

Feminism and the Evolution of Sex Differences and Similarities

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Abstract Distrust between most evolutionary psychologists and most feminist psychologists is evident in the majority of the articles contained in this Special Issue. The debates between proponents of these perspectives reflect different views of the potential for transforming gender relations from patriarchal to gender-equal. Yet, with respect to the overall prevalence of sex differences or similarities, the articles in the Special Issue show that neither feminist psychologists nor evolutionary psychologists have uniform positions. Questions about how and if women and men differ are still under negotiation in the articles in this Special Issue as well as in other research related to evolutionary and feminist psychology. Clearer conclusions would be fostered by standardized metrics for representing male–female comparisons, more varied research methods for assessing both psychological and biological processes, greater diversity in populations sampled, and more researcher openness to taking into account findings that challenge their theories. Theoretical growth also is needed, especially to develop and integrate the many individual feminism-influenced theories represented in this Special Issue. To this end, we propose an integrative evolutionary framework that recognizes human culture in both ultimate and proximal causes of female and male behavior.

Keywords Gender · Sex differences and similarities · Feminism · Evolutionary psychology

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Introduction

The journal *Sex Roles* (2010), described on its website as “offering a feminist perspective,” might seem an unlikely venue for a Special Issue on evolutionary psychology, given the hostility evident in most prior interactions between feminist and evolutionary psychologists. We believe that distrust predominates on both sides, and a prior attempt to bridge the gap, Buss and Malamuth’s (1996) edited book, *Sex, Power, and Conflict: Evolutionary and Feminist Perspectives*, was decidedly unsuccessful. A principal message of evolutionary psychologists writing in that volume was that feminist psychologists’ political commitment to furthering gender equality had blinded them from accepting fundamental scientific truths about the nature of women and men. The mutual opposition deepened with the publication of Thornhill and Palmer’s (2000) controversial book, *A Natural History of Rape: Biological Bases of Sexual Coercion*, which presented rape as an adaptive reproductive strategy favored by natural selection. An edited volume containing chapters written from multiple feminist-influenced perspectives critiqued this analysis (Travis 2003). In this Special Issue, Vandermassen (2010) discusses this controversy.

In view of these recent battles and many earlier skirmishes (see Fausto-Sterling 1985, 2000; Shields 1975; Shields and Bhatia 2009), perhaps the editors of *Sex Roles* intended that this Special Issue would primarily provide critics of evolutionary psychology an attractive outlet for their research. Although most of the articles appearing in this Special Issue do challenge evolutionary psychology, others support it enthusiastically. The editors deserve praise for including articles favorable as well as unfavorable to standard evolutionary psychology models. Exposing proponents of theories to challenging arguments can spur them to produce better, more inclusive theories.

In this essay, we first provide our analysis of why feminism and evolutionary psychology are locked into an oppositional relationship that is mired in an old-fashioned nature versus nurture dynamic. More scientifically progressive evolutionary models integrate nature and nurture by seeking ultimate explanations for female and male behavior in both genetic and cultural evolutionary processes (e.g., Hrdy 2009). To understand the ways that these processes are deeply intertwined, psychologists would have to broaden their intellectual horizons to take into account a variety of scientific perspectives on evolution and a wider range of empirical research than what appears in psychology journals. To further these goals, we outline (in a later section of this paper) how psychologists could develop these models, and we summarize our own efforts to develop a *biosocial constructionist* evolutionary theory. To travel down this progressive scientific path, evolutionary psychologists would have to give greater emphasis to the dynamic and constructive cultural processes that are largely missing from their understanding of evolution. Feminist psychologists would have to recognize the importance of the ultimate, evolutionary origins as well as the proximal causes of sex differences and similarities.

In discussing these issues, we define the term *sex* by its common-language meaning of male and female categories: “Either of the two main categories (male and female) into which humans and many other living things are divided on the basis of their reproductive functions; (hence) the members of these categories viewed as a group” (Oxford English Dictionary Online 2011). Also, we define the term *gender* as meanings that individuals and societies ascribe to these categories. The intertwining of nature and nurture in contemporary science makes us reluctant to perpetuate the nature-nurture dichotomy inherent partitioning the causes of female-male differences and similarities according to the understanding that sex = nature and gender = nurture.

Rationale for Mutual Distrust of Feminist and Evolutionary Psychologists

In a nutshell, the debate between feminism and evolutionary psychology is framed by disagreement about the potential for change in female and male behavior patterns, especially those patterns that underlie patriarchy. Because feminism as a social movement is dedicated to fostering gender-equal social relationships, feminists often pursue hypotheses that, if confirmed, display the malleability of female and male behavior. Evolutionary psychologists, in contrast, view sex differences, especially male–female inequality, as inevitable consequences of evolutionary adaptations and therefore as largely unresponsive to socioeconomic and political changes in society. Their essentialist explanations of sex differences

are rooted in Darwinian sexual selection theory, which has fostered the view that male dominance and female dependence derive from inherited dispositions. Although evolutionary psychologists do not maintain that sex differences are invariant, they emphasize a universal psychology and the different innate natures of men and women, especially in domains linked to sexual selection theory (e.g., Geary 2009; Low 2000). In this Special Issue, Ellis (2011) states this position very clearly, as does Hannagan (2011) in her review of Geary’s (2009) textbook.

Given that evolutionary psychology and earlier Darwinian perspectives on sex differences (e.g., sociobiology; Wilson 1975) hold out little potential for gender equality, it is not surprising that feminism has spawned numerous critiques of these viewpoints. These criticisms are diverse because feminist psychology is not integrated by a general theory. Instead, within its fuzzy boundaries lie many theories, most of which are not explicitly labeled as feminist. In general, theories pertaining to sex and gender issues are regarded as feminist if scientific support for their hypotheses could directly or indirectly further feminism’s mission of greater gender equality and social justice for women by, for example, exposing employment discrimination directed toward women or demonstrating women’s skills as effective organizational managers. These theories and associated research typically identify situational factors that produce female disadvantage, including phenomena such as sexist attitudes, salient gender role norms, and power structures that subordinate women. Some of these theories are represented in this Special Issue (see section below on “Theories of Sex Differences and Similarities”).

Accusations of Political Bias

The feminist commitment to furthering gender equality provides an opening for evolutionary psychologists to dismiss feminist research as politically motivated and therefore biased. Feminists in turn accuse evolutionary scientists of adopting an androcentric perspective that fails to consider females’ role in evolution (e.g., Gowaty 2003). By focusing on inherent dispositions that underlie gender inequality, evolutionary psychology furthermore may support system-justifying ideological biases, as Martin (2003) also argued. From a historical perspective, it is perhaps no surprise that evolutionary psychology rose in the 1980s subsequent to the 1970s flowering of the feminist social movement. As suggested by social psychological research (Morton et al. 2009), the threat that a social movement might destabilize traditional gender roles may have increased the attractiveness of essentialist explanations of sex differences. Essentialist explanations accentuate perceived group differences, cohere with intergroup prejudice,

and foster a belief that the unequal gender relations observed in daily life are inherent in human nature (Prentice and Miller 2007; see also Kay et al. 2007).

Because evolutionary psychologists don't wear their politics on their sleeve the way that some feminist researchers do, it is more difficult to make these accusations of political bias stick to them in the way that they can stick to feminists. Nonetheless, the view that science is ordinarily influenced by scientists' own values is widely accepted (e.g., Longino 1990), albeit with the proviso that scientists generally are unaware of the influence of their values on their scientific theories and methods.

Accusations of political bias remind us of the U.S. Congress where Republicans and Democrats are lined up in opposition to each other's agendas, engage in politicized labeling of the other party's proposals, and accomplish little. One avenue to defusing nonproductive name-calling is to accept that the source of hypotheses should not be a central issue in science. Whether ideas come from political preference, observations of everyday life, intuition, or prior science, they should be scientifically tested, subjected to methodological critique, and replicated to test their generalizability beyond the initial demonstration. Therefore, the argument should not be about whether feminists and evolutionary psychologists possess values that influence their scientific activity. Surely they do. Scientists' values influence their choice of hypotheses and research methods as well as their interpretations of their findings. Nevertheless, debates should properly focus on the reasoning and research offered by these scientists, regardless of their political persuasions. When values and other factors bias scientific methods, these biases potentially can be detected and eventually eliminated in the ordinary scientific back-and-forth processes of gathering data and presenting findings and alternative explanations that are subsequently critiqued.

Sex Differences and Similarities: The Key Scientific Issue

With the exceptions of the articles by Harris (2010) on women's menstrual cycles, Singh and Singh (2011) on waist-to-hip ratios, and Vandermassen (2010) on rape, all of the empirical articles and reviews of findings included in this Special Issue emphasized comparisons of male and female responding. The authors of these articles thus have contended with the central issue of difference and similarity in male and female psychology. Although feminist psychologists might be expected to prefer to find sex similarity and evolutionary psychologists to prefer to find difference, both feminist and evolutionary psychology positions on sex comparisons are more varied than this similarity-difference caricature.

Feminist Positions on Difference and Similarity

Women and Men are Different

One feminist position is that women are different from men and that many of these differences do not denigrate women but instead reveal ways in which women exceed men in some admirable qualities. One example of this prodifference position is Gilligan's (1982) exploration of women's moral reasoning. She portrayed women as following an ethic of care as reflected in a humane and relational approach to moral judgment. She contrasted women's approach to men's ethic of justice that emphasizes abstract moral laws. As another example, *female advantage* themes have emerged in leadership research whereby women are increasingly praised for having excellent leadership skills and, in fact, exceed men in manifesting leadership styles associated with effective managerial performance (see Eagly 2007). Women's advantage also is apparent in group performance settings, in which women's more inclusive interpersonal style facilitates group performance at collaborative tasks (Wood 1987).

Health and medical research provides another example of feminists emphasizing sex differences (see Epstein 2007). Feminist researchers have argued that sex differences have been wrongly ignored in medical research, treatment, and social policy, at least in part because scientists typically studied white, middle-aged men and generalized these results to everyone. As a result, drug treatments and other interventions designed for men have been applied to women without taking into account the many ways in which women differ from men. In response to this neglect of sex differences, the Society for Women's Health Research founded the Organization for the Study of Sex Differences, which "works to enhance the knowledge of sex/gender differences by facilitating interdisciplinary communication and collaboration among scientists and clinicians of diverse backgrounds" (Organization for the Study of Sex Differences 2011).

Women and Men are Similar

Some feminist psychologists have developed critiques of sex differences by questioning their importance and even their existence. In particular, Hyde (2005) is well known for emphasizing the relatively small magnitude of psychological sex differences typically yielded by meta-analytic reviews of research on a wide range of studies comparing women and men or girls and boys. Despite the tendency of many such meta-analyses to reveal relatively small average sex differences, psychologists continue to disagree about the interpretation of such outcomes. Because a small average effect typically integrates some studies that yield

large sex differences, others that yield small differences, and still others that yield reversals of the overall effect, it is typically informative to consider the specific determinants of each of these types of findings. Furthermore, even an aggregated result that yields a small difference can be important. The cumulative impact of small effects observed over times and situations can be considerable and is often masked by single-shot studies that capture only a small slice of behavior (e.g., Abelson 1985; Rosenthal 1990).

Sex Differences and Similarities Interact with Other Variables

Still other feminist psychologists have emphasized the moderation of differences and similarities by the social context or by social identities other than gender. Sex differences can be absent or small in main effects averaged across other variables but emerge more strongly in interactions with other variables (e.g., Eagly 2009; Wood and Eagly 2010). In one version of this viewpoint, Deaux and Major (1987) argued that women and men can be different or similar depending on the salience of gender norms and the accessibility of gender identities. In a different rendition of the interaction emphasis, known as the *intersectionality* perspective, other feminist psychologists have argued that male–female difference and similarity are patterned by other important social identities such as race, ethnicity, social class, handicap, and sexual orientation (e.g., Cole 2009; Shields 2008). From this perspective, comparing the sexes without taking into account other identities produces overly broad generalizations that can be quite inaccurate for some subgroups of women and men.

Evolutionary Psychology Position on Difference and Similarity

Evolutionary psychologists predict that women and men are similar in domains in which they have faced the same ancestral selection pressures but different in domains in which they have faced different selection pressures (e.g., Buss 1995). Their ideas about different selection pressures follow from Darwin's (1882) theory of sexual selection, which postulates that women and men maximized fitness through different sexual strategies (e.g., male-male competition, female choice). Evolutionary psychologists then generalize from these sexual strategies to predict sex differences in a wide range of personality attributes and behavioral tendencies (e.g., risk-taking, aggression, dominance, nurturance). In this Special Issue, Ellis (2011) presents one version of this theory by postulating a mediating process involving prenatal and early postnatal androgenization of male brains.

Despite evolutionary psychologists' claim that they do not treat these sex differences as fixed and unchangeable (e.g., Buss 1995), their explanations assume innate dispositions that are contingently evoked by specific situational factors. In this view, variability in human behavior arises from inherent dispositions that were shaped by humans' early evolutionary environments. Evolutionary psychologists are generally unreceptive to the idea that the dispositions themselves are dynamically shaped by cultural and socio-economic influences that may vary across nations and historical periods (e.g., Eagly and Wood 1999; Marlowe and Wetsman 2001). Instead, as Gangestad and Simpson (2007) noted, "evolutionary psychology emphasizes human universals" (p. 417), and thus psychological sex differences are believed to reflect an innate human nature that is broadly evident across cultures, situations, and time periods.

Insights about Sex Differences and Similarities from Special Issue Articles

The articles in this Special Issue all concern aspects of relational, sexual, and mating behaviors, an emphasis that reflects the central role in evolution of mating and reproductive behaviors. Because selection pressures work through differential reproduction and survival of the species, the sexual selection pressures that evolutionary psychologists theorize acted on ancestral humans should result in sex-specific psychological dispositions for mating, such as men's presumed greater promiscuity and women's desire for partners with resources. The articles in the Special Issue thus present challenges in large part by documenting similarities between men and women on key variables, but some articles also present challenges through sex difference findings not predicted by evolutionary psychology.

Among the studies in the Special Issue that challenge evolutionary psychology by demonstrating similarities in male and female mating psychology, Perrin et al. (2010) failed to find sex differences in preferences for partners' sexual behaviors, stereotypical commitment behaviors, or actions reflecting caring. Additionally noteworthy is Frisby et al.'s (2010) finding that both men and women found affiliative but not dominant potential partners more socially and physically attractive. Also relevant are Pederson et al.'s (2010) findings of no sex differences in (a) the proportion of time and money devoted to short-term mating relationships, (b) the tendency to prevent pregnancy in short-term (vs. longer-term) relationships, and (c) constraints on reproductive success, as represented by greater numbers of desired than expected sexual partners. These findings suggest limits on the universal sex differences anticipated by sexual selection theory—and thus lessen the plausibility

of this explanation for male and female behavior. Furthermore, several of the evolutionary psychology predictions, especially hypotheses concerning constraints on reproductive success and avoidance of pregnancy that are evaluated by Pederson et al. (2010), have not to our knowledge been subjected to prior tests. These novel findings thus are important for evaluating evolutionary psychology thinking.

Other studies in this issue also report sex difference findings that depart from the mate preferences that would be expected given sexual selection theory. For example, with respect to number of sexual partners, Tate (2010) argues that feminine gender identity in both sexes is associated with a preference for fewer partners. In this analysis, a preference for smaller numbers of partners arises from the personal attributes associated with the female gender role and not from biological sex alone. In addition, Smith et al. (2010) found that lesbians' partner preferences differed from heterosexuals in ways not anticipated by sexual selection theory. That is, although heterosexual women sought height and status in personal ads and men offered status, both femme and butch lesbians emphasized honesty. Thus, several of the articles report sex differences that challenge the universalism in standard evolutionary psychology explanations and call for explanations tailored to gender and sexual identity.

These findings of sex similarities and sex differences are interpreted by study authors primarily as challenging evolutionary psychology theories. A clear exception is Singh and Singh's (2011) exposition of research suggesting an evolved preference for men to prefer women with low waist-to-hip ratio because this body shape functions as a signal of good health and fertility. Conspicuously absent from this presentation, however, are other researchers' critiques of these studies' methodological flaws and limited generalizability to remote, foraging societies in which women engage in taxing physical labor (for review, see Johnson and Tassinary 2007).

Also claiming support for evolutionary psychology are Sylwester and Pawlowski (2010), who found sex similarity in participants' preference for risk-takers as potential short-term mates. Yet, the usual evolutionary psychology logic is that risk taking, as an indicator of men's good genes, is especially attractive to women. Thus, the lack of a sex difference challenges assumptions of universality in evolutionary psychology theories. Evidence of sex similarity also emerged in Frisby et al.'s (2010) study of the value placed on mating partners' affiliation. This study also found a sex difference such that women valued dominance more than men. The researchers adopted a hybrid model to explain this pattern, attributing men's preferences, which largely followed sexual selection predictions, to evolved predispositions, and women's preferences to gender roles.

To interpret findings of sex differences, study authors sometimes make predictions comparable to those of evolutionary psychology but use different reasoning. Men's desire for a greater number of mates than women is explained by Tate (2010) in terms of gender roles (see also Perrin et al. 2010), whereas Smiler (2010) notes that such findings reflect the preferences of a small minority of males whose data skew the mean value and thus generate an apparently uniform sex difference. In general, challenges to evolutionary psychology theorizing come from both sex similarities and differences in the Special Issue articles.

The focus on comparing men and women in these articles raises important questions: How is similarity between the sexes defined, and how is difference defined? Unfortunately, these questions become difficult to answer when authors do not use the terms, *difference* and *similarity*, in comparable or understandable ways across articles. For example, many authors conclude that men and women were "more similar than different" in their research, without explaining the meaning of this descriptor by specifying the magnitudes of similarity or difference that warrant such a statement (see Frisby et al. 2010; Pederson et al. 2010; Smiler 2010). Unless researchers develop a shared interpretation of what "more similar than different" means, the phrase seems merely rhetorical and should be avoided.

In actuality, comparisons between the sexes on most psychological constructs are best described on a continuum, with greater female than male scores at one end and greater male than female scores at the other, with exact equivalence at the middle of the scale. To represent the magnitude of these comparisons on this continuum, it is helpful to standardize them by converting the comparisons into effect sizes, as required by the American Psychological Association's (2010) *Publication Manual* (see example in Perrin et al. 2010). Because effect sizes represent the magnitude of a sex difference in standardized form along with its direction, they can be meaningfully compared across studies. Furthermore, by evaluating effect size, researchers can more accurately interpret a finding from a study with low statistical power that might, perhaps because of a small sample size, fail to detect as significant a moderately sized female-male difference. The metric of effect sizes would make it possible to avoid many of the inconsistencies in interpretation across the articles in this Special Issue such that, for example, some relatively large differences are described as small and smaller findings as relatively large.

Methodological Issues Raised by Special Issue

Methodological diversity is valued by both feminist and evolutionary psychology researchers because it potentially

strengthens the internal and external validity of research conclusions. The studies in the Special Issue show some diversity in methods through use of personals ads, scenario experiments, and assessments of self-reported preferences and behaviors. Harris's (2010) investigation of the mate preferences of women at various stages of the menstrual cycle notably is the only study that explicitly took into account the hormonal processes that may influence mating.

Greater use of diverse methods, especially the study of actual behavioral responses, is important for testing evolutionary hypotheses. As noted in several of the articles, self-reports do not always correspond well to behavior, in part because they can be especially responsive to perceived gender roles and desires to respond in a socially appropriate manner. Thus, men's reports that they particularly value partners' physical attractiveness and women's that they value partners' earning potential may fail to predict behavioral responses (Eastwick and Finkel 2007; Kurzban and Weeden 2007), especially actual attraction to a live interaction partner as opposed to photographs (Eastwick et al. 2011). Yet, selection pressures typically work at the behavioral level—they shape the psychology of men and women by favoring behaviors that yield certain outcomes. If self-reported preferences and desires only inconsistently relate to attraction to actual interaction partners, and, for example, women claim that they value partners' earning potential but in actuality do not select partners on this basis, then self-reports would not provide good tests of evolutionary processes. This consideration raises questions about most of the empirical demonstrations in this Special Issue as well as other studies of mate preferences.

Tests of sex differences and similarities also can effectively use implicit measures of preferences and beliefs. Implicit responses may capture relatively top-of-the-head judgments that people are not able or willing to report, whereas explicit responses are more likely to be deliberative and thus guided by conscious concerns about social norms. In normatively regulated domains such as sexuality, social norms are especially likely to influence explicit responses of men and women. In research suggesting this influence, men reported more diverse and earlier sexual experiences than women primarily when their responses might become known to others, whereas these sex differences in reported sexuality decreased and sometimes reversed when accuracy was paramount (Alexander and Fisher 2003). Thus, implicit measures are especially likely to be useful for tapping responses that counter gender role norms. Consistent with this argument, Eastwick et al. (2011) found that an implicit measure of the desirability of physical attractiveness in a romantic partner predicted attraction to live interaction partners but conventional self-report measures did not. Moreover, the typical sex difference whereby men ascribe greater

importance to partners' physical attractiveness than do women was present on self-report measures but absent on the implicit measure.

Evolutionary psychology, because of its gene-centered approach to sex differences, ultimately requires tests that involve biological processes. The theory requires biological evidence for the postulated sex-specific mental modules that are presumed to have evolved due to enduring Darwinian sexual selection pressures. As argued by Lickliter and Honeycutt (2003), if human behavior is largely an expression of evolved genetic programs, then evidence for this theory ultimately rests on a plausible genetic account, accompanied by evidence concerning associated hormonal processes and neural structures. Ellis (2011) attempts to provide such an account in this Special Issue by arguing that the higher levels of testosterone that males experience both prenatally and in the early postnatal period organize their brains to favor certain sex differences in cognition and behavior (e.g., competitiveness). Although this brain androgenization hypothesis is widely accepted by evolutionary psychologists, careful probing of its empirical support has found it to be far weaker than generally assumed (see Fine 2010; Jordan-Young 2010). Female hormones could also mediate sex-differentiated behavior in view of the cycling of women's hormones. Yet, in this Special issue, Harris (2010) reports her failure to replicate earlier findings confirming the evolutionary psychology hypothesis that fertile women especially prefer men with masculine faces.

Multiple attempts to test a given hypothesis typically are required to produce a persuasive verdict concerning its validity. Illustrating this kind of test, Archer (2006) meta-analytically evaluated the relations between testosterone and aggression. This review indicated a more nuanced role for hormonal mechanisms than featured in most evolutionary psychology accounts. Specifically, social interactions affected hormonal processes: Testosterone levels increased in men about to engage in athletic and other competitions, presumably to facilitate dominant, aggressive performance. However, increased testosterone did not clearly influence social interactions: Studies that experimentally injected men with androgens found no systematic rise in aggression. Such findings challenge the idea that testosterone functions as a sex-specific evolved adaptation to direct men's efforts toward certain reproductive outcomes. As we explain in the next section of this article, hormonal processes and associated neural structures are useful to test feminist evolutionary analyses, especially how hormones activate and guide behavior.

Along with diversity in methods, diversity in research participants is valued by both evolutionary psychologists and feminist researchers. However, these two sets of researchers value diversity for somewhat different reasons.

Evolutionary psychologists typically seek diverse samples to gain support for their assumption of universal sex differences that hold across culture, time, and location, whereas feminist psychologists more commonly seek diverse samples to demonstrate variability in sex differences. Nonetheless, the data supporting both evolutionary psychology and various feminist theories are to date predominantly from Western, educated, industrialized, rich, and democratic societies, members of which have unique features not universally shared by other extant human populations (Henrich et al. 2010).

Some of the articles in this Special Issue do reveal how sex differences and similarities can shift across social groups and the contexts in which they live. For example, Smith et al. (2010) show the importance of *intersectionality* by demonstrating that lesbians value different psychological qualities in a mate than heterosexual men and women. Providing evidence of contextual influences, Frisby et al. (2010) found that perceptions of flirtatiousness depended on the reasons that an actor was engaged in this behavior. For example, men flirting to attract a sexual partner were perceived as more dominant than men flirting to increase intimacy in a relationship. These contextual patterns generally are consistent with feminist analyses of sex differences in which male and female behavior varies with social motives in an interaction.

Implications of Special Issue Articles for Theories of Sex Differences and Similarities

Some of the explanations of sex differences and similarities tested in the Special Issue articles as alternatives to evolutionary psychology focus on social expectations, as reflected in relational framing theory (Frisby et al. 2010) and social exchange theory (Smith et al. 2010). Self-concept related processes also received emphasis, especially gender identity theory (Perrin et al. 2010; Tate 2010). Despite this variety, the alternatives to evolutionary psychology largely focus on the immediate social and personal determinants of the sexes' behavior and are silent about more distal evolutionary pressures. One notable exception, attachment fertility theory, presumes relatively few evolved gender differences in mating strategies due to the selection for biparental care among hominins (Pederson et al. 2010). Another exception is Vandermassen's (2010) feminist Darwinian theory of rape, an effort to meld evolutionary and feminist analyses of rape into a broader theory that encompasses its proximal and distal causes.

We suspect that all of the authors of the Special Issue would acknowledge at least some role for evolutionary processes in creating sex differences and similarities in behavior, but, like Liesen (2010), most authors nonetheless

decline to adopt the theoretical framework of evolutionary psychology. From a feminist perspective, evolutionary psychology falls short in failing to acknowledge the immediate social and self-concept processes that dynamically guide the behavior of women and men. These processes are the very core of most feminist work on sex differences.

Fortunately, researchers do not have just the two choices of feminist analyses and evolutionary psychology. As attachment fertility theory and the feminist Darwinian theory of rape illustrate, evolutionary psychology offers but one of many possible perspectives on the evolution of human psychology. Feminist evolutionary analyses reject the single-minded application of sexual selection theory and adopt a more dynamic, contextually-based approach. In this spirit, we developed our biosocial constructionist theory to explain the evolution and function of social expectations and self-concepts in human society and thereby to integrate cultural and biological influences on the sexes' behavior (Eagly and Wood 1999; Wood and Eagly 2002, 2010).

Like attachment fertility theory, our approach assumes that human evolution has yielded a flexible psychology that is not rigidly differentiated by sex. Flexibility refers, not to random variation of behavior, but to humans' active construction of behaviors that enable them to reproduce and prosper under changeable situational demands. Thus, both sexes can be socially sensitive or aggressive, given appropriate socialization and situational cues. This responsiveness arises from evolved capacities to innovate and communicate with others and thereby to produce a *cumulative culture* in which beliefs and practices are shared and subsequently modified. These capacities developed because humans evolved in novel, nonrecurring environments during the late Pleistocene, due to the highly changeable world climate and to humans' own colonizing practices. Consequently, humans did not adapt primarily to particular environmental features but instead to the variation itself by evolving responsiveness to novel environments (Richerson and Boyd 2005).

Human psychological flexibility is structured by a female-male division of labor that varies in form across societies. Through proximal mediators, this division of labor yields the familiar psychologies of women and men that people enact and experience in their daily lives. The specific activities that comprise the division of labor derive in part from male and female evolved physical attributes, especially women's reproductive activities and men's size and strength, which allow some activities to be more efficiently performed by one sex or the other, depending on the social context. For example, women's childbearing and nursing facilitate infant care in most societies and conflict

with other activities, especially those that require extended training or time away from home. Yet, these conflicts have weakened in postindustrial nations, given reduced birth rates and the prevalence of employment roles favoring brains over brawn.

Within societies, the division of labor is created and perpetuated through psychological processes that stabilize these societal practices by making them seem natural and inevitable to members of the society. Beliefs that the observed division of labor along with male and female traits are inherent in human nature constitute *gender essentialism* (Morton et al. 2009). For example, if women care for children, they are thought to be naturally nurturing and caring, and if men fight wars, they are thought to be naturally tough and brave. Such gender role beliefs, shared across a society, promote social norms and socialization practices that encourage children to gain the skills, traits, and preferences that support their society's division of labor.

Gender roles encourage most adults to conform to these shared beliefs, given that other people generally accept and support individuals who act in accordance with these roles. Gender roles also are usually internalized as personal standards for individuals' behavior. These social psychological influences from social expectations and internalized standards act with the support of biological processes. Hormones and related neural structures were shaped in part through ancient selection pressures associated with basic perceptual, sensory, and motivational processes that humans share with other animals. Although such inherited biological factors to some extent may constrain sociocultural influences on the sexes, much research indicates that humans activate biological processes to support the sociocultural factors that guide masculine and feminine behaviors within cultures (Wood and Eagly 2010). That is, subcortical structures interact with more recently evolved, general-purpose, higher brain functions associated with the neocortex as people respond to others' expectations and their own identities (see Heatherington 2011; Panksepp and Panksepp 2000). The evolution of the brain is thus a crucial component of our evolutionary theory, which stresses the importance of higher-level mechanisms for learning and innovation that are centered in the neocortex.

By this confluence of biological and social processes, the sexes organize behavior into patterns that are tailored to conditions that vary across time, cultures, and situations. Thus, humans evolved a psychology that on the one hand allows considerable flexibility in behavior between societies but on the other hand stably structures culturally shared beliefs to make the typical activities of men and women within a society seem natural and inevitable.

Importance of Evolutionary Issues to Understanding Female and Male Behavior

Contemporary science features numerous debates about human evolution, with contenders such as gene-culture coevolutionary models (Richerson and Boyd 2005) and human behavioral ecology (Winterhalder and Smith 2000), along with sociobiology and evolutionary psychology. Although Liesen's (2010) book review essay reflects a feminist perspective, she concurs with our position that evolutionary issues treated by these theories are important to understanding sex differences and similarities. We echo Liesen's challenge to feminist psychologists to delve into these theories and to design research that explores ultimate as well as more proximal causes of sex differences and similarities. A convincing feminist response to evolutionary psychology can emerge only from strong scientific demonstrations of its omissions and of the superiority of alternative evolutionary theories.

Despite the richness of scientific debates on evolutionary issues, Chrisler and Erchull's (2010) review of evolutionary psychology coverage in introductory psychology textbooks shows that textbook authors discuss evolutionary issues with little or no communication of the broader territory of evolutionary thinking about human behavior. Becoming acquainted with a fuller range of evolutionary theory would place evolutionary psychology in a scientific context of contending theories that offer differing ways of understanding the ultimate origins of human behavior. Knowledge of a broad range of evolutionary theorizing along with theories of proximal psychological processes would give researchers as well as the students who read textbooks more power to think fruitfully about the causes of the female and male behavior that they observe in daily life.

In closing, we believe that the Special Issue is an important milestone in providing empirical and theoretical critiques of evolutionary psychology perspectives from feminist researchers along with support for evolutionary psychology from its advocates. Also presented are alternative evolutionary theories (e.g., Pederson et al. 2010) along with the standard version of evolutionary psychology. Although the papers in the Special Issue do not directly address the potential for gender equality in current societies, this issue retains overriding importance for feminist psychologists. In our opinion, a more complete understanding of gender equality would be gained by research on aspects of human psychology other than mating, such as leadership, dominance, and competitiveness as well as interpersonal caring, nurturing, and other qualities involved in the division of domestic labor. In addressing sex differences and similarities in the aspects of behavior such as dominance that have obvious relevance to gender equality, psychologists should consider both their

distal evolutionary origins and their proximal causes in societal, interactional, and self-regulatory processes.

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