical paper shows that risk taking behavior and decision making carry evolutionary footprints that can be inferred by investigating such variables as genders of parents and children and relative versus absolute family wealth. Michael Corballis and Steven Pinker are leading

authorities on language evolution. Emphasizing different issues (e.g., language instinct, to use the name of the author’s classic book (Pinker, 1994) and, for Corballis, language modality evolution or the transition “from hands to mouth” to borrow from his book title (Corballis, 2002), these two papers together provide a state of the art account of language evolution.

Evolutionary developmental psychology. As the author of the first evolutionary developmental psychology text (Bjorklund & Pellegrini, 2002), David Bjorklund co-authored with Jason Grotuss, and Adriana Csinady to discuss life history tradeoffs concerning child and adolescent development. Why do humans have one of the longest childhoods in the natural world, and how does child development make use of cognitive plasticity within the beneficial adaptive constraints described by articles in the first section? As shown in this lead paper of the section, some of the answers are beyond simple combinations of evolutionary life history theories and those of mainstream developmental psychology. One of the answers has been provided by the next article by Jay Belsky, who is known for his seminal work on how early childhood experience may prompt the onset of biological clock by stimulating different reproductive strategies (Belsky, Steinberg, & Draper, 1991). In his current contribution, Belsky re-examines his theory by presenting existing empirical studies testing and extending his original work. The next three empirical studies (Byrd-Craven, Geary, Vigil, & Hoard; Brumbach, Walsh, & Figueredo; Frederick & Gallup, Jr.) provide additional evidence for these evolutionary developmental principles. Byrd-Graven et al. investigated the relation between developmental experience and later relationship preferences. Brumbach et al. examined adolescents’ sexual attitudes and behaviors in a large sample of 13,000 participants. Examining dental fluctuating asymmetry among 296 individuals of 10 species, Frederick and Gallup, Jr. concluded that the tradeoff between brain and motor development may have lessened selection pressure for developmental symmetry in humans relative to other primates. To conclude this section, Li and Chang made the distinction between parent-child

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resemblance belief and actual parent-child resemblance and found that parental belief about father-child resemblance affected paternal investment by moderating the associations between paternal parenting behavior and paternal versus child characteristics.

Evolutionary social psychology examines mating and sexual relationships as a major research topic. Six articles are devoted to this topic, with the lead article by David Buss delineating and testing his Sexual Strategy Theory (SST, also see Buss, 1994). One of the pioneering theories of evolutionary psychology, SST has since spawned a large number of empirical studies across diverse cultural contexts. All the articles in this section are related to this theory in one way or another. Surbey and Brice examined the effect of self perceived mate value (SPMV), which was experimentally manipulated, on mating strategy differences between men and women. Consistent with SST, their results showed that, with enhanced SPMV, men preferred short term mating strategies, whereas the same effect was not found among women. The empirical findings of Starratt, Shackelford, Goetz, and McKibbin demonstrate how infidelity signals could change men's long term mate retention behavior. Norman Li investigated mating strategies of both men and women. Extending SST, Li's theory and findings suggest that people behave in ways consistent with microeconomic principles when the costs and benefits in making mate choices are weighed. The empirical work by Graver-Apaga, Gangestad, and Thornhill is about the effect of menstrual cycle on mating preferences, suggesting that women in the most fertile phase of their cycle were more vigilant about sexual coercion.

In addition to these articles, the special issue also includes three conceptual papers bearing on broader issues of evolutionary psychology. They are *Why evolutionary psychology?* by Irwin Silverman; *Reconciling evolutionary psychology and ecological psychology* by Geoffrey Miller; and, *Some of the whats, whos, and whens related to evolutionary psychology* by Chang Lei. The former editor of the North American journal, *Evolutionary Psychology*,

Irwin Silverman presents a succinct introduction to evolutionary psychology in which he explains how psychologists may overcome the conceptual weaknesses of the standard social science model by addressing the "why" questions of causation. Geoffrey Miller takes a different approach by drawing comparisons between evolutionary psychology and ecological psychology. Incidentally, this paper by the author of the *Mating mind* (2002) also shows that evolutionary psychology is not all about sex. The final article introduces concepts and theories related to evolution and evolutionary psychology. Extended treatment of these and other topics are contained in an upcoming book in Chinese (Chang, 2007).

To conclude this brief introduction of the special issue on evolutionary psychology, we want to use the following quotation to express our hope that the special issue makes a timely contribution to the rapid development of Chinese psychology. "*Of all the facts of life, the most important is evolution. If psychology is to take its legitimate place among the family of life sciences, it must eventually integrate its basic theories and facts with those of evolution.*" (Rosenthal, 1970, p.1).

References

- Belsky, J., Steinberg, L., & Draper, P. (1991). Childhood experience, interpersonal development, and reproductive strategy. *Child Development, 62*, 647-670.
- Bjorklund, D. F., & Pellegrini, A. D. (2002). *The origins of human nature: Evolutionary developmental psychology*. Washington, DC: American Psychological Association.
- Buss, D. M. (1994). *The evolution of desire: Strategies of human mating*. New York: Basic Books.
- Chang, L. (2007). *Evolutionary psychology*. Guangdong Higher Education Press. (in Chinese)
- Corballis, M. C. (2002). *From hand to mouth: The gestural origins of language*. Princeton, NJ: Princeton University Press.
- Cosmides, L., & Tooby, J. (2001). Evolutionary psychology: A primer. Center for Evolutionary Psychology Online Reading: <http://www.psych.ucsb.edu/research/cep/primer.html>.
- Geary, D. C. (2005). *The origin of mind: Evolution of brain, cognition, and general intelligence*. Washington, DC: American Psychological Association.
- Miller, G. F. (2000). *The mating mind: How sexual choice shaped the evolution of human nature*. New York: Doubleday.
- Pinker, S. (1994). *The language instinct*. New York: Harper-Collins.
- Rosenthal, D. (1970). *Genetic theory and abnormal behavior*. New York: McGraw-Hill.