

### Original Article

## Examining the Acceptance of and Resistance to Evolutionary Psychology

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**Abstract:** The field of psychology remains a divided one. Several different sub-disciplines (e.g., developmental, cognitive, behaviorism, social, etc.) form what could be a unified scientific area. However, there is no widely accepted theory of unification. Charles Darwin once theorized that evolutionary theory would change the foundation of psychology; but over the years, evolutionary psychology has been met with hostile resistance from some of the prominent psychologists within the other sub-disciplines. Yet in recent years, all of the divided sub-disciplines of psychology have been slowly implementing evolutionary principles into their literature and research. This slow integration of evolutionary psychology into the other sub-disciplines indicates the possibility of a unified psychology with evolution as its foundation. This paper briefly reviews the literature within each major sub-discipline of psychology to show their implementation of evolutionary psychological theories, indicating the possibility of evolutionary psychology becoming the unifying paradigm upon which the entire field of psychology can be based. A call for action to continue this process is also discussed.

**Keywords:** Evolutionary psychology, sub-disciplines, consilience, acceptance, resistance.

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### Introduction

Last year marked the 150<sup>th</sup> anniversary of one of the most profound and influential scientific discoveries in human history—Charles Darwin’s theory of evolution by natural selection. In its infancy, Darwin’s work was a hotbed of controversy with liberal and progressive intellectuals climbing on board almost instantly and many conservative evangelicals launching their strongest counter campaigns. A century and a half later, and with a mountain of supporting data, evolution is still contested within the scientific community.

In the closing pages of his monumental text, *On the Origin of Species by Means of Natural Selection* (1859), Darwin offered a glimpse of his dream for the future: “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” (p. 449).

The distant future to which Darwin envisioned is finally upon us. The relatively new field of evolutionary psychology is beginning to change the way psychologists study the human mind and is allowing psychologists to look at human behavior in exciting new ways. However, with progress comes opposition and this field is no exception. Unlike the biological sciences, evolutionary theory has not enjoyed the warm reception for which Darwin might have hoped. Psychology as a whole is yet to accept Darwin’s theory as the *foundation* of scientific inquiry, but at the very least evolutionary psychologists finally have a seat at the table.

David Buss (1995a, 1995b) once wrote about the questionable future of evolutionary psychology. Although his tone was one of hopeful optimism, Buss’s words were describing a newborn paradigm in the midst of the field of psychology—a field that has been characterized by disarray. However, this budding model known as evolutionary psychology was also in the dawn of psychological breakthroughs and new empirical methods. It has now been over 150 years after Darwin’s historic discovery, so let us once again briefly examine the future of a psychology based on evolutionary principles.

### **Evolutionary Psychology Today**

Despite a measure of evolutionary acceptance and multiple calls for unity, the field of psychology remains highly segregated. A number of commentators have highlighted the many problems associated with this fragmentation and have offered theories to aid in a rectifying integration (Goertzen, 2008; Henriques, 2003, 2008; Koch, 1993; Saad, 2007, 2008; Wilson, 1998). These problems, all of which have arisen from philosophical conflict between the divided sub-disciplines of psychology (Goertzen, 2008), include differences in methodological approaches, theoretical approaches, conceptual assumptions and interpretations, as well as a general lack of unity in subject matter (Henriques, 2003, 2008). Until psychology is united upon a common theoretical framework, it will continue to suffer from these problems.

The same specific areas that Buss (1995a, 1995b) discussed (cognitive, developmental, and social), along with other areas, including biological psychology, clinical psychology, and behaviorism, are still independent of each other. However, evolutionary psychology is beginning to show promise as the unifying paradigm upon which all of these different sub-disciplines of psychology can eventually merge, creating an amalgamation that results in a single organized theory that is focused on the research of human and animal behavior. While the chances of a field-wide adoption of evolutionary principles in the very near future is rather slim, a closer look reveals evidence that the process of integrating evolutionary principles has begun in every major sub-discipline of psychology.

#### *Cognitive Psychology*

The cognitive revolution of the 1960’s acted as a counterbalance to the radical behaviorism that dominated psychology for the first half of the twentieth century. Psychologists and philosophers began to realize that they could not talk about human

behavior without discussing human beliefs and desires—products of the human mind, a concept that had been off limits throughout the behaviorist movement. As a result, the mind was once again fair game for scientific study. The development of the computer and ground breaking work in artificial intelligence offered a new testing ground to support the notion of mental processes and would ultimately refute some of the long held tenets of behaviorism (Evans and Zarate, 1999). In response to the waning reputation of the field of psychology and its nomenclature, researchers such as Noam Chomsky (1957) and George Miller (1951) began to call their new line of research “cognitive science” (see Miller (2003) for a historical review).

The new approach to cognition brought with it a renewed interest in the biological underpinnings of thought and psychological behavior. Researchers such as David Marr (1982) began to theorize that cognition must require a great deal of processing within the brain and ethologists such as E.O Wilson (1975) hypothesized that this processing is determined by our mental architecture and, as such, is and has always been subject to the pressures of evolution. Ultimately, some cognitive scientists adopted biological methodology to mapping the functionality of the brain and thus cognitive neuroscience was born.

Finally, a full integration of biological approaches and cognitive science has emerged in the form of an evolutionary cognitive neuroscience. In its simplest form, evolutionary cognitive neuroscience is the merging of the fields of evolutionary psychology and cognitive neuroscience using methodology from both disciplines and guidance from evolutionary meta-theory (Krill, Platek, Goetz, and Shackelford, 2007). With these new approaches to the study of human thought and behavior as well as an ever increasing interest in evolutionary biology, a new synthesis has been created (Wilson, 1975) and has ultimately led to the development of evolutionary psychology.

Although determining the development of cognitive abilities over evolutionary history has been a daunting task, scientific theories and supporting evidence have been rising. For instance, evolutionary theories on the acquisition of memory (Klein, Cosmides, and Tooby, 2002) have developed as well as primate studies supporting an evolution of social cognition (Byrne and Whiten, 1992). In fact, Steven Platek and colleagues’ recent work in evolutionary cognitive neuroscience has shed light onto many evolutionary principles, including perceptions of facial resemblance, paternity uncertainty, and physical attraction. Using fMRI technology, these researchers have found that men and women perceive facial similarity between themselves and children relatively equally; however, men react and invest more favorably in children that resemble them than women do – supporting the evolutionary theory that men do not want to waste resources on children that may not be theirs (as indicated by physical similarity) (Platek et al, 2004). Using fMRI technology has also shown that viewing attractive women activates the reward centers in the brain – and the women perceived as attractive always had the standard .70 waist-to-hip ratio – which is highly correlated with female reproductive success (Platek and Singh, 2010).

Since cognitive psychology’s main focus is on internal mechanisms rather than environmental factors, evolutionary psychology has had a little easier transition into this area than others, but that is not to say that evolutionary psychology has been completely accepted within the realm of cognitive psychology (For more information on this integration, see Todd, Hertwig, and Hoffrage, 2005).

### *Developmental Psychology*

In the early to middle of the 20<sup>th</sup> century, researchers such as Gesell (1928) and Piaget (1955) brought forth the expansion of developmental psychology. These psychologists were some of the first to find support for theories reflecting the biologically predetermined cognitive development of humans (Parke and Clarke-Stewart, 2003). Since nature and nurture both play a role in human development, empirical methods in developmental psychology, such as monozygotic twin studies, have allowed behavioral genetics to explain human development as well (see Segal and Hill (2005) for a full review).

Evolutionary psychology has been able to mingle with behavioral genetics in the area of human development—creating theoretical explanations for the empirical data that behavioral geneticists have found (Mealey, 2001). With evolutionary theories and research combining with genetics data, developmental psychologists have begun to recognize many evolutionary theories as relevant to developmental psychology (Bjorklund and Ellis, 2005).

Evolutionary theories have been incorporated into most, if not all, aspects of human development, including pregnancy (Flaxman and Sherman, 2000), child development (Bjorklund and Ellis, 2005), and puberty and adolescence (Ellis, 2005; Weisfeld and Janisse, 2005). Evolutionary theories on seemingly harmful phenomena that occur during human development, such as pregnancy sickness (Flaxman and Sherman, 2000) and the slow maturation rate of humans when compared to other primates (Dunbar, 1992), have become accepted as beneficial evolved mechanisms. This is the beginning of an incorporation of evolutionary principles into developmental psychology.

### *Social Psychology*

Social psychology has been prominent since the late 19<sup>th</sup> century with the publications of William James' *The Principles of Psychology* in 1890 and James Baldwin's *Social and Ethical Interpretations in Mental Development: A Study in Social Psychology* in 1897. These texts spawned theories with a focus on relating psychological events to social interaction (Morawski and Bayer, 2003). With a century of developing theories and empirical progress, social psychologists have argued that one's environment (i.e., interaction with others) influences internal psychological phenomena and is therefore the foundation for social behavior.

Evolutionary psychologists have been working diligently to show that natural and sexual selection are the underpinnings of social behavior. Current evolutionary theories on human interaction, including altruism (Hamilton, 1964; Trivers, 1971), sexual attraction (Buss and Schmitt, 1993; Darwin, 1871), and aggression (Buss and Duntley, 2006; Daly and Wilson, 1988) have gained scientific support and respect, slowly inching their way into social psychology. In fact, social behavior in non-human primate studies have been showing striking similarities to social behavior in humans. For instance, chimpanzees are the only other species besides humans that are known to partake in warfare – defined as coalitional aggression consisting of groups of larger than four members (although evidence suggests the possibility that dolphins may also belong in this group) (Tooby and Cosmides, 1988; Wrangham and Peterson, 1996).

The current relationship between evolutionary and social psychology shows hints of promise toward cooperation between the two fields. Although evolutionary psychology has

been met with severe opposition from social psychologists, Kenrick, Maner, and Li (2005) found an increasing number of social psychology textbooks have been incorporating evolutionary psychology, albeit with greater scrutiny and criticism toward evolutionary psychology's theories and methods than toward social psychology's theories and methods. Evolutionary psychologists' empirical findings pertaining to many social phenomena, such as kin relations (Anderson, Kaplan, and Lancaster, 1999; Burnstein, Crandall, and Kitayama, 1994), group identification (Henrich and Boyd, 1998), and culture (Boyd and Richerson, 2005) indicate a possibility of future acceptance between evolutionary psychology and social psychology.

Evolutionary principles are also being incorporated into many social behaviors – and not strictly in an academic setting. David Buss's (1994) book *The Evolution of Desire* discussed the evolutionary basis for mating behavior in humans – from dating to sex to marriage and infidelity. But over the past few years, many popular books related to pickup artists have been incorporating the principles that Buss (1994) described into successful dating strategies. Books such as Neil Strauss's (2005) *The Game: Penetrating the Secret Society of Pickup Artists*, as well as several others, have opened many people's eyes to the use of gaining women's attention through the activation of many evolutionary principles of attraction. These principles include demonstrating high social status, displaying a large amount of resources, and maintaining a healthy physical image (as an unhealthy one is associated with disease and sickness). As evolutionary research shows, these behaviors are often characteristic of the dominant alpha male of hunter-gatherer tribes and even chimpanzees (Buss, 1989; De Waal, 1982). These pickup artists also delve into the behavior necessary for successfully approaching and dating women by using social behaviors that we developed in our hunter-gatherer ancestry. Thus, we can see that not only is evolutionary psychology being incorporated into social psychological theories, it is also being used in the actual social world. However, social psychologists still seem to view evolutionary psychology with reluctance and criticism (Kenrick et al., 2005).

### *Biological Psychology*

Psychologists have been linking the brain to behavior for generations (see Thompson and Zola (2003) for a full history). However, the technological advancements of the 20<sup>th</sup> century (e.g., the electron microscope, fMRI machines, etc.) have helped biological psychology develop rapidly. Studying patients with brain damage and/or neurological disorders has brought about mounds of undeniable evidence linking specific behaviors to neurotransmitter release in specific brain structures.

Since the inception of the Human Genome Project in 1990, biological psychology has begun adopting evolutionary principles quite rapidly. Because behavior is often linked to the release of specific neurotransmitters, revealing that certain genes are responsible for these neurotransmitters (e.g., which neurotransmitters are released, how much is released, how often they are released, etc.) has allowed for the integration of evolutionary theory into biological research.

In recent years, genetic research has linked multiple genes to specific behaviors and some disorders (e.g., Huntington's disease (MacDonald et al., 1993), further fueling evolutionary psychology's incorporation into biological psychology. In fact, recent research has found a gene that is responsible for modulating the amount of vasopressin released in the brain, which is linked to monogamous behavior (Walum et al., 2008).

Ultimately, the relationship between evolutionary psychology and biological psychology is rapidly growing in acceptance.

### *Clinical Psychology*

Clinical psychology has maintained a central focus on the etiology and treatment of mental illness (see Routh and Reisman (2003) for a full history). Connecting mental illness to physiological abnormalities within the brain has facilitated the invention of treatments for many psychological disorders, including selective serotonin reuptake inhibitors for depression, methylphenidate for attention-deficit hyperactivity disorder (ADHD), and atypical antipsychotic drugs for schizophrenia. However, the definitive causes to most psychological disorders remain undetermined. Since mental illness has a physiological basis, is heritable, and is prevalent across cultures, evolutionary psychological theories may be necessary to discover these unknown causes.

Evolutionary approaches to clinical psychology have brought about several theories pertaining to the onset of mental disorders (see Nesse (2005a) for a full review). Many of these disorders may have been positively selected, including ADHD (Baird, Stevenson, and Williams, 2000; Jensen et al., 1997), depression (Hamburg, Hamburg, and Barchas, 1975; Watson and Andrews, 2002), and eating disorders (Buss, 1988, 1994). However, disorders like schizophrenia and obsessive-compulsive disorder, which only have a 1% rate of incidence, are met with many theories (Byrne, Agerbo, Ewald, and Eaton, 2003; Malaspina et al., 2002; Swedo, Leonard, Garvey, and Mittleman, 2004), only a few of which argue from an evolutionary perspective (Crow, 1997; Nesse, 2005b; Rapoport and Fiske, 1998).

Because evolutionary psychologists have not discovered a new treatment for any mental disorder, clinicians have been reluctant to accept evolutionary psychology as an underlying paradigm (Nesse, 2005a). Research into the evolutionary etiology of mental disorders has been promising but conflicting as well. Perhaps more collaborative ventures between clinical and evolutionary psychologists could yield some interesting and beneficial outcomes, such as the discovery of direct causes, or new cures, of mental disorders. However, until that point is reached clinical psychologists will continue to disregard evolutionary psychology as a legitimate framework for clinical psychology (Nesse, 2005a).

### *Behaviorism*

As every introductory psychology text shows, the behaviorism movement began around the turn of the 20<sup>th</sup> century with Pavlov's classical conditioning. Throughout the 1900s behaviorism progressed from the strict classical conditioning of John Watson to B.F. Skinner's radical behaviorism, which accepted the ideas of private events within the organism but still focused on the manipulation of one's environment. Radical behaviorism has arguably brought about the birth of modern behavior analysis, which is still a thriving area of study today.

Even though behaviorism is centered on how one's environment can influence behavior, the fact that behaviorists are studying behavior in animals (e.g., rats and pigeons) and generalizing their findings to other species, especially humans, is ripe with evolutionary theory. Since all creatures share common ancestry, albeit in some instances it is extremely distant, we all tend to have certain features that are similar, such as the more primitive parts of the central nervous system. Because humans share a common ancestry with other species, many behavioral findings are generalizable across species, which

explains why medicinal drug testing begins with animals before being approved for human clinical trials. Even the great behaviorist B.F. Skinner (1986) admitted to evolution playing a role in behavior, so it would seem as though behaviorists are on the track toward incorporating evolutionary psychology into their theories and experimental methods.

Currently, behavior analysis is performed on rats and generalized to human behavior quite extensively. These areas include the relationships between brain structures and taste and odor aversion (Lasiter, Deems, and Garcia, 1985), fear and anxiety responses (Chen, Rainnie, Greene, and Tonegawa, 1994; Kudo et al., 2007), as well as symptoms of psychological disorders such as addiction (Nestler, 2000, 2001) and ADHD (Sagvolden, Russell, Aase, Johansen, and Farshbaf, 2005; Hand, Fox, and Reilly, 2006; Fox, Hand, and Reilly, 2008) to name a few. The between-species generalization occurring in these works, as well as many others, implies a blossoming relationship between evolutionary psychology and behaviorism.

### **A Call for Continued Action**

As the research shows, these sub-disciplines are beginning to show signs of adopting evolutionary psychology as their theoretical foundation. Along with landmark publications such as *The Handbook of Evolutionary Psychology* (Buss, 2005) and *The Adapted Mind* (Barkow, Tooby and Cosmides, 1992), evolutionary psychology has begun to develop into a paradigm that can be applied to any sub-discipline of psychology. In other words, the sub-disciplines of psychology are becoming *evolutionized* (Bjorklund and Blasi, 2005; Kenrick et al., 2005; Todd, Hertwig, and Huffrage, 2005). As such, “we now have an evolutionary social psychology, evolutionary developmental psychology, and now an evolutionary cognitive neuroscience” (Cosmides and Tooby, 1995, p. 1199).

For as long as psychology has been in existence, attempts have been made to unify the knowledge within it. Most recently, evolutionary psychologists have made a concerted effort to unify the field into an “increasingly seamless system of interconnected knowledge” (Tooby and Cosmides, 1992, p. 19). However, despite a great deal of support for the unification of psychology, dissenters have voiced their opinions rather stridently (Gergen, 1988, Derksen, 2005; Schlinger, 1996). For instance, Schlinger (1996) has attempted to argue that evolutionary psychology functions on the basis of “just-so” stories. More specifically, he argues that evolutionary psychologists base conclusions simply on viewing anecdotal evidence from humans and other animals. The arguments against the use of evolutionary principles, however, seem to miss the point. As Holcomb (1996) pointed out, “just-so” stories are merely accusations rooted in confusion over evolution and experimentation.

Although other dissenters may not attack the foundation of evolutionary psychology itself, they take aim at the argument for consilience of psychology on evolutionary principles. As Derksen (2005) has argued, the disunity in psychology reflects the diversity of human development and interactions across the world. Having multiple sub-disciplines allows psychologists to specialize in a specific area of that diversity. Psychologists are then able to interact with other psychologists to reflect on this diversity in human behavior. To create a completely unified psychology may result in the loss of this diversity and has thus been characterized as “wrongheaded” (Derksen, 2005, p. 158).

To unify the field of psychology with seamless boundaries is not the reason evolutionary psychology should be the overarching scheme as Derksen (2005) and others

would have psychologists believe. Evolutionary psychology should be a unifying factor merely as a by-product of its actual function—to simplify and explain the functional origins of a large number of human psychological processes. In short, it should be accepted as a dominant theory or perhaps the meta-theory because human cognition, culture, and behavior cannot be disconnected from human biology. Thus, an evolutionary approach is paramount to a complete understanding of psychological processes. However, it would be irresponsible and incorrect to suggest that evolutionary psychology would or should create a completely homogenous integration of disciplines. To do so would imply that a future psychology would only be an evolutionary psychology with all other sub-disciplines absorbed within it. The reality of an evolutionary psychology meta-theory, in our view, is a set of more completely informed sub-disciplines with evolutionary theory serving as a powerful paradigm. However, in the absence of a model in which to follow, there is potential for further segregation as disagreements over the role of the paradigm in each sub-discipline are likely.

This may sound bleak; but as the literature shows, evolutionary psychology is slowly inching its way into each of psychology's sub-disciplines. However, evolutionary psychologists must remain aware of this integration process because it is still being met with severe resistance from many researchers in most, if not all, sub-disciplines. There are countless benefits that could be gained through the consilience of psychology (Goertzen, 2008; Henriques, 2003, 2008; Saad, 2007, 2008), and evolutionary psychology is the only theoretical framework equipped to unite all of the sub-disciplines together (Saad, 2007, 2008). Therefore, evolutionary psychologists must all remain vigilant researchers and theorists, continuing on the current road of progress that this review has shown. As more evolutionary psychological research and theories are produced, the closer all psychologists come to a unified science of psychology.

#### *Evolutionary Psychology Outside the Academic Realm*

The progress made toward the integration of evolutionary principles into all areas of the natural and social sciences over the past 150 years has been immense. Subsequently, evolutionary psychology is slowly being met with greater acceptance within the other sub-disciplines of psychology. However, it has also been met with disbelief and opposition. Many people still resist evolutionary psychology because of false assumptions, such as those pertaining to the erroneous theory of genetic determinism and the horrific policy of eugenics.

Religion has also offered an area of persistent resistance. During the 2008 presidential primary, Barack Obama was criticized for making a statement regarding how American citizens cling to their guns and religion during economic hardship. He was not far from the truth. People are driven into frenzies when their religion is challenged. This has been revealed throughout history by the amount of wars and terrorist acts started in the name of religion (the Crusades, the World Trade Center attacks, etc.).

On a more optimistic note, the Catholic Church's recent acceptance of evolution and genetics indicates that religious figures are increasingly accepting scientific findings. Similarly, continuous research and theory have been showing the differences between evolutionary psychology and genetic determinism (Dawkins, 2006). In addition, eugenics has not been a widely accepted policy for over 60 years. Thus, evolutionary psychology still has a road of resistance ahead; but if evolutionary researchers continue to work at the

current pace, evolutionary psychology will eventually overcome these oppositions and become the foundation of psychology as a united field.

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