2010

Functionality, Parsimony, Discovery, Avoiding Hamartia: How Evolutionary Perspectives are Changing Psychology

Brooke N. Jenkins
Chapman University, bjenkins@chapman.edu

Aaron T. Goetz
California State University, Fullerton

Recommended Citation

Jenkins (Gentle), B. N., & Goetz, A. T. (2010). Functionality, parsimony, discovery, avoiding hamartia: How evolutionary perspectives are changing psychology. *EvoS Journal: The Journal of the Evolutionary Studies Consortium, 2*(1), 24-31.

Functionality, Parsimony, Discovery, Avoiding Hamartia: How Evolutionary Perspectives are Changing Psychology

EvoS Journal:
The Journal of the Evolutionary Studies Consortium

Functionality, Parsimony, Discovery, Avoiding Hamartia: How Evolutionary Perspectives are Changing Psychology

Brooke N. Gentle
Aaron T. Goetz
Department of Psychology, California State University, Fullerton

ABSTRACT

Evolutionary psychology offers an important perspective to scientific psychology. Evolutionary psychology, in its short existence, has added an abundance of knowledge to the social sciences, let alone psychology. The study of human cognition and behavior remains incomplete without an evolutionary perspective. Here, we argue that evolutionary psychology uniquely provides a complete understanding of scientific psychology because it explains the functions of our psychological traits, provides us with the most parsimonious explanation of many psychological phenomena, predicts undocumented phenomena, and possibly allows us to avoid the downfalls of some of our contemptible evolved psychological mechanisms.

KEYWORDS

Evolutionary psychology, evolutionary perspectives, trait functionality, parsimonious explanations

A researcher brings a participant into a lab and, after viewing pictures of small toddlers, asks him which child he finds most attractive, which child he would be willing to adopt, and which child he would least resent supporting financially. The researcher repeats this procedure with dozens more participants who are unaware that of the pictures viewed, some were morphed with their own face and some with that of others. Interestingly, men overwhelmingly chose the pictures that were self-child morphs as the most attractive, the ones they would adopt, and the ones they would least resent providing child support on their behalf. Women, however, were unaffected by the level of self resemblance of the children and showed no biases toward the self-child morphs. Platek, Burch, Panyavin, Wasserman, and Gallup

Please direct correspondence to Brooke Gentle, Department of Psychology, California State University, Fullerton, Humanities 830M, 800 N. State College Blvd., Fullerton, CA 92831. Email: MissBgentle@csu.fullerton.edu.

(2002) predicted these exact findings *a priori*, and later we discuss their interpretation of these results.

The researchers who generated this study and its novel predictions adopt evolutionary perspectives when studying human cognition and behavior. Evolutionary psychology (EP) is the study of human cognition and behavior that builds from the theory of evolution by natural selection (for reviews of EP, see Buss, 1995; Goetz & Shackelford, 2006; Tooby & Cosmides, 1992). This approach examines how our ancestors derived potential survival and reproductive benefits from certain psychological traits. With this knowledge, evolutionary psychologists seek to understand why modern humans behave and think the way they do. Ultimately, the psychological architecture that allowed our ancestors to survive and reproduce was passed on to us, and with the aim of elucidating this psychological architecture and its function, evolutionary psychologists are in a good position to understand human nature. Thus, EP is necessary to have a complete understanding of scientific psychology because it explains the functions of our psychological traits, provides us with the most parsimonious explanation for many psychological phenomena, enables us to predict undocumented phenomena, and possibly allows us to moderate the impacts of some of our contemptible evolved psychological mechanisms.

EVOLUTIONARY EXPLANATIONS OF TRAIT FUNCTIONALITY

The many branches of psychology have documented numerous phenomena about how humans think and behave, but much of this literature is merely descriptive. Because psychology typically describes and labels phenomena, this documentation consistently lacks the answer to why something is the way it is. Why does it exist? For example, cognitive psychology provides us with an abundant amount of research on how the human mind works. This research details how our thought processes work, but leaves us curious about the underlying function of our thoughts, or, in other words, *why* we think the way we do. EP fills this gap by explaining the function of our psychological mechanisms and thus answering the question of why we think and act the way we do.

An evolutionary cognitive psychological study, concerning our memory, demonstrates how EP explains the functions of our psychological traits, as opposed to simply documenting them. Schutzwohl and Koch (2004) asked participants in committed relationships to listen to cues of infidelity. The participants listened to romantic stories that referenced their relationships. Researchers embedded within the story cues of infidelity. For example, a female participant might hear, “He begins avoiding talking about a certain other woman in conversations with you” (Schutzwohl & Koch, 2004, p. 256). During a later session, researchers asked the participants to recall the infidelity cues. Consistent with evolutionary psychological theory and research, the women were more likely to remember emotional, as

opposed to sexual, cues of infidelity when compared to the men. Men, on the other hand, better recalled the sexual infidelity cues. Evolutionary psychologists predicted and found these results by considering the evolutionary problems that our ancestors faced and how our memories would have benefited by experiencing greater sensitivity to one form of infidelity over the other, depending on gender. This follows from the abundant research on sexual jealousy that argues that men are more likely to be upset over sexual infidelity due to the possibility of being cuckolded (unwittingly investing in non-genetically related offspring), and that women are more sensitive to emotional infidelity, which precipitates a loss of resources (Buss, Larsen, Westen, & Semmelroth, 1992; but see research by DeSteno & Salovey, 1996 for opposing views). By using evolutionary perspectives to test how our memory works, these researchers allowed us to understand why our memories work the way they do in this context.

Non-evolutionary research often fails to explain why the phenomenon in question occurs. For example, Van Dijk (2009) found that track athletes overestimate how negatively affected they will be by a loss. In the study, track athletes rated, on a Likert-type scale, how upset they would feel if they lost. After their competition, the athletes who lost their event reported the intensity of their negative feelings toward the loss. The data revealed that the athletes tended to over-perceive how upset they would feel in the situation of a loss. Researchers attributed this overestimation to impact bias, the phenomenon that people tend to misjudge how an event will affect their emotional well-being. Although this study supports the hypothesis that people inaccurately predict their emotions for future events, this study has only given a label to the phenomenon.

Specifically, researchers documented that this overestimation occurs and explained the phenomenon by labeling it as impact bias. Since this explanation only re-describes the phenomenon, it does not explain why the phenomenon occurs. If this study considered evolutionary perspectives, a complete explanation of the phenomenon may have been possible. For example, it is possible that people who perceive that they will be greatly affected by an event will try harder to succeed. Over-perceiving the negative impact of an event functions as an excellent internal motivator. This study of impact bias would benefit from evolutionary perspectives in order to explain why the phenomenon occurs rather than simply documenting it.

PARSIMONIOUS EXPLANATIONS

EP is also necessary because some phenomena can *only* be explained through an evolutionary perspective. Michalski, Shackelford, and Salmon (2007) asked participants, who had a sibling of reproductive age, which type of infidelity (sexual or emotional) performed by their sibling's partner would upset them more. As precisely predicted from an evolutionary perspective, they found that both women and men were more upset by their brother's partner's sexual infidelity and

more upset by their sister's partner's emotional infidelity. Social constructionists using traditional approaches to analyze these findings would be left perplexed due to the fact that these results contradict the conventional reasoning that women are socialized to be more upset by emotional infidelity and men by sexual infidelity. In order for the social theory to prevail, men must somehow be simultaneously socialized to be more upset by a sexual infidelity committed by their brother's or son's partner yet also more upset by the emotional infidelity committed by their sister's or daughter's partner. We have no evidence of this complex socialization process. With evolutionary psychology, however, the results support the simple rule that a person will be more upset by whichever infidelity carried the higher evolutionary cost.

As can be seen from the previous example, EP can provide parsimonious explanations of social phenomena that a cultural and constructionist perspective cannot always describe. EP also demonstrates its value by explicating certain phenomena through sex ratio theory (Pedersen 1991; Guttentag & Secord, 1983). Sex ratio theory explains how one sex can become more valued if the current sex ratio in the population is skewed in that sex's favor. For example, if males outnumber females, females will become more valuable due to their scarcity. One study that builds off of sex ratio theory, and thus requires an evolutionary perspective, concerns sex ratio and skirt length. This correlational study found that lower sex ratios (populations in which women outnumbered men) positively correlated with shorter skirts (Barber, 1999). By taking an evolutionary perspective, the conclusion can be drawn that as the number of men per women decreases, men, because of their scarcity, become the valued sex. Due to this value shift, women begin to conform to men's desires (e.g., short-term mating, provocative clothing) in order to attract one as a mate. This conformity occurs in the form of sexual promiscuity. In order for women to advertise their sexual accessibility, they unknowingly wear shorter skirts. If research used traditional approaches, instead of evolutionary ones, to interpret variation of skirt length, links between the social atmosphere and skirt length could be found but these findings would not account for cultural variability. Without an evolutionary perspective, a needlessly complex explanation would likely be needed to understand fashion shifts. EP offers, however, a parsimonious (yet tentative) account for why something like skirt length would vary.

NOVEL PREDICTIONS GENERATED BY EVOLUTIONARY PERSPECTIVES

Not only do evolutionary perspectives explain existing phenomena, they also predict undocumented human behavior (e.g., DeBruine, 2009). One such prediction links paternal investment and the degree of child resemblance to the father. In an attempt to avoid cuckoldry, fathers might be expected to invest more in offspring who resemble them. This occurs because throughout evolutionary history fathers

could never be 100% sure that a child belonged to them. The previously mentioned study that put this hypothesis to the test was the one in which participants viewed self-child and other-child morphs (Platek et al., 2002). Upon completing this viewing, the researchers asked participants questions that analyzed the level of investment they would be willing to contribute to the children in the photos. It was found that the children men selected as the ones they would be more willing to adopt or spend time with were the children whose faces were morphed with their own. Furthermore, the men rated the self-child morphs as the most attractive and as the children they would be most willing to spend money on. Without evolutionary insight, a phenomenon such as this may have continued to go unnoticed.

EP goes further than predicting undocumented phenomena by challenging prevailing assumptions. Until recently, it was commonly believed that women lost oestrus, the increased receptivity to mating during the fertile phase of the menstrual cycle. In light of evolutionary perspectives, it was predicted that due to the increased reproductive benefits (e.g. accruing good genes) women's mate preferences should change across their menstrual cycles. Many studies found that women in the higher fertility phase of their menstrual cycle were more attracted to masculine faces than were women in a lower fertility phase of their menstrual cycle (e.g., Johnston, Hagel, Franklin, Fink, & Grammer, 2001; Penton-Voak & Perrett, 2000). Even more appealing is the fact that these preferences are not general (Gangestad & Thornhill, 2008). Qualities such as intelligence and financial standing did not feature this correlation. The fact that women, during the fertile phase of their cycle, show an increased attraction to masculinity (an indicator of good genes) and not intelligence or financial standing (indicators of a good provider) supports the idea that women's preferences change across their menstrual cycle. Furthermore, shifting preferences bolsters the hypothesis that women experience oestrus. Before we believed that humans were the only mammals without oestrus, but an evolutionary perspective changed this assumption.

AVOIDING HAMARTIA

In addition to explaining different psychological phenomena, EP might allow us to use our knowledge of our evolved psychological mechanisms to avoid or reduce human hamartia[1]. For example, awareness of our disease avoidance mechanisms may equip us with the means to overcome their negative effects. Duncan (2005) found that people associate disease with disfigurement even if it is known that the person with the disfigurement does not have a disease. Because of this association, people tend to avoid disfigured individuals. This makes sense from an evolutionary perspective because if our ancestors avoided people who look diseased, they would have fewer opportunities to contract a possibly life threatening

[1] Hamartia typically refers to a literary character's flaws or errors; downfall.

sickness. However, this psychological mechanism that activates our urge to avoid someone with a disfigurement is often counterproductive. It may cause us to act discriminatory toward people who look different, even if they don't have a disease. For example, upon meeting a visibly handicapped person, you may distance yourself from that person more than you would have, had they not appeared disabled (Schaller, Park, & Faulkner, 2003). You may even treat the person negatively due to his or her physical characteristics. By understanding that we carry this psychological mechanism, however, we can strive to overcome the urge to avoid or act negatively toward someone whose appearance deviates from the norm.

Not only can knowledge of our psychological mechanisms allow us to avoid their downfalls in everyday affairs, this information may also help reduce the negative implications of our psychology in more horrific situations. For example, male sexual jealousy or "male sexual proprietariness" (Daly, Wilson, & Weghorst, 1982) is one of the most frequently cited causes of intimate partner violence, both physical and sexual. Evolutionary psychologists hypothesized that a proprietary view of partners is the product of natural selection and functioned to limit a female partner's sexual autonomy (e.g., Wilson & Daly, 1993). Accordingly, research has shown that men's proprietariness varies with their partner's reproductive value (as indexed by her youth and attractiveness) and his perceived probability of her infidelity. In addition, men's proprietariness increases after spending a greater proportion of time apart from her (a situation that increases likelihood of female sexual infidelity) and when she is near ovulation, a time when a sexual infidelity would be most costly for the in-pair man (reviewed in Goetz, Shackelford, Romero, Kaighobadi, & Miner, 2008). Although we cannot win the war of jealousy, it is possible that knowledge of the function of this emotion could reduce the harmful products of sexual proprietariness. Just as there are anger management programs, perhaps a proprietary management program could reduce the incidence of intimate partner violence. In other words, although men might have little control over the underlying emotion, they might be able to modify their manifest behavior. This works in other domains, so it is not unreasonable to suggest the same could be done with sexual proprietariness. For example, although we cannot modify our evolved preference for sugar and fat, we can choose to modify our behavior via a diet. We suggest that although men will likely always experience sexual proprietariness under certain conditions, with training, men might succeed in reducing the negative manifestations of this proprietariness.

CONCLUDING REMARKS

Studying EP is essential for many reasons. First, we should take an evolutionary perspective in all branches of psychology so that we can understand the functions of our psychological traits, which reveal the why behind behavioral and psychological phenomena. As seen in our review, by applying an evolutionary

perspective, we can step back and look at the ultimate reasons behind our behaviors. By doing this we are able to generate new hypotheses about why humans think and behave the way they do. Second, we need an evolutionary psychological perspective because we cannot explain some phenomena without this reasoning. If we fail to recognize the value of evolutionary perspectives we will be left puzzled at many unexplained phenomena. Additionally, evolutionary perspectives not only account for previously observed phenomena but also generate falsifiable predictions for future research that likely would not be generated by other sub-fields of psychology. These new predictions make discoveries of undocumented phenomena possible.

Psychology features the amazing ability to provide us with tools to improve human life. By including an evolutionary perspective in our analyses of psychological findings, we can better understand human nature. This provides us with a progressive approach towards counteracting the negative effects of our psychology. Thus, it is vital that we study EP in order to better understand our psychological mechanisms and avoid their shortcomings.

REFERENCES

Barber, N. (1999). Women's dress fashions as a function of reproductive strategy. *Sex Roles*, *40*, 459-471.

Buss, D. M. (1995). Evolutionary psychology: A new paradigm for psychological science. *Psychological Inquiry, 6*, 1-20.

Buss, D. M., Larsen, R., Westen, D., & Semmelroth, J. (1992). Sex differences in jealousy: Evolution, physiology, and psychology. *Psychological Science, 3,* 251-255.

Daly, M., Wilson, M., & Weghorst, S. (1982). Male sexual jealousy. *Ethology & Sociobiology*, *3*, 11-27.

DeBruine, L. M. (2009). Beyond “just-so stories”: How evolutionary theories led to predictions that non-evolution-minded researchers would never dream of. The Psychologist, *22,* 930-932.

DeSteno, D.A. & Salovey, P. (1996). Evolutionary origins of sex differences in jealousy? Questioning the “fitness” of the model. *Psychological Science, 7,* 367-372.

Duncan, L. A. (2005). *Heuristic cues automatically activate disease cognitions despite rational knowledge to the contrary* (Master’s thesis). Retrieved from http://circle.ubc.ca/handle/2429/16726

Gangestad, S. W., & Thornhill, R. (2008). Human oestrus. *Proceedings of the Royal Society B, 275,* 991-1000.

Goetz, A. T., & Shackelford, T. K. (2006). Modern application of evolutionary theory to psychology: Key concepts and clarifications. *American Journal of Psychology, 119*, 567-584.

Goetz, A., Shackelford, T., Romero, G., Kaighobadi, F., & Miner, E. (2008). Punishment, proprietariness, and paternity: Men's violence against women from an evolutionary perspective. *Aggression and Violent Behavior*, *13*, 481-489.

Guttentag, M., & Secord, P. (1983). *Too many women?* Beverly Hills, CA: Sage.

Johnston, V. S., Hagel, R., Franklin, M., Fink, B., & Grammer, K. (2001). Male facial attractiveness: Evidence for hormone-mediated adaptive design. *Evolution and Human Behavior, 22,* 251-267.

Michalski, R. L., Shackelford, T. K., & Salmon, C. A. (2007). Upset in response to a sibling's partner's infidelities. *Human Nature*, 18, 74-84.

Pedersen, F. (1991). Secular trends in human sex ratios: Their influence on individual and family behavior. *Human Nature, 2,* 271–291.

Penton-Voak, I. S., & Perrett, D. I. (2000). Female preference for male faces changes cyclically: Further evidence. *Evolution and Human Behavior, 21,* 39-48.

Platek, S. M., Burch, R. L., Panyavin, I. S., Wasserman, B. H. & Gallup, G. G., Jr. (2002). Reactions to children's faces: Resemblance affects males more than females. *Evolution and Human Behavior, 23*, 159-166.

Schaller, M., Park, J., & Faulkner, J. (2003). Prehistoric dangers and contemporary prejudices. *European Review of Social Psychology, 14,* 105-137.

Schutzwhol, A., & Koch, S. (2004). Sex differences in jealousy: The recall of cues to sexual and emotional infidelity in personally more or less threatening conditions. *Evolution and Human Behavior, 25,* 249-257.

Tooby, J., & Cosmides, L. (1992). The psychological foundations of culture. In J. H. Barkow, L. Cosmides, & J. Tooby (Eds.), *The adapted mind* (pp. 19-136). New York: Oxford University Press.

Van Dijk, W. (2009). How do you feel? Affective forecasting and the impact bias in track athletics. *The Journal of Social Psychology*, *149*, 243-248.

Wilson, M., & Daly, M. (1993). An evolutionary psychological perspective on male sexual proprietariness and violence against wives. *Violence and Victims*, *8*, 271-294.

**Received September 12, 2009; Revision received April 9, 2010;
Accepted April 13, 2010**