

Original Article

Evolutionary Theory's Increasing Role in Personality and Social Psychology

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Abstract: Has the emergence of evolutionary psychology had an increasing impact on personality and social psychological research published over the past two decades? If so, is its growing influence substantially different from that of other emerging psychological areas? These questions were addressed in the present study by conducting a content analysis of the *Journal of Personality and Social Psychology (JPSP)* from 1985 to 2004 using the PsycINFO online abstract database. Specifically, keyword searches for “evol*” or “Darwin*” revealed that the percentage of *JPSP* articles drawing on evolutionary theory was modest, but increased significantly between 1985 and 2004. To compare the growing impact of evolutionary psychology with other psychological areas, similar keywords searches were performed in *JPSP* for emotion and motivation, judgment and decision making, neuroscience and psychophysiology, stereotyping and prejudice, and terror management theory. The increase in evolutionary theory in *JPSP* over time was practically equal to the mean increase over time for the other five areas. Thus, evolutionary psychology has played an increasing role in shaping personality and social psychological research over the past 20 years, and is growing at a rate consistent with other emerging psychological areas.

Keywords: evolutionary psychology, personality, social psychology, publication trends, history and systems of psychology, *Journal of Personality and Social Psychology*.

Introduction

Although evolutionary psychology may be considered either a theoretical perspective or a sub-discipline of psychology (Cornwell, Palmer, Guinther, and Davis, 2005), it is nevertheless an emerging area that is growing in influence. In their recent article, Cornwell et al. showed that introductory psychology textbooks have given increasing coverage to sociobiology, evolutionary psychology, or both, over the past 30 years (1975-2004). Although the tone of this increasing coverage became increasingly positive (or at least less negative) over time, some inaccurate interpretations of

evolutionary psychology still persist. Cornwell et al. acknowledged that “much more work is needed to evaluate fully how sociobiology or evolutionary psychology is being integrated within the social sciences” (p. 371). To this end, the purpose of the present study was to empirically evaluate the extent to which evolutionary theory has impacted articles published in the flagship journal (the *Journal of Personality and Social Psychology* or *JPSP*) of a specific sub-discipline of psychology (social-personality psychology) over the past 20 years (1985-2004).

Method

PsycINFO keyword searches were performed using evolutionary psychology terms (“evol*” or “Darwin*”) for articles published in *JPSP* from 1985 to 2004. For comparison purposes, similar keyword searches were also performed for five other topic areas in social-personality psychology: (a) emotion and motivation (“emot*” or “motiv*”), (b) judgment and decision making (“judgment*” or “decision*”), (c) neuroscience and psychophysiology (“neur*,” “physiologic*,” or “psychophysio*,” but not “neurotic*”), (d) stereotyping and prejudice (“stereotyp*” or “prejudic*”), and (e) terror management theory (“terror management” or “mortality salience”). Articles published in an October 2003 special section of *JPSP* on social neuroscience were not counted toward the neuroscience and psychophysiology totals. These topic areas do not represent mutually exclusive categories. For example, a *JPSP* article on the evolutionary psychology of terror management theory would have counted toward both relevant topic areas.

The five additional topic areas represent a broad convenience sample of many possible topic areas in social-personality psychology. Because evolutionary psychology can be viewed as a psychological sub-discipline or a unique theoretical approach (Cornwell et al., 2005), both psychological (stereotyping and prejudice) and interdisciplinary (emotion and emotion, judgment and decision making) sub-disciplines were chosen, as well as both methodological (neuroscience and psychophysiology) and theoretical (terror management theory) perspectives that have recently influenced social-personality psychology.

The dependent variable was the proportion of the topic area articles out of the total number of *JPSP* articles per year. Since these proportions exhibited some year-to-year volatility, a three-year moving average was used to smooth short-term fluctuations in the data. Because proportion data often violate the homogeneity-of-variance assumption of regression (Judd and McClelland, 1989, pp. 525-526), an arcsine transformation was applied to the three-year moving average proportions: $\sin^{-1}(\text{proportion}^{1/2})$. Although all analyses were performed using the arcsine transformation, the data presented in Figure 1 show the raw three-year moving average percentages. The independent variable was publication year in *JPSP*. For each topic area, simple linear regressions were performed predicting change in the transformed moving average proportions over time.

Results

See Table 1 and Figure 1 for results. Significant linear increases in *JPSP* articles over time were detected for (a) evolutionary psychology, (b) emotion and motivation, (c) stereotyping and prejudice, and (d) terror management theory. In contrast, significant linear

decreases in *JPSP* articles over time were detected for (a) judgment and decision-making and (b) neuroscience and psychophysiology.

The mean of the six topic areas' change-over-time slopes ($M = 0.0019$) did not differ significantly from zero ($t_5 = 0.96, p = .38$). Moreover, none of the topic areas' individual slopes differed significantly from the mean slope of the other five areas. Interestingly, the slope for evolutionary psychology was the same as the mean slope of the other five topic areas (both $M_s = 0.0019$).

Although comparing the temporal slopes of these topic areas may be elucidating, it should be done with caution. First, each of these topic areas began to emerge at a different time. Thus, it may be difficult to compare an emerging topic area like evolutionary psychology with more established ones like emotion and motivation or stereotyping and prejudice. Second, only the linear effects of time were tested. It is certainly possible that different topic areas may grow or decline at differing curvilinear rates over time in *JPSP*. For example, some topic areas may have thresholds or tipping points after which they rapidly gain (or lose) acceptance. Further, emerging scientific fields often undergo growth spurts following identification (e.g., formal conferences) and institutionalization (e.g. establishing a dedicated journal or program of study; Feist, 2006). While interesting, the present data cannot speak to these possibilities.

Table 1. *Linear regression results: Proportion (arcsine of three-year moving average) of JPSP articles as a function of publication year (1985-2004) for six topic areas*

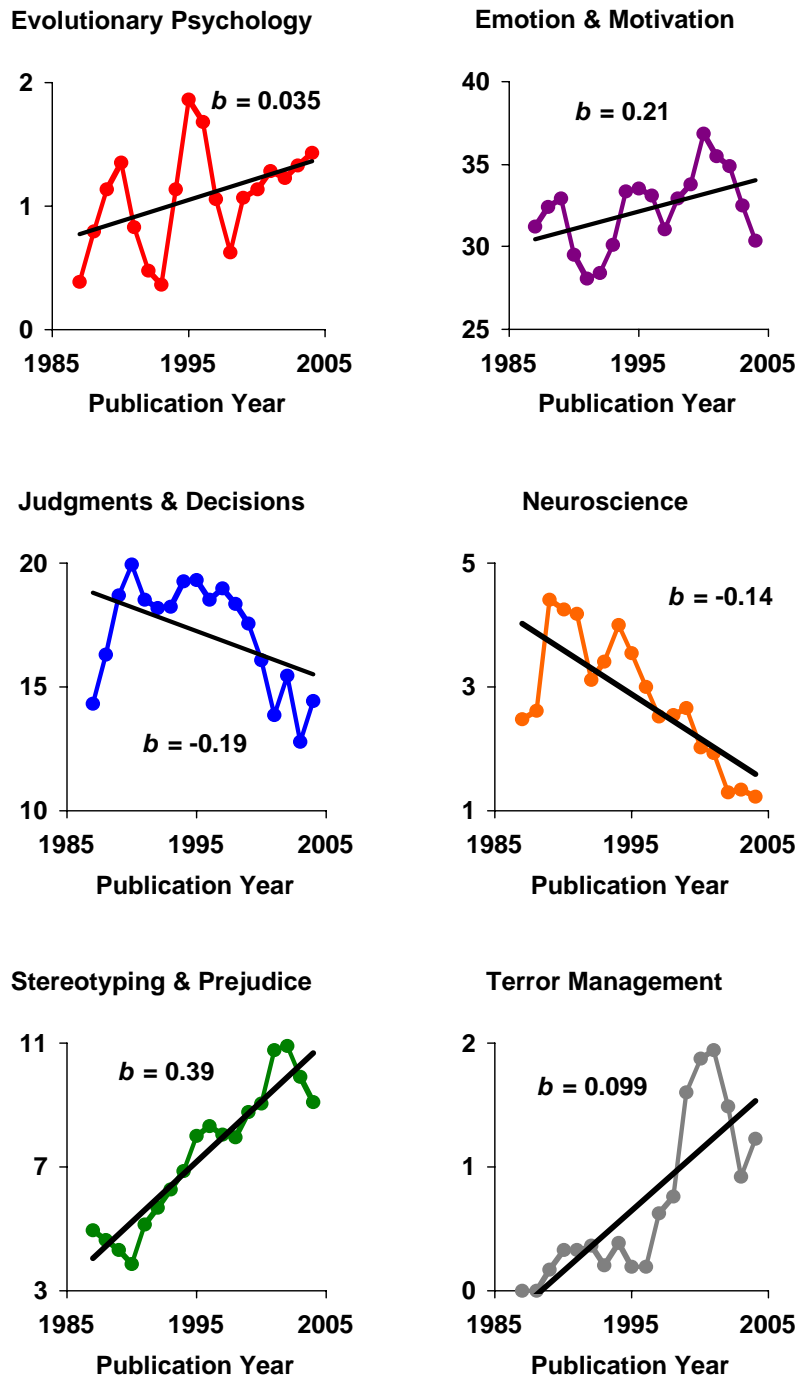
Topic area	<i>b</i>	<i>t</i> ₁₆	<i>R</i> ²
Evolutionary psychology	0.0019	2.11*	.22
Emotion and motivation	0.0022	2.11*	.22
Judgment and decision making	-0.0026	-2.17*	.23
Neuroscience and psychophysiology	-0.0046	-4.75*	.58
Stereotyping and prejudice	0.0077	10.72*	.88
Terror management theory	0.0070	6.99*	.75

* $p \leq .05$.

Discussion

Consistent with previous research that has shown evolutionary psychology's increasing role in introductory psychology textbooks (Cornwell et al., 2005), the present research showed that evolutionary theory has been making substantial inroads into social-personality psychology by publishing empirical articles in its flagship journal, *JPSP*. Although the proportion of evolutionary psychology articles published in *JPSP* was modest, it increased at a rate similar to other topic areas in social-personality psychology.

Figure 1. Percentage (three-year moving average) of *JPS* articles as a function of publication year (1985-2004) for six topic areas (*bs* represent raw regression slopes)



Although the results were straightforward, they were not without their limitations. First, there was some overlap in the areas examined, since the categories were not mutually exclusive. For example, an article on evolutionary perspectives of emotion using psychophysiological methods would have counted toward three of the six topic areas. Second, popular topic areas in psychology, and perhaps social psychology in particular, may wax and wane with historical changes in the socio-political zeitgeist or funding changes in various research paradigms (Gergen, 1973). Thus, the linear trends observed here may only represent 20-year snapshots of long-term cyclical trends. Third, since 1986, *JPSP*'s page layout and the number of pages it publishes each year has been relatively constant, which suggests that the percentage of journal space allocated to various topic areas may resemble a zero-sum game. For example, evolutionary psychology may have gained ground at the expense of one or more topic areas or theoretical approaches; however, it is also possible that, because of its interdisciplinary nature, evolutionary psychology has occasionally overlapped with other established areas (e.g., evolutionary approaches to emotion and motivation), which would obfuscate the necessity of a zero-sum scenario. Occasionally, specialized journals that cater to a specific topic area are established that may attract manuscripts that would have originally considered *JPSP* as an outlet. For example, the journal *Neuropsychology*, which began publishing in 1987, may have contributed to the observed decline in social neuroscience articles published in *JPSP*. Fourth, it is also possible that evolutionary psychology's increasing influence in *JPSP* is not due solely to growing acceptance, but rather to a combination of both growing acceptance and increasing criticism; however, *JPSP* rarely publishes comments and rejoinders that could artificially inflate a sub-discipline's influence based solely on its controversial nature.

How should these results be interpreted within the larger context of ongoing publication trends in social-personality psychology, evolutionary psychology, and psychology in general? First of all, the present findings should only be generalized to articles published in *JPSP*, the flagship journal of social-personality psychology; however, it is unlikely that the observed trends would differ markedly for similar high-impact social-personality journals (e.g., *Personality and Social Psychology Bulletin* or *PSPB*). The extent to which evolutionary psychology's growing influence in social-personality psychology may generalize to other psychological sub-disciplines (e.g., clinical, cognitive, developmental, neuropsychology) is beyond the scope of the present study.

Other research on social-personality publication trends in leading journals such as *JPSP* (Reis and Stiller, 1992; Webster, Bryan, Haerle, and O'Gara, 2005) and *PSPB* (Sherman, Buddie, Dragan, End, and Finney, 1999) have shown that articles have become longer, have included more authors and studies, and have employed more complex data analytic techniques over time. Similar trends have been observed in evolutionary psychology's flagship journal, *Evolution and Human Behavior*, such that the numbers of authors and studies have increased, as have the proportion of empirical (vs. theoretical or review) articles (Webster, 2007). Psychology articles in general have seen (a) an explosion in cited references (vs. other scientific disciplines, Adair and Vohra, 2003), (b) an increase in cognitive psychology and a decrease in behavioral psychology (Robins, Gosling, and Craik, 1999), and (c) an increase in article length that has leveled-off since the turn of the century (Webster, in press). Thus, for better or worse, as evolutionary theory's impact on

social-personality psychology continues to grow, evolutionary psychologists can expect to read, write, and review longer articles with more studies using more empirical methods and increasingly sophisticated analyses.

On a related note, evolutionary and social-personality psychology have witnessed a fruitful cross-fertilization over recent years. Perhaps most notably, evolutionary psychology has received attention in both the leading personality (Buss, 1999) and social (Buss and Kenrick, 1998) psychology handbooks. Similarly, the first comprehensive evolutionary psychology handbook has included chapters on evolutionary personality psychology (Figueredo et al., 2005) and evolutionary social psychology (Kenrick, Maner, and Li, 2005). Moreover, two pioneering edited volumes have been dedicated to the intersections of evolutionary and social psychology (Schaller, Simpson, and Gangestad, 2006; Simpson and Kenrick, 1997). Thus, evolutionary and social-personality psychology appear to have engaged in beneficial interweaving of mutual theoretical influence.

What are the implications of these findings for the future of evolutionary psychology in the context of social-personality psychology? First, the results suggest that evolutionary theory has established a viable beachhead on the theoretical landscape of social-personality psychology, and successfully planted its flag in the sub-discipline's flagship journal, *JPSP*. Second, evolutionary psychology's growing influence in *JPSP* articles appears to mirror the growth rates of other, similar topic areas, on average. Third, as evolutionary psychological research becomes more empirical (Webster, 2007), it is more likely to gain widespread acceptance in sub-disciplines such as social-personality psychology, which has itself become more empirical by adopting more complex statistical techniques (Reis and Stiller, 1992). Whereas social-personality psychology has witnessed an increase in sophisticated research methods (Reis and Stiller, 1992), evolutionary psychology is only just beginning to carve out its own niche of scientific methods (Simpson and Campbell, 2005), which will require continued development and refinement if evolutionary psychology is to flourish as an empirical science in the future.

Finally, although it is beyond the scope of the present findings, it is possible that the evolution of scientific theory may itself mimic Darwinian selection pressures, as various scientific theories merge or compete with one another over time. Moreover, the pursuit of science may itself be a signaling display of intelligence and creativity for the mating market, just as creating art and music appear to be (Miller, 1998). In addition, science and math may represent "co-opted by-products of evolved adaptations" (Feist, 2006, p. 217), such that they do not typically promote reproductive fitness directly, but may do so indirectly, through their signaling intelligence to potential mates, or their contributions to human society, or both. Although the present research cannot speak to these broader implications (e.g., it is unlikely to impact the author's fitness), it does provide an initial, empirical snapshot of the emerging scientific symbiosis between evolutionary psychology and social-personality psychology.

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References

- Adair, J. G., and Vohra, N. (2003). The explosion of knowledge, references, and citations: Psychology's unique response to a crisis. *American Psychologist*, 58, 15-23.
- Buss, D. M. (1999). Human nature and individual differences: The evolution of human personality. In L. A. Pervin and O. P. John (Eds.), *Handbook of Personality: Theory and Research* (2nd ed., pp. 31-56). New York: Guilford Press.
- Buss, D. M., and Kenrick, D. T. (1998). Evolutionary social psychology. In D. T. Gilbert, S. T. Fiske, and G. Lindzey (Eds.), *The Handbook of Social Psychology* (4th ed., Vol. 2, pp. 982-1026). New York: McGraw-Hill.
- Cornwell, R. E. Palmer, C., Guinther, P. M., and Hasker, P. D. (2005). Introductory psychology texts as a view of sociobiology/evolutionary psychology's role in psychology. *Evolutionary Psychology*, 3, 355-374.
- Feist, G. J. (2006). *The Psychology of Science and the Origins of the Scientific Mind*. New Haven, CT: Yale University Press.
- Figueredo, A. J., Sefcek, J. A. Vasquez, G., Brumbach, B. H., King, J. E., and Jacobs, W. J. (2005). Evolutionary personality psychology. In D. M Buss (Ed.), *The Handbook of Evolutionary Psychology* (pp. 851-877). Hoboken, NJ: Wiley.
- Gergen, K. J. (1973). Social psychology as history. *Journal of Personality and Social Psychology*, 26, 309-320.
- Judd, C. M., and McClelland, G. H. (1989). *Data Analysis: A Model-Comparison Approach*. San Diego, CA: Harcourt Brace Jovanovich.
- Kenrick, D. T., Maner, J. K., and Li, N. P. (2005). Evolutionary social psychology. In D. M Buss (Ed.), *The Handbook of Evolutionary Psychology* (pp. 803-827) Hoboken, NJ: Wiley.
- Miller, G. F. (1998). How mate choice shaped human nature: A review of sexual selection and human evolution. In C. Crawford and D. Krebs (Eds.), *Handbook of Evolutionary Psychology* (pp. 87-129). Mahwah, NJ: Erlbaum.
- Reis, H. T., and Stiller, J. (1992). Publication trends in *JPSP*: A three-decade review. *Personality and Social Psychology Bulletin*, 18, 465-472.
- Robins, R. W., Gosling, S. D., and Craik, K. H. (1999). An empirical analysis of trends in psychology. *American Psychologist*, 54, 117-128.
- Schaller, M., Simpson, J. A., and Kenrick, D. T. (Eds.). (2006). *Evolution and Social Psychology*. New York: Psychology Press.

- Sherman, R. C., Buddie, A. M., Dragan, K. L., End, C. M., and Finney, L. J. (1999). Twenty years of *PSPB*: Trends in content, design, and analysis. *Personality and Social Psychology Bulletin*, 25, 177-187.
- Simpson, J. A., and Campbell, L. (2005). Methods of evolutionary sciences. In D. M Buss (Ed.), *The Handbook of Evolutionary Psychology* (pp. 119-144). Hoboken, NJ: Wiley.
- Simpson, J. A., and Kenrick, D. T. (Eds.). (1997). *Evolutionary Social Psychology*. Mahwah, NJ: Erlbaum.
- Webster, G. D. (2007). *Increasing impact, diversity, and empiricism: The Evolution of Evolution and Human Behavior, 1980-2004*. Manuscript submitted for publication.
- Webster, G. D. (in press). The demise of the increasingly protracted APA journal article? *American Psychologist*.
- Webster, G. D., Bryan, A., Haerle, D., and O’Gara, A. (2005, January). *Increasing complexity in social and personality psychology articles: Publication trends in JPSP, 1986-2002*. Poster presented at the 6th annual meeting of the Society for Personality and Social Psychology, New Orleans, LA.