



Research Review

Revisiting gender differences: What we know and what lies ahead<sup>☆</sup>

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Abstract

Efforts to identify and understand gender differences have a long history that has sparked lively debate and generated much public interest. Although understanding gender differences is pivotal to consumer researchers and marketers, investigations into this issue by such individuals have been few in number, often weak in theory, and rather limited in progress made. This paper strives to reinvigorate such inquiry. We begin by describing four major theories of gender differences (socio-cultural, evolutionary, hormone-brain, and the selectivity hypothesis) and then assess relevant research from 2000 to 2013 in marketing, psychology, and biomedicine. From this, five conclusions emerge: Males are more self-oriented, while females are more other-oriented; females are more cautious responders; females are more responsive to negative data; males process data more selectively and females more comprehensively; and females are more sensitive to differentiating conditions and factors. We conclude by identifying several areas of opportunity for advancing our understanding of gender differences.

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## Introduction

It's common knowledge that companies market their products differently to males and females. They might position a convenience meal to working moms rather than dads, develop luxury brand relationships online for men but employ more personal messages for women, or develop child-targeted advertising that focuses on different benefits for girls versus boys. Although many factors such as expertise or interest differentiate the genders (e.g. men may have more interest in automotive goods and women in home furnishings), the study of gender extends beyond such obvious differences, attempting to understand more fundamental gender differences in, say, processing, attention, or skills, and uncover how and when they affect behavior. Even though male–female differences are often small and between-gender variance is frequently smaller than that observed within each gender, gender differences that recur and the factors that qualify them are not only intriguing but also frequently consequential. Gaining insight into gender differences is important for researchers in both psychology and marketing. For consumer psychologists, understanding how males and females differ in their cognitive processing styles, affective responses, and reactions to marketing stimuli is essential for anticipating their product choices and preferences. And such knowledge can be highly informative for marketing practice where gender is a common building block of the customer portfolio.

Research in psychology has produced a sizable body of findings on gender differences as well as rich theoretical discussion on key debates (e.g., Eagly & Wood, 2013). In consumer psychology and marketing, the study of gender differences has been less programmatic and robust. Although here scattered gender studies exist, in general gender has been treated as an interesting moderating variable and less as a subject of theoretical inquiry. Given the importance of gender differences across disciplines and their downstream implications

for companies, more systematic theory-based research is needed in consumer psychology.

This article provides an overview of the main theoretical approaches to the study of gender and reviews recent empirical evidence of gender differences in both psychology and marketing, with an emphasis on consumer psychology. In the sections that follow, we first describe three theoretical approaches that encapsulate much of the current thinking about gender differences: the (a) socio-cultural, (b) evolutionary, and (c) hormone and brain science approaches. A fourth theoretical perspective, which originated in consumer research and was developed by the first author and a colleague, is also described, namely the selectivity hypothesis. Most empirical findings of gender differences can be explained by more than one of these perspectives. Further, all approaches to gender study now acknowledge the role of both biological (nature) factors (e.g., physical differences, evolved traits, hormonal influences) and socio-cultural (nurture) factors (e.g., social and cultural role learning, stereotyping, the role of media and marketing messages). Although the terms “sex” versus “gender” tend to be used more in the biological versus social–psychological literatures respectively, we use these terms interchangeably. After reviewing the literature in areas where gender differences are reliably observed, we offer our conclusions and identify opportunities for advancing extant knowledge.

Our literature search included six academic journals from the Business Source Premier database (*JCR*, *JM*, *JCP*, *JMR*, *JA*, *MktgSci*) for the years 2000–2013, with gender-related terms appearing in titles or article abstracts. Psychology (PsychInfo) and health (PubMed) databases were also searched, but due to their size, searches were restricted to meta-analyses and reviews. We reduced the abundant publications that resulted by assigning priority to experimental research and using our judgment to compile a fairly comprehensive and representative array of topics on gender differences that are of relevance to consumer psychology.

## Theories of gender differences

This section outlines three major and interrelated theories that purport to explain the origins of gender differences. In our view, these theories are more complementary than competing accounts, for they attempt to explain the emergence of gender differences through alternative lenses (i.e., social–psychological, anthropological–evolutionary, and medical science) that simply emphasize different aspects of the development process. The first, social–cultural theory, holds that differences in the genders’ inherent physical capacities (e.g., size, strength, child-bearing capability) prompted males and females to adopt different roles, and this in turn gave rise to congenial cultural beliefs and orientations (i.e., agency and communion) that have perpetuated over time. A second, evolutionary theory, informs the former theory by identifying adaptive programs that our early ancestors developed in response to their environmental challenges. This theory then explains why and shows how these programs evolved and manifest themselves today in people’s behavior. The third theory of gender differences adds to both of the others by shedding light on the differing hormonal makeup and brain processes of the genders. By so doing, it provides evidence that enhances the plausibility of the other two theories, and it offers convergent evidence of fundamental gender differences in agency and communion. Finally, we also discuss a fourth theory, the selectivity hypothesis, which is silent about the origins of gender differences, but provides an account of gender differences in information processing. This theory contributes to the others by deepening our understanding of gender variation in a particular domain and identifying important boundary conditions.

### *Socio-cultural theories*

One theoretical approach to gender differences proposes that gender differences arise from social, cultural, psychological, and other environmental forces. Like other gender theories, socio-cultural theories acknowledge the roles of both biological and learned influences. We focus here on one prominent theory of this type, the biosocial constructionist model by Wood and Eagly (2012). According to this theory, two factors determine gender differences: physical differences between genders and socio-cultural influences. The key physical differences include women’s abilities to bear and nurse children and men’s greater size, speed, and strength, which the authors argue have historically created task efficiency differences leading to division of labor. Childbearing and nursing of infants increased women’s ability to perform home-based activities (e.g., cooking, caring for the home) and, given their time and energy investment in these activities, reduced their flexibility regarding activities outside of the home. Physical strength and size increased men’s ability to obtain resources (e.g., hunt large animals), clear land for farming, and fight in wars. Power differences between the sexes emerged later in more complex societies as new economically productive roles such as accumulation of resources came about—a role dominated more by men than women. Variations that occurred between societies arose from developing novel solutions to local environmental factors (e.g. weather, natural resources).

The gender division of labor is important because it contributes to the formation of cultural beliefs. Cultural beliefs, or gender roles, are shared beliefs that members of a culture hold about men and women. They are formed in myriad ways. Socialization of boys and girls occurs by imitation of others (e.g., role modeling of parents’ and peers’ behavior) and through learning by reinforcement (e.g., punishing “weak” emotions in boys). Throughout development and into adult life, these beliefs promote ease of categorization by gender. For example, if women are observed to care for children, then women are believed correspondingly to be nurturing, kind, and possess other communal traits like emotional intelligence. If men are observed in strength-intensive tasks, they are believed to be assertive and dominant and have skills in leadership, math, and mechanics. These positive stereotypes of communion and agency allow women and men to take pride in their gender roles and are sometimes used to justify continuation of these divisions.

An important function of gender roles or cultural beliefs about men and women is to guide behavior. Societal expectations influence behavior through social rewards and punishments for conforming or not conforming to roles and may create gender differences that otherwise might not have occurred. For example, female leaders are evaluated more negatively than male leaders, and even more so when they exhibit agentic traits like dominance, directness, confidence, or anger (cf. Koenig, Eagly, Mitchell, & Ristikari, 2011). Men are punished for pursuing female occupations (e.g., ballet) or for communal traits such as agreeableness or being a “nice guy” (Judge, Livingston, & Hurst, 2012). Gender roles create pressures to conform and become internalized as gender identities, such that even when others are not present, people behave consistently with an internalized self-image.

Gender roles and beliefs are pervasive, can be activated with subtle priming cues, and their effects on individuals’ responses depend on the context. Expectations about male and female skills can enhance or impair performance on gender-typical or atypical tasks. As Wood and Eagly (2012) note, activation of a strong (versus weak) gender stereotype is found to impair performance of social sensitivity in males and math and leadership performance in women. However, the reverse also can occur, demonstrating the importance of the social and psychological context. Illustrating this, sometimes priming gender-atypical stereotypes can enhance performance (e.g., women on math tests), and career experiences in gender-atypical fields can immunize women from stereotype threats.

Gender roles can be used by men and women to self-regulate their behavior. The emotions experienced by men and women can serve as feedback and reinforce behavioral change in more gender-typical ways. As a result, males and females with strong (versus weak) gender identities experience higher self-esteem and positive affect when they conform to gender standards (Witt & Wood, 2010). Both genders also prefer brands with personalities that match their own gender identity (Grohmann, 2009). Because of their communal tendencies, women may be particularly sensitive to environmental cues, making them more likely than men to modify their behavior in context-appropriate ways (Wood & Eagly, 2012).

The socio-cultural perspective also proposes that gender roles and behaviors should change across cultures and time. Cultures with more versus less gender equality exhibit weaker communal–agentic stereotypes (Glick & Fiske, 2001) and smaller gender differences in domains such as preferences for mates with gender-typical attributes, scores on math tests, and sexual activity. Self-reported measures of gender-typical attributes show fewer cross-cultural effects.

Across time, gender roles and behaviors have changed, particularly for women (Wood & Eagly, 2012). While communal–agentic roles remain, the stereotype for women has broadened to accommodate an increased focus on careers and greater acceptability of agentic traits like assertiveness. The male stereotype also has changed, such as men's increased responsiveness to social influence, but lack of acceptance of most feminine attributes in males has remained fixed. Changes in these social role beliefs mirror those seen in society, such as an increase of women in male-dominated occupations, a slower increase of men in female-dominated occupations, and decreased support by both sexes for gender inequality (for a review, see Wood & Eagly, 2012).

#### *Evolutionary theory*

Evolutionary psychology offers a second perspective on the origins of gender differences. It focuses on the impact of human biology, namely, the evolved mechanisms that humans developed to adaptively address environmental challenges faced by their ancestors. The central premise is that natural selection spawned a human brain designed with assorted programs, each specialized to solve a recurring problem faced by our hunter–gatherer ancestors (Tooby & Cosmides, 2005). These problems included finding a mate and producing offspring, rearing and protecting children, and navigating during hunting or gathering. Because early males and females often had different concerns as they confronted these problems, the evolved programs frequently differed by gender. Evolutionary researchers seek to identify these programs and the histories that spawned them to explain how and why males and females today exhibit the particular behaviors they do. Similar to other perspectives, the evolutionary view acknowledges that factors beyond biology (e.g., culture) can also affect human development (Kenrick & Luce, 2000).

Most gender research by evolutionary theorists focuses on the programs that early males and females developed to solve mating-related problems. Research has confirmed several basic premises about the genders' mating and sexual activity, such as males' versus females' desired number of sexual partners and the characteristics each gender desires in choosing mates (Smiler, 2011). Also, supporting the logic that females have more at risk in mate selection and mating (i.e., a possible pregnancy), findings show that males typically profess love first in relationships, doing so to motivate sex and to offer a signal of willingness to commit (Ackerman, Griskevicius, & Li, 2011). And because males benefit from intimidating mating rivals, research affirms that males smile less than females, particularly during their most reproductively active years. Indeed, higher levels of testosterone (more common among

males) inhibit smiling and may lead males to exhibit dominance in the less sanguine right hemisphere (Ellis, 2006).

Mating theory also has inspired work that concerns consumer relevant issues. For example, research has linked: the relative abundance of males to females in a community to males' decreased desire to save and increased incurrence of debt for immediate (e.g., mate-attracting) purchases—presumably behaviors aimed at beating out male rivals (Griskevicius et al., 2012); males' (but not females') conspicuous spending to the desire to attract short-term mates (Sundie et al., 2011); recessionary sales of beauty products to females' efforts at boosting their attractiveness so as to attract a mate with resources (Hill, Rodeheffer, Griskevicius, Durante, & White, 2012); females' ovulation to their increased choice of sexy versus conservative attire aimed at outdoing female competitors (Durante, Griskevicius, Hill, Perilloux, & Li, 2011); males' (females') use of creativity to attract a short- or a long-term (only a long-term) mate (Griskevicius, Cialdini, & Kenrick, 2006); and activation of a mating mindset to males' (but not females') increased use of creativity-correlated relational processing that aids males in making sense of distally related brand extensions (Monga & Gürhan-Canli, 2012).

Evolutionary researchers also suggest that mating concerns may explain some well-established gender differences, namely males' greater aggressiveness and proclivity toward risk taking. Based on arguments by Fischer and Mosquera (2001) and Ellis et al. (2012), such behaviors were more functional and fitness-enhancing for males than females in their evolutionary past. Aggression and risk taking promote not just males' physical competencies but their social status, which is the core of males' (but not females') self-esteem. These behaviors elevate males' social status by increasing their control over valued resources and/or facilitating admittance into status elevating cliques. In turn, the latter promotes two pivotal male goals: limiting male competition, and gaining access to more sex and reproduction opportunities (owing to females' preference for mates with more resources). Supporting elements of this logic, Griskevicius et al. (2009) found that activating status motives increased males' (but not females') direct aggression. Moreover, Li, Kenrick, Griskevicius, and Neuberg (2012) observed that activating mating motives lowered loss aversion and increased gain seeking among males (but not females), suggesting that mating goals may increase males' risk taking.

Evolutionary researchers also have explored gender differences thought to stem from non-mating problems. Some propose that certain female superiorities evolved from females' comparatively greater responsibility for child-rearing. Child care requires superior speed and accuracy at recognizing others' facially communicated emotions, and accordingly females display such an advantage at identifying positive and negative emotions, with the advantage stronger for negative emotions that may signal survival jeopardy (Hampson, van Anders, & Mullin, 2006). Also, delay gratification—inhibiting satisfaction of one's own needs in favor of satisfying others' needs, should be adaptive for child care givers, and a meta-analysis found a female advantage in this area (Silverman, 2003a).

Finally, evidence supports the theory that gender differences in navigational strategies evolved because of early males' (females')

role as hunters (gatherers; Silverman & Choi, 2005). Data find that males typically use an orientation strategy that entails constantly maintaining a sense of one's position in relation to global markers like the sun or Euclidean (e.g., east, west) cues. This makes sense because this strategy should be advantageous for male hunters, who navigated large unfamiliar spatial areas and often followed circuitous routes before eventually finding their way home. Females typically use a landmark-based navigational strategy that entails learning local visual markers along one's route and the relationships between markers. This strategy, which involves creating detailed mental maps of smaller areas that previously have been observed, was more adaptive for female gatherers, who may have tended to small children and therefore needed to recall hiding places or escape routes in the event of danger.

#### *Hormonal exposure and the brain*

Growing research has indicated that biological factors contribute to gender differences in behavior and cognition. Pre-, neo-, and postnatal exposure to gonadal hormones can influence brain development permanently and thus the propensities people display (i.e., Hines, 2004). Conventional wisdom suggests that androgens and estrogens are male- and female-gonadal hormones, respectively, but in truth, both genders are exposed to these hormones to some degree. Hormone exposure can produce assorted and complex gender differences only during critical periods of development. Research shows that testosterone (T), an androgen typically present at higher levels in males than females, plays a major role in producing gender differences. Higher T levels generally promote more male-typical development, an influence that is both graded and linear. Estrogens, present at higher levels in females than males, do not femininize development, suggesting that femininization represents the default.

Ethical considerations preclude manipulation of human exposure to gonadal hormones. Thus, much of our knowledge of hormonal influences comes from indirect approaches, such as comparing control group data with that obtained from individuals with disorders that produce gender-atypical hormone exposure or children whose mothers took androgenic progestins during pregnancy. Yet, newer approaches now exist, including examining normal population variability in hormone exposure, where hormone levels are assessed from umbilical cord blood, maternal serum, or amniotic fluid (Cohen-Bendahan, van de Beek, & Berenbaum, 2005).

The most convincing evidence that prenatal hormone exposure contributes to gender differences comes from studies of children's play (e.g., play with dolls or trucks, or rough and tumble play). For example, Pasterski et al. (2005) found that girls with congenital adrenal hyperplasia (CAH), a disorder that produces elevated androgen levels, displayed more male-typical toy choices compared to their unaffected sisters. But as is commonly observed, boys with and without CAH did not differ. Hines, Golombok, Rust, Johnston, and Golding (2002) observed comparable outcomes, but here normal children's T levels were assessed from pregnant mothers' blood samples. Auyeung et al. (2009) also found parallel outcomes using fetal T levels from

amniotic fluid, but here T levels and male-typical play were positively related for both genders.

Meta-analyses have shown gender differences favoring males on some specific cognitive abilities, such as mental rotations, spatial perception, math problem solving, and math word problems. Differences also exist and favor females for verbal fluency, vocabulary, math calculations, and perceptual or processing speed (Hines, 2004; Roivainen, 2011). However, findings are mixed or weaker concerning T levels and these as well as other gender-related characteristics. Several studies suggest that prenatal T influences gender identity and sexual orientation (Hines, 2006). Some research also finds that females' over-production of androgens due to CAH leads to greater aggression (Mathews, Fane, Conway, Brook, & Hines, 2009) and benefits in both spatial and visual spatial cognition (Mueller et al., 2008). Similar benefits emerged when T levels were assessed using amniotic fluid (Cohen-Bendahan et al., 2005). Still, outcomes are sometimes mixed (Manson, 2008), particularly concerning aggression and visual spatial performance and for female sex-typed emotions such as tenderness (Mathews et al., 2009) and empathy (Hines, 2010), where some studies indicate that heightened T levels undermine such emotions.

Substantial work also has examined how the genders' brain hemispheres operate. Investigating this and the brain's functional networks, Tian, Wang, Yan, and He (2011) found that males (females) tend to be more locally efficient in their right (left) hemisphere networks. Strong evidence also indicates that males' hemispheres are more lateralized (i.e., functionally specialized) than those of females. For example, when decoding faces and expressions, males display strong right hemispheric dominance, whereas females exhibit more bilateral processing (Bourne, 2005). A study noted by Cohen-Bendahan et al. (2005) found indirect evidence that prenatal T levels were related to indicators of lateralization.

Studies using neuroimaging and other techniques add to this, showing that gender differences also exist in the connectivity between brain areas (Gong, He, & Evans, 2011). Verma and colleagues investigated the pathways connecting different areas of the brain (Graff, 2013) and found that males' brains displayed greater neural connectivity from front to back and within a single hemisphere, a pattern likely to benefit males' performance on tasks requiring both astute perception and coordinated action. In contrast, females displayed greater connectivity between the two brain hemispheres, seemingly advantageous for females when cognitive tasks require bilateral or interhemispheric processing, as often occurs during multitasking. This latter finding corresponds with work showing a positive correlation for females but not males between the bulbosity of the corpus callosum—the major tract connecting the two hemispheres that is larger in females—and performance on several complex neuropsychological tasks.

#### *The selectivity hypothesis*

The selectivity hypothesis provides a unique perspective of gender differences in two major ways: it is a "homegrown" theory, conceived and developed by scholars of consumer research, and it

makes no specific claim about the origins of gender differences. Instead, this mid-level theory notes linkages that suggest how its major tenets are compatible with agentic versus communal sex roles and the socio-cultural perspective of gender differences (Meyers-Levy, 1989), the hormone exposure and brain operation perspective (Meyers-Levy, 1994), and to some extent even the evolutionary view concerning how natural selection led to modern humans' faculties, behaviors, and gender differences (Meyers-Levy & Sternthal, 1991).

The selectivity hypothesis posits that the genders employ different strategies and have different thresholds for processing information (Meyers-Levy, 1989; Meyers-Levy & Maheswaran, 1991; Meyers-Levy & Sternthal, 1991). More specifically, it proposes that, compared to males, females tend to process incoming data more comprehensively, and they possess a lower threshold at which they apprehend information. This renders females more likely to detect, elaborate more extensively, and use relatively less accessible and more distally relevant information when forming assessments. In contrast, males are more selective data processors and, relative to females, rely more on less effortful heuristics. These heuristics frequently involve relying on cues that are highly salient, relevant to the self (versus others), singular in number or theme, or cues that activate well developed, easily accessible notions or preconceptions.

This theory not only accounts for many outcomes derived from its logic (e.g., Laroche, Saad, Cleveland, & Browne, 2000; Meyers-Levy & Zhu, 2010; Richard, Chebat, Yang, & Putrevu, 2010), but also appears to accommodate a broad range of other findings, including unpredicted, applied, and non-theoretically grounded observations. To exemplify, the selectivity hypothesis seems to explain why, compared to males, females more accurately detect and interpret subtle nonverbal cues (e.g., body language, paralanguage; Rosip & Hall, 2004), scan more data (i.e., perform more eye fixations), producing a recognition advantage (Heisz, Pottruff, & Shore, 2013), engage in more patient-focused behaviors as health-care providers (e.g., give longer consultations and more patient feedback; Street, 2002), screen and process more problem-free loans as loan officers (Beck, Behr, & Guettler, 2013), and employ a more employee-attuned (versus task-focused) supervisory style (Doughty & Leddick, 2007).

Two often overlooked aspects of the theory merit mention. First, the theory implies that gender differences are conditional and will not always occur. Rather, because gender differences stem from females' relatively lower threshold for detecting and using target data, gender differences should obtain only when access to such data is above females' but below males' threshold. Thus, when data are either blatant or exceptionally obscure, differences in the genders' use of it are likely to be absent. Second, these gender differences in comprehensiveness and the use of heuristics are not value-laden. While more thorough processing of data might seem to be an advantage for females, it also can be less efficient, foster resource depletion that can lead to negative downstream consequences (e.g., in consumer contexts containing vacuous, hyperbolic, and misleading data), and produce psychological costs (e.g., prompt anxiety or indecision).

Thus, neither males' nor females' approach should be construed as representing a normative ideal.

### Domains revealing evidence of gender differences

Gender differences have been observed in many and diverse domains. In the sections that follow we loosely organize these domains into two sequential categories: those that are more informative about females' communal proclivity and those that do the same concerning males' agentic proclivity. To foreshadow notable themes that arise from the vast array of findings, the following five propositions recur across domains: (a) males are more self-oriented and females more other-oriented, (b) females are more cautious and avoidance focused while males are more risk-taking and assertive, (c) females are more responsive than males to negative stimuli in their environment, (d) males are more selective in their intake and processing of data, whereas females are more comprehensive, and (e) females are more sensitive to environmental cues and differentiating factors, whereas males' responses are more consistent across contexts.

#### *Ethics and morality*

Meta-analyses and literature reviews on gender differences in moral judgment find rather limited support for the notion that women are more moral or ethical than men (Jaffee & Hyde, 2000; Walker, 2006). This is exemplified in the research on forgiveness. While one meta-analysis found that women are more forgiving than men (Miller, Worthington, & McDaniel, 2008), another that excluded self-report measures and included dissertation research found no relation to gender (Fehr, Gelfand, & Nag, 2010). While forgiveness is correlated with female-stereotypic traits, such as empathy and relationship commitment, it is negatively related to others, such as rumination and severity of victimization (Fehr et al., 2010). Forgiveness and other ethics behaviors may be a complex interplay of affect and cognitions that reflect combinations of female- and male-stereotypic traits.

Given such inconclusive findings, calls have been made for research to focus on more specific psychological processes that influence morality and moral development (Walker, 2006). Moral sensitivity is a specific morality-based construct that measures awareness of how one's actions affect others, including an understanding of the cause–consequence chain of events and the use of empathy and perspective-taking skills. A meta-analysis found that women exhibited more of this trait than men (You, Maeda, & Bebeau, 2011). Women also tend to report greater interest and engagement in environmentally-conscious actions (Zelezny, Chua, & Aldrich, 2000), which are associated with ethics concerns, but gender differences are absent in skepticism toward “green” ad appeals (do Paço & Reis, 2012). Honesty and telling lies have been examined from a behavioral economics perspective of weighing costs and gains of lying to self and others. Men were found to be more likely than women to lie to obtain a monetary benefit for the self (Dreber & Johannesson, 2008; Erat & Gneezy, 2012), whereas women were more willing to lie when the lying benefited a person but harmed no one financially (Erat & Gneezy, 2012).

Females' ethics related responses also may be more context-sensitive than males'. Women were found to lie less often than men for personal gain when the payoff was small (about one dollar; Dreber & Johannesson, 2008; Erat & Gneezy, 2012), but gender differences disappeared when the monetary benefit was larger (about \$10; Childs, 2012). Childs (2012) argues that men may respond quite uniformly to opportunity costs of lying that emphasize personal gain, but women may weigh the relative costs of altruism and personal gain. Women seem to favor greater altruism in exchange relationships (Gneezy, Niederle, & Rustichini, 2003; Gneezy & Rustichini, 2004), but when stakes are higher, they consider personal gain outcomes.

Gender differences in response to charitable appeals have been observed in marketing contexts. Brunel and Nelson (2000) found that women preferred a cancer-prevention charity appeal that focused on helping others, whereas men preferred a utilitarian appeal that focused on helping oneself and one's in-group. These researchers also observed that women scored higher than men on the trait "world view," which contrasts caring moral views over justice concerns. Parallel differences were reported in a meta-analysis by Jaffee and Hyde (2000). Other work by Kemp, Kennett-Hensel, and Kees (2013) found that women were persuaded more and intended to donate more money than men when a charity appeal generated sympathy rather than pride. Men, however, had greater intentions to give when the appeal generated pride rather than sympathy.

In evaluating corporate moral transgressions, women react more negatively than men. Not only were they more outraged than men about unethical corporate behaviors, but also their outrage was found to increase boycotting of the corporation (Lindenmeier, Schleer, & Pricl, 2012). Women also were more likely than men to blame the company in a product harm case (Laufer & Gillespie, 2004). While women felt more empathy than men for the victims, their attributions of blame reflected their feelings of being personally vulnerable if a similar situation befell them. In contrast, men's attributions were based on their assessment of the corporation relative to their personal beliefs about fairness and justice (i.e., a moral-equity norm).

### *Trust*

Prior research on trust found that women are both more trusting than men (Feingold, 1994) and more likely to be trusted by others, perhaps due to their greater tendency toward social affiliation (Beck et al., 2013; Buchan, Croson, & Solnick, 2008; Kosfeld, Heinrichs, Zak, Fischbacher, & Fehr, 2005). Interestingly, however, gender differences in trust reverse when evaluated in the context of e-commerce and online games. In these contexts that often involve short, anonymous interactions, men tend to be more trusting (Midha, 2012) and are deemed more trustworthy than women (Lee & Schumann, 2009). Women's lack of trust in online relationships is related to their greater concern about online privacy (Midha, 2012). Women are more concerned about misuse of online information (Garbarino & Strahilevitz, 2004), are more likely than men to read privacy notices, and favor enacting laws that protect confidentiality (Midha, 2012). These concerns are abated for

women but not for men when a website is recommended by a friend (Garbarino & Strahilevitz, 2004). Brain imaging (fMRI) data show that when engaging in online trust relationships, a greater number of brain areas are activated for women than men (Riedl, Hubert, & Kenning, 2010). This finding concurs with the idea that women may process data more extensively when assessing the trustworthiness of online relationships.

Males' greater trust also applies to gaming contexts that involve monetary exchange. For example, when playing an investment game with an anonymous male or female partner, men were more likely than women to trust their partner, and they gave more money to female than male players (Lee & Schumann, 2009). Buchan et al. (2008) studied behavior in an investment game where participants' only option to increase personal wealth was to send money to another player. Here, trusting the other player to respond in kind was a means of achieving personal gain. Men, more than women, trusted the other player, and they did so because they expected more in return. The authors argued that this indicates males' greater focus on instrumentality. This game also allowed participants to return money to the sender, a more communal response not associated with monetary gain. This response was used more often by women.

### *Communion-aligned emotions: anxiety, worry, fear, and sadness*

Women are more likely than men to express more feelings of anxiety, worry, fear (McLean & Anderson, 2009; Robichaud, Dugas, & Conway, 2003) and sadness (Fischer, Rodriguez Mosquera, van Vianen, & Manstead, 2004). They report greater chronic stress and minor daily stressors, rate their life events as more negative and less controllable (Matud, 2004), and report more somatic symptoms and psychological distress (McLean & Anderson, 2009; Toufexis, Myers, & Davis, 2006). Men's lower reporting of anxiety emerges even when the genders' physical responses are held constant. For example, Stoyanova and Hope (2012) found that when asked to approach a tarantula, women reported more anxiety and avoidance than men, but men underreported their anxiety relative to their physiological responses.

Explanations abound for such findings. Some argue that women perceive events as more stressful than men (Laufer & Gillespie, 2004), while others suggest that women are exposed to higher levels of stressors than men and therefore experience more stress (Day & Livingstone, 2003; Stoyanova & Hope, 2012). Theoretical explanations include ones that are socio-cultural—that parents reward girls but punish boys for expressing negative emotions like fear and sadness (Garside & Klimes-Dougan, 2002), evolutionary—that women's care and protection of offspring contribute to greater anxiety about threatening situations, and hormonal—that hormonal fluctuations in women increase anxiety (Toufexis et al., 2006). Socio-cultural theories link the subjective experiences of emotion and control to power differences in men and women. If a negative event is appraised as within one's control, the resulting emotion is likely to be anger, implicating power and invulnerability. But if the event is beyond one's control, sadness or fear is more likely with an appraisal showing powerlessness and vulnerability (Robichaud et al., 2003). Using

data from 37 countries, women reported feeling more powerless emotions than men (e.g., sadness and fear; Fischer et al., 2004), and this gender difference was abated in non-Western countries where emotional suppression of feelings is less often discouraged in males.

Women and men also process information differently when in a negative mood. Women were found to use more detailed processing and did so more when they were in a sad mood (Martin, 2003). In contrast, men used a distraction strategy to repair a sad mood. Women also engage in more rumination, which can increase depression and anxiety (Nolen-Hoeksema, 2012).

### *Emotion regulation and inhibition*

Emotion regulation is the ability to inhibit or modulate one's thoughts, emotions, and behavior in response to an emotionally-charged situation. When regulating emotions, one might suppress inappropriate behavior or continue to focus one's attention on task despite an emotional trigger. Research has examined how women and men differ in their coping styles, ability to inhibit emotion, and ability to regulate emotions when performing cognitive tasks.

Gender differences are found in the methods used for coping with negative emotions, often following communal and agentic roles. A meta-analysis found that women more frequently than men used coping strategies that involved verbalizations to seek emotional support, rumination, and positive self-talk (Tamres, Janicki, & Helgeson, 2002). Women also more often sought social support as a coping mechanism and countered negative emotions with positive ones (Day & Livingstone, 2003; Matud, 2004). Because women perceive stressors as more severe than men, they may expend more effort in response to potential threats by using these active coping strategies (Tamres et al., 2002). In contrast, men have been found to engage in more emotional suppression, and more rational and detachment coping (Matud, 2004).

Brain imagery studies too find that women engage in more emotion-focused coping than men in response to a negative emotion triggered by an unpleasant olfactory stimulus (Koch et al., 2007) or unpleasant photos (McRae, Ochsner, Mauss, Gabrieli, & Gross, 2008). For example, when asked to cognitively reappraise emotionally-charged photos to make them appear less negative (e.g., view them from a different perspective), both genders were effective in down-regulating their negative emotional responses, but they used different brain activity in the process (McRae et al., 2008). The authors speculated that men engage in more automatic and less deliberate processes than women (i.e., males' brains decreased activity of areas associated with emotional regulation), whereas women generate positive affect as a strategy for down-regulating their negative affect (i.e., females' brains increased activity of areas associated with reward).

Overall, regulation of emotion appears to be more effortful after gender-typical than atypical emotions. A literature review by Glenberg, Webster, Mouilso, Havas, and Lindeman (2009) reported that sentence comprehension was affected by the type

of emotion generated by a reading. When women read about a sad (versus angry) event, they subsequently slowed their processing of a happy event. When men read about an angry (versus sad) event, they subsequently slowed their processing of a happy event. Other common findings on male aggression suggest that men may have more difficulty than women in regulating their anger and arousal in non-violent ways. A meta-analysis by Knight, Guthrie, Page, and Fabes (2002) found that at low levels of arousal, the genders were equally effective in curbing aggressive behaviors, but at high arousal levels, men were more aggressive.

Meta-analyses have shown that across various ages, women and girls more easily delay gratification and resist temptation than do men and boys (Silverman, 2003a,b). Evolutionary theory proposes that early reproductive success for women depended on their ability to inhibit non-optimal sexual and social behaviors, and success in child-rearing depended on their ability to satisfy their children's needs over their own (Bjorklund & Kipp, 1996).

### *Sensitivity to nonverbal cues*

Women display superiority to men in reading nonverbal cues (Hall & Matsumoto, 2004; Rosip & Hall, 2004) and accurately inferring thoughts and feelings of others (Klein & Hodges, 2001). Such observations are often attributed to females' greater empathic responses and are consistent with both socio-cultural perspectives (i.e., women are socialized to decode emotions) and an evolutionary one (i.e., empathic responses ensure the survival of children).

In particular, research shows that women are more accurate than men in decoding photographs of eyes as showing playfulness, comfort, irritability, or boredom, and such results held across 10 countries (Kirkland, Peterson, Baker, Miller, & Pulos, 2013). Females' advantage in correctly decoding facial emotions occurs for both positive and negative emotions (Hampson et al., 2006), stimuli of extremely short durations (Hall & Matsumoto, 2004), among children (McClure, 2000), and it extends to memory for new faces. For example, women were more likely than men to attend to detailed facial information when encoding male and female faces, which improved subsequent recognition (Heisz et al., 2013). They also are found to engage in greater bilateral processing than do men in such contexts, which may increase their access to processing mechanisms in both hemispheres, reflect a sex difference in the efficiency of inter-hemispheric information transfer, or simply reflect the different cognitive processing styles of the genders (Bourme, 2005).

Gender differences are more pronounced in the decoding of negative versus positive facial emotions (Hampson et al., 2006), and women show more selective responses to subtleties in negative facial expressions. For example, women showed more and different brain activity for angry versus fearful facial expressions. That men did not was attributed to women's greater attention to ambiguous emotional cues (McClure et al., 2004). Women also may be more sensitive to gradations in negative cues. A study found that while both genders reacted strongly to pictures of extreme anger or disgust, females were more sensitive to lower levels of these emotions (Montagne,



Kessels, Frigerio, de Haan, & Perrett, 2005), and men were less sensitive to negative stimuli at lower levels of salience or intensity (Li, Yuan, & Lin, 2008). Evidence of gender differences in adults' but not adolescents' brain activity in emotion decoding contexts suggests that a developmental change may spawn such differences (McClure et al., 2004).

Women also show more reactivity to negative stimuli in contexts other than facial decoding. Women show greater sensitivity than men to aversive pictures (Hampson et al., 2006; Wrase et al., 2003), with women's brain activity more focused on pain processing centers (Wrase et al., 2003). Women also show lower tolerance than men for pain, experience pain as more intense, and better discriminate painful stimuli than men (Vallerand & Polomano, 2000). In marketing contexts, women have been found to be less persuaded than men by negative ad messages and are more likely to vocalize negative thoughts in response to negatively-framed messages (Putrevu, 2010).

### *Parental styles*

Consistent with the socio-cultural perspective, parenting style influences boys' and girls' learning of sex-typed attitudes. A meta-analysis by Tenenbaum and Leaper (2002) found that parents' attitudes toward gender roles were related to their children's attitudes toward gender-related work, themselves, and others. Yet, parents' attitudes have only weak links to their children's gender-related interests or developmental behaviors.

Further, mothers and fathers interact with and influence their children differently. Studies that have examined whether parents treat their sons and daughters in sex-typed ways found only limited support. Differences that did emerge tended to follow communal and agentic roles, with mothers encouraging more two-way communication and using both more supportive and more negative speech, and fathers establishing norms and standards for children to follow and using more directive and informative speech (Hsieh, Chiu, & Lin, 2006; Tenenbaum & Leaper, 2002). Children were observed to talk more to mothers than to fathers, and after a communication breakdown with a parent, engaged in more elaboration with mothers than fathers (Lanvers, 2004). A brand preference study of Taiwanese children (Hsieh et al., 2006) found that mothers were more likely to influence their children's brand attitudes by encouraging them to express their opinions and communicate openly. In contrast, fathers tended to influence their children's brand attitudes by encouraging obedience and social harmony.

The frequent use of correlational designs and self-report measures limits the research on parenting (Lanvers, 2004). An exception is a longitudinal study that observed mothers' and fathers' responses to certain emotions as their children played a game. Among preschool children (age 4), only fathers attended more to daughters' than sons' submissive emotions (e.g., sadness), and parental attention at this age predicted submissive behavior two years later. Among early school age children (age 6), fathers attended more to sons' than daughters' disharmonious emotions (e.g., anger), and such emotions predicted later conduct disorders (Chaplin, Cole, & Zahn-Waxler, 2005).

### *Responses to promotional activity*

Research has investigated when and how the genders differ in responding to promotional materials. For example, based on speculation that males (females) engage in greater item-specific (relational) elaboration, Putrevu (2004) found that males (females) responded more favorably to ads that were simple (complex), focused on attributes (the product category), and included relatively antagonistic comparative ad claims (claims that emphasized product-nature harmony). Other work indicates that because females are apt to think more deeply than males about attention-attracting stimuli like comparative ads, such ads can produce opposing outcomes on the genders' attitudes. Specifically, Chang (2007) found that while exposure to a more attention-getting comparative versus noncomparative ad increased males' ad involvement and thus their attitudes toward the target brand, females' attitudes were less favorable to a comparative ad as it prompted them to ponder the ad more deeply and infer that it aimed to manipulate consumers. Further, consistent with the selectivity hypothesis contention that females (versus males) are more sensitive to detailed information, Berney-Reddish and Areni (2006) found that only females were less accepting of ad claims containing qualifying subtle details, such as hedge (e.g., "probably," "may") and pledge (e.g., "definitely," "absolutely") words.

Other studies have uncovered additional subtle moderators that can produce gender differences. Along such lines, Meyers-Levy and Zhu (2010) found that the genders differ in the meanings they infer and use from background esthetic elements in ads, like music or graphic art. Music can convey two alternative meanings: referential meaning, which is more resource-demanding to discern, relays descriptive ideas spawned by the music, while less demanding embodied meaning is purely hedonic, consisting of feelings elicited by the music's structural properties (e.g., its energy level). Based on this, Meyers-Levy and Zhu proposed that: (a) females are likely to infer both, not just one of these meanings, (b) the genders will differ in when they infer a given meaning, and (c) these meanings may be inferred not only from music, but also from other esthetic elements used in promotions. Based on the selectivity hypothesis' notion that females process data more comprehensively—including harder to extract data, whereas males tend to selectively process single cues (Meyers-Levy, 1989; Meyers-Levy & Sternthal, 1991), the authors reasoned that which meaning(s) the genders infer and use to form perceptions of the advertised product should vary depending on their Need for Cognition (NFC) level. When NFC is high (low), males should discern and use only the more onerous (easier) to infer referential (embodied) meaning. But because females process data more fully, they should discern and use both meanings, regardless of their NFC level. These predictions concerning the genders' product perceptions were upheld and also found to apply to other esthetic ad elements like graphic art.

Fisher and Dubé (2005) found that the genders react differently to ads that relay alternative types of emotions. Because sex roles dictate that males should exhibit agency and do so especially when same-sex individuals are present, these researchers

reasoned that unlike females, males' responses to emotional ads should vary depending on both the agency of the emotion evoked and whether same- or opposite-sex persons are present. Results supported these predictions across multiple ad stimuli and contexts. Males (but not females) rated ads as less pleasant and viewed them less favorably when the ads invoked low-agentic emotions (e.g., anxiety or tenderness) and were viewed with another male. In contrast, males' responses were unaffected when they viewed such ads privately or when ads with high-agentic emotions (e.g., anger or joy) were viewed either alone or in another male's presence. Yet, as predicted, females' responses were stable irrespective of the ad emotion type and social context.

Finally, Noseworthy, Cotte, and Lee (2011) proposed that females' relative superiority at visuo-spatial elaboration—*noticing new objects added to a visual display and seeing commonalities among them* (e.g., Voyer, Postma, Brake, & Imperato-McGinley, 2007)—might influence how the genders interpret promotions with visual ads for multiple products. Prior research has shown that displays with competing (i.e., same product category) versus unrelated (i.e., diverse product category) ads encourage relational elaboration that highlights product commonalities. Given this, the researchers posited that when presented with an array of visual ads where one contains an extreme visual incongruity, females' visuo-spatial elaboration should enable them alone to make sense of and hence favorably evaluate the incongruent product, but only in a competing (not an unrelated) ad context. Nevertheless, it was further reasoned that this female advantage might produce a resource constraint that could impair females' (yet not males') processing of verbal data (e.g., ad claim recognition). Three studies supported these predictions. Compared to males, females correctly categorized, relationally processed, and more favorably evaluated extremely incongruent products when they appeared in a competing but not an unrelated ad context. However, this advantage came at a cost, as females more poorly recognized specific ad claims for the products when ads appeared in a competing versus unrelated ad context.

### *Shopping behavior*

#### *Internet usage and search behavior*

Research suggests that despite their similar usage rates, females are less intense users of the Internet (Ono & Zavodny, 2003). Paralleling the agentic–communal distinction, males use the Internet more to explore personal interests, such as seeking entertainment or investment data (Hupfer & Detlor, 2006; Weiser, 2000), while females use it more for social purposes (i.e., emailing others; Weiser, 2000). Differences also exist in self-reported skill. Females perceive themselves as less skilled than males in Internet usage (Hargittai & Shafer, 2006), view the Internet as harder to understand (Dittmar, Long, & Meek, 2004), and feel less in control and effective at searching for data (Ford, Miller, & Moss, 2001).

Still, whether the genders truly differ in Internet search skill is not an open and shut question. When Hargittai and Shafer (2006) assessed adults on assorted and reasonably challenging online search tasks, gender differences in performance were

absent. Null effects also were observed by Hupfer and Detlor (2006) on self-reported search behaviors. Yet, illuminating gender differences in search was reported in two children's studies. Results of both studies are quite consistent with the selectivity hypothesis, which contends that males are less thorough processors than females. Large, Beheshti, and Rahman (2002) found that when 6th graders searched online for data about a sport of their choice, boys entered fewer words in their search queries than girls, employed more one-word searches, spent less time viewing individual pages, and jumped pages at a higher rate per minute. Another study by Roy, Taylor, and Chi (2003) found that while 8th grade boys and girls both gained relevant knowledge when searching online for a school project, boys' gains were larger. Three specific behaviors explained why: (a) boys conducted more unique search queries, but girls thoughtfully examined more uncovered documents, (b) boys did more scrolling and quick scanning of their search results, and (c) boys' search queries produced higher quality results, apparently because boys hastily scanned material with more topic relevant data. Hence, in this study, girls' more thorough and detailed perusal of their search results offered no advantage compared to the knowledge boys gleaned by hurriedly scanning their more pertinent search output. Notably, females' propensity to spend more time than males examining website content also has been observed among adults. Danaher, Mullarkey, and Essegai (2006) found this in a panel study that assessed the duration of visits to the top 50 websites frequented by members whose ages were quite representative of the overall population.

#### *Online shopping*

Whereas females more greatly enjoy and outnumber males in shopping at traditional offline venues, males view online shopping more favorably (Van Slyke, Comunale, & Belanger, 2002) and engage in it twice as much as females do (Kwak, Fox, & Zinkhan, 2002). Females perceive online purchasing as less emotionally satisfying and practical than do males, and they are less trusting of it (Rodgers & Harris, 2003).

Gender differences in shopping motivations and perceptions of e-commerce shed light on this situation. For brick and mortar venues, Kotzé, North, Stols, and Venter (2012) found that females outscored males on almost all motivations, including shopping to browse, for bargains, to socialize, to exercise, and for sensory stimulation. Qualitative analysis of online shopping motivations by Dittmar et al. (2004) revealed many gender similarities (e.g., on convenience and making price comparisons). But while females more greatly appreciated the control offered by online shopping (i.e., can visit only sites of interest and thus not waste money), females viewed online shopping as impersonal, less involving (i.e., less sensory buzz and less bargain hunting thrills), and lacking in social sensory experience (i.e., just viewing a screen and clicking buttons). The researchers' survey reinforced these themes. Whereas for males, buying consumer goods involved mostly functional concerns (i.e., economics, efficiency, acquiring information), females emphasized the emotional and social–experiential elements of shopping and reported more identity-related concerns (i.e., buying to move closer to the ideal self). Interestingly,

however, Wang, Baker, Wagner, and Wakefield (2007) found that the perceived social limitations of internet shopping may be alleviated by the use of avatars, virtual, humanlike and lifelike characters. The social cues of avatars increased internet users' pleasure and arousal, with women versus men showing a stronger impact of arousal on hedonic value.

The genders' responses to aspects of product websites are concordant with the selectivity hypothesis view that as more comprehensive processors, females prefer data displays that are more dense, complete, and reliable. Richard, Chebat, Yang, and Putrevu (2010) found that males responded more favorably to well-organized websites, but they were less inclined to explore informational (e.g., informative, resourceful) websites. In contrast, females' website involvement grew when its content was more comprehensive and actionable (e.g., complete, accurate, and up-to-date). Similarly, Phillip and Suri (2004) found that females responded more favorably than males to promotional emails that offered links to additional sources of information. Females also displayed higher liking for such emails that enabled forwarding them to a friend, were sent only to a circumscribed audience (e.g., only interested persons), or contained a coupon.

Findings from a field study by Laroche et al. (2000) also conform with the selectivity hypothesis, revealing that females' search process during Christmas shopping was far more complex than males'. Females undertook more general and specific searches, purchased more gifts, made more shopping trips, and began shopping earlier than males. In contrast, males simplified their search task by using heuristic cues, like sales clerk recommendations or price.

#### *The impact of shopping with friends*

Kurt, Inman, and Argo (2011) reasoned that males' agentic and females' communal values might affect their motivations and spending when shopping with friends versus alone. Agency emphasizes self-confidence, competence, and mastery, while community accentuates maintaining social connections and interpersonal harmony. Thus, these researchers anticipated that due to their agentic concerns, males in social (versus private) shopping contexts would pursue self-bolstering heavy spending activities aimed at acquiring the admiration and respect of friends. Yet females' communal desire to just be part of the group would discourage such spending that could cast females in the spotlight. Results confirmed these outcomes, showing that males spent more money when they shopped with friends versus solo, while females' spending was constant across contexts.

#### *Simplifying decisions through intuition based heuristics*

A corollary to the selectivity hypothesis view that females are more comprehensive processors than males is that males should be more likely than females to simplify decisions by using intuition or salient cue-implied heuristics. Several findings support this deduction. For example, when selecting national lottery numbers to play, males more frequently invoked the "gambler's fallacy"—the intuition that an event is less likely to reoccur if it occurred recently (Suetens & Tyran, 2012). Hence, unlike females, they were less likely to select

lotto ticket numbers that were winners in the previous week. Males also rely more than females on the intuition that marketers use more eye catching colors to draw attention to good buys. Only males perceived price discounts as greater when ads featured them in red rather than black (Puccinelli, Chandrashekar, Grewal, & Suri, 2013).

Still, care must be taken in interpreting findings concerning the use of heuristics. Without knowing how consumers actually use a particular cue, one cannot be certain whether its use signifies reliance on a simple heuristic or the inferring of more thoughtful diagnostic deductions implied by the cue. To explain, Shao, Baker, and Wagner (2004) found that females' service quality expectations and intentions to use a banker were higher when the banker dressed more professionally. While males' showed the same pattern, the effect was weaker than for females. Such findings could be viewed as contradicting the selectivity hypothesis prediction, indicating that females, not males, may be more likely to rely on heuristics implied by a salient cue (i.e., the heuristic that the attire cue implies that the banker should deliver professional quality service). But an equally viable interpretation is that the findings actually support the selectivity hypothesis view that females process data more comprehensively and thus more thoughtfully interpret subtle yet diagnostic cues. That is, in the absence of any valid indicator of service quality, females may have drawn the reasonable inference that the banker's professional attire suggests that (s)he takes pride in his/her work and hence is diligent to customers' needs. As this example underscores, whether a cue is central (i.e., diagnostic of substantive issues) or peripheral (i.e., a heuristic cue) depends on how people actually use the cue (Petty, Cacioppo, & Schumann, 1983).

#### *Customer loyalty*

Gender differences also can affect customer loyalty. Noble, Griffith, and Adjei (2006) found that males' loyalty to local merchants was motivated by convenience and information attainment, but females' was driven by desire for browsing, assortment, uniqueness and social interaction opportunity. Further, loyalty programs that incorporate alternative features are likely to strengthen relationships with male versus female customers. Drawing on evolutionary theory, Melnyk and van Osselaer (2012) posited that males should respond more positively to features that signal power and status (i.e., signs that boost one's standing against rival males), whereas females who emphasize personal relationships should place greater value on features that highlight one's idiosyncratic preferences so long as privacy concerns are respected. Four studies upheld these deductions: Males favored loyalty programs that magnified status when such status was salient to others, while females favored programs that highlighted personalization that was not publically visible.

#### *Product symbolism*

Consumers often buy products for their symbolic benefits (e.g., bolstering self-esteem or status), yet research indicates that the genders differ in the value they assign to such benefits. Overall, females display higher levels of brand sensitivity and brand consciousness (Beaudoin & Lachance, 2006; Workman

& Lee, 2013) and regard luxury brands more favorably (Stokburger-Sauer & Teichmann, 2013), while males demonstrate more materialistic values (Segal & Podoshen, 2012) and conspicuous product consumption (Segal & Podoshen, 2012). Reflecting the antecedents of these differences, Hays (2013) found gender differences in preferences for power versus status that seem to parallel the agentic–communion distinction. Specifically males exhibited a preference for power, which is frequently acquired agentially by controlling resources and thus gaining mastery over others. In contrast, females preferred status, which is acquired passively via interpersonal communality as it is volitionally bestowed on individuals based on admiration or respect. Work by Wang and Griskevicius (2014) illustrates females' penchant for accomplishing objectives in a more passive manner. They found that females may use the luxury goods they wear in social contexts to tacitly signal to competitors that their partners are loyal to them.

#### *Sound symbolism*

Sound symbolism research indicates that the sounds comprising a brand name can themselves convey meanings (Klink, 2000; Yorkston & Menon, 2004), with brand names that use front versus back vowel sounds imparting different meanings. Front vowel sounds occur when the highest position of the tongue is toward the front of the mouth (i.e., in English, the sounds of *i* and *e*), whereas the tongue is in the back when generating back vowel sounds (i.e., the sounds of *o* and *u*). Research has shown that front, not back vowel sounds connote feminine characteristics like smaller, lighter, milder, weaker, softer, prettier, and friendlier. Given this sound–gender relationship, Klink (2009) demonstrated that when given pairs of brand names for products that differed only in their front versus back vowel sounds (i.e., Giva vs. Gova), females more frequently selected the names with front vowels, while males chose those with back vowels. Also, consistent with their greater responsiveness to stimuli in most modalities, females were more sensitive than males to the vowel sounds of brand names.

#### *Competitiveness, risk, and confidence*

Three commonly observed gender differences are that females respond more negatively to competition than males, are more risk averse, and are less confident of their performance (Croson & Gneezy, 2009). Nevertheless, a good deal of research reveals a more complex picture. For example, Gneezy et al. (2003) found that males outperformed females in a mixed-gender maze-solving competitive task. However, while both genders performed better under competitive than noncompetitive conditions, only females' performance was sensitive to the gender of their competitors. That is, they performed considerably better when they competed against an all-female versus a mixed-gender group, whereas males' performance was relatively constant irrespective of competitors' gender. These findings suggest that females' responses to competition are more malleable, as they are sensitive to the particulars of the situation.

Corroborating this view, Small, Gelfand, Babcock, and Gettman (2007) examined the genders' responses to a competitive

bargaining situation in which individuals could negotiate their payment. When this situation was framed as a negotiation opportunity—a frame that is intimidating to low power individuals such as females, males bargained for a higher payment than did females. But when the framing was less intimidating—an opportunity to “ask for more,” gender differences disappeared. Similarly, Amanatullah and Morris (2010) found that females' but not males' behavior was sensitive to the particulars in a job salary competitive negotiation situation. When females advocated for themselves, they anticipated a backlash due to others' communal expectations of them (i.e., concern for others) and used fewer competing tactics, resulting in a lower salary than that negotiated by males. But when females advocated for others, which eliminated backlash concerns, females' tactics and outcomes were comparable to males'.

Research also finds that males take more risks than females (e.g., Charness & Gneezy, 2012; Ertac & Gurdal, 2012), with variation in risk taking linked to different neural activity patterns for men and women (Lee, Chan, Leung, Fox, & Gao, 2009). Supporting this, He, Inman, and Mittal (2008) found that, overall, males took more risk than females when making financial decisions, and males' but not females' risk seeking in selecting investments increased when they felt they were more skilled in investing. However, interestingly, females' typical aversion toward risk depended on the particulars of the situation. They not only became more risk seeking but also accepted as much risk as males did when they perceived their investing skills as higher and they could limit their risk by purchasing investment insurance.

Research also confirms that females exhibit less confidence than males (Croson & Gneezy, 2009), yet this too seems to depend on the particular situation. For example, Nekby, Thoursie, and Vahtrik (2008) examined how competitors in racing, a male-dominated sport, reacted to a rule change that permitted runners to self-select into start groups based on their self-assessed running time for a race. Across multiple measures, they found that in this context female runners actually exhibited higher overconfidence than males.

#### *Power*

Power connotes the asymmetric control one has over valued resources in social relations (Rucker, Galinsky, & Dubois, 2012). People with high versus low power exhibit different psychological states and behaviors, including their perceptions of events and influence strategies.

Researchers have long posited that power and gender are related. For example, females' higher incidence (versus males') of certain nonverbal (e.g., head nodding) and verbal (e.g., tag questions) communication is often viewed as evidence of males' greater power (e.g., Helweg-Larsen, Cunningham, Carrico, & Pergram, 2004). Some contend that this power difference reflects the assignment of higher power social roles to males (Carli, 1999). Others suggest that high (low) power fosters a male agentic (female communal) orientation that emphasizes assertion and expansion of the self (fostering and maintaining social relations and harmony; Rucker et al., 2012). Regardless of what

explains the relationship, many differences observed in the power research parallel those seen in the gender literature. Hence, here, we shall characterize certain effects involving power and then outline their conceptual counterparts in the gender literature.

Research indicates that people high versus low in power assume a more self- versus other-oriented perspective, which lessens sensitivity to others' views and how one assigns priorities (Rucker et al., 2012). Parallel effects obtain in gender research. In the domain of empathy, which clearly taps sensitivity to others' perspective, research finds that females are more empathetic than are males and more accurate in inferring others' feelings (Klein & Hodges, 2001). A meta-analysis also finds that females versus males are more likely to resolve conflict via compromise (Holt & DeVore, 2005). In assigning priorities, resource allocation studies commonly find that males favor providing gains to the self, whereas females favor equity-based allocations that benefit others and the self (Fehr-Duda, De Gennaro, & Schubert, 2006). Similarly, Barone and Roy (2010) found that among frequent patrons of a store, males favored exclusive promotional deals that benefited few besides the self, whereas females preferred inclusive deals that benefited many others as well as the self. Examining this in a different context, Winterich, Mittal, and Ross (2009) found that when people's moral identity was important, those adopting a feminine gender identity (i.e., predominantly females) increased their charitable donations to out-groups (i.e., groups *not* associated with the self), but those with a masculine gender identity (i.e., predominantly males) heightened donations to in-groups (i.e., groups associated with the self). And in a study by Dommer and Swaminathan (2013) concerning the endowment effect—the tendency to inflate the value assigned to one's possessions, findings showed that exposure to social threat strengthened the endowment effect among both genders for in-group goods, but the effect entirely disappeared among males (but not females) for out-group goods.

As implied by research concerning psychological distance, people high versus low in power are found to think more abstractly (Rucker et al., 2012). Although we found no work exploring gender differences in abstract versus concrete thinking, research implies that differences are likely. To explain, self-construal research indicates that males (females) typically adopt an independent (interdependent) self-view, where an independent (interdependent) self-view means that the self is perceived as separate from (integrated with) others (e.g., Lin & Raghuram, 2005). Supporting the premise that males (females) are likely to engage in more abstract (concrete) thinking, Spassova and Lee (2013) found that people with a salient independent (interdependent) self-view construed actions in a more abstract (concrete) manner.

Higher power has been found to trigger three other propensities: taking action or behaving assertively, exhibiting optimism, and feeling greater confidence (Rucker et al., 2012). Analogously, gender research finds that males versus females exhibit these same propensities. Regarding assertive behavior, findings show that males behave more aggressively than females (Card, Stucky, Sawalani, & Little, 2008; Knight et al., 2002). Further, the genders view assertive gestures like fist making differently. For males, a fist expresses increased hope for power and elicits

positive judgments of a target who acts assertively, but for females it prompts decreased hope for power and negative judgments of such a target (Schubert, 2004).

Gender differences favoring males also exist in optimism and positive thought, particularly about the self. Exemplifying this, when buying durable goods, males were less likely than females to perceive that a product will fail, making them less likely to buy an extended warranty (Chen, Kalra, & Sun, 2009). Males also displayed a stronger optimism bias than did females about their likelihood of being happily married or divorcing (Lin & Raghuram, 2005). While, overall, the genders do not vary in reports of happiness and subjective well-being (Diener, Suh, Lucas, & Smith, 1999), Roothman, Kirsten, and Wissing (2003) found that males scored higher than females on established scales that gauged their frequency of positive cognitions or positive self-statements, their sense of self-worth and adequacy as a person, and their physical being (e.g., health, body, and physical skills). Further, when investigating gender differences in regulatory focus, where a promotion- (prevention-) focus appears to signal greater (reduced) optimism by implicating heightened attentiveness to positive (negative) outcomes, McKay-Nesbitt, Bhatnagar, and Smith (2013) found that males were more promotion-focused, suggesting that they are more optimistic.

Finally, studies show that males express greater confidence than do females in assorted domains and irrespective of their competence. For example, meta-analyses on self-estimates of general intelligence and mathematical/logical, spatial, and verbal abilities revealed that except for verbal ability, males consistently reported higher self-estimates than females (Syzmanowicz & Furnham, 2011). Similar outcomes were obtained on several esteem-related facets of the self, such as personal self, self-satisfaction, athletic self, and physical appearance (Gentile et al., 2009).

### *Self-construal*

People form perceptions of themselves on many different dimensions. One concerns their gender identity, that is, the degree to which one defines the self in a masculine agentic manner characterized by an emphasis on being autonomous, assertive, and instrumental, or in a feminine communal manner that emphasizes fostering social harmony and being sensitive to others and the situation. Although an individual's sex and gender identity are isomorphic, most males adopt a masculine agentic identity and most females a feminine communal identity. Interestingly, recent research indicates that males (but not females) strongly view same- versus other-gender-typical traits as essential to their gender identity. Hence, only males must earn their gender identity by simultaneously demonstrating same-gender traits and stamping out opposite-gender ones (Bosson & Michniewicz, 2013).

People's gender identity has important consequences on their behavior. Because certain products are strongly associated with a particular gender (e.g., meat is associated with maleness, Rozin, Hormes, Faith, & Wansink, 2012), people whose gender identity corresponds with such products may consume more of them. Further, heightening the salience of people's gender

identity also can influence their responses to products or items of this type, although sometimes counter-productive outcomes occur. Consider two studies that exemplify this point. [McShane, Bradlow, and Berger \(2012\)](#) found that the sight of males driving male-oriented vehicles (e.g., pickup trucks) increased purchases of new vehicles of this type (i.e., male-oriented ones) more among male than female consumers. Yet, [Puntoni, Sweldens, and Tavassoli \(2011\)](#) found that females exposed to stimuli that did versus did not make their gender identity salient contributed lower donations to a female focused (i.e., ovarian) cancer charity. This counterproductive outcome occurred because heightening the salience of females' gender identity triggered a defense mechanism, which actually lowered females' perceived risk of acquiring a deadly disease that affects only women (i.e., ovarian cancer).

Burgeoning work on self-construal focuses on a different dimension of people's self-view: People vary in whether they view themselves as independent, meaning that the self is an autonomous unique entity that is individualistic in its pursuits, or it is interdependent—fundamentally connected with others and the environment (e.g., [Aaker & Lee, 2001](#)). Considerable evidence indicates that males are typically independent and females are interdependent in their self-construal. For example, when given positive and negative items that corresponded with these two self-construals, males defined themselves as higher in independence and females viewed themselves as higher in interdependence ([Guimond, Chatard, Martinot, Crisp, & Redersdorff, 2006](#)). Further, [Wang, Bristol, Mowen, and Chakraborty \(2000\)](#) found that males (females) were more persuaded by ad appeals that relayed separateness and differences from others (connectedness and alignment with others).

Because gender corresponds with self-construal, some studies have used self-construal theory to predict gender differences. For example, [Kwang, Crockett, Sanchez, and Swann \(2013\)](#) posited that being in a romantic relationship should contribute to both sexes' self-esteem, but it should do so for different reasons. The intimate emotional connection with another in a relationship should contribute to females' self-worth by satisfying their interdependent needs. However, for males who value independence and being distinctive, such emotional connections should not be relevant; instead, a utilitarian benefit of being in a relationship should enhance males' self-worth, for being in a relationship can signify elevated social distinctiveness or status, and thus bolster males' self-esteem. Studies supported these deductions.

Refinements of self-construal theory have led scholars to distinguish between two types of interdependence, with the genders favoring different types. Females favor *relational interdependence* by forming dyadic relationships with individual entities (e.g., being a friend of Mary). However, males satisfy their belongingness needs via *collective-interdependence*, where their connection involves membership in a larger collective (e.g., being a Cubs fan). Accordingly, [Maddux and Brewer \(2005\)](#) found that whether males trusted a person in an online game depended on whether they shared a group membership (i.e., the person was a student at their own versus a different university), but females trusted people who shared either a

direct connection (i.e., the person was a student at their own university) or an indirect relationship connection (i.e., the person was a student at a different university that an acquaintance also attended). Similar outcomes emerged in the types of commercial entities that garnered the genders' loyalty. [Melnyk, van Osselaer, and Bijmolt \(2009\)](#) found that males were more loyal to multi-person entities or companies, but females were more loyal to individual service providers.

The correspondence between individual's self-construal and their gender suggests that many other outcomes on which independents versus interdependents have been found to differ are also apt to show gender differences. The propositions offered next underscore this parallel by identifying and linking outcomes for which self-construal differences have been reported with gender studies that show similar outcomes: Compared to their counterparts (interdependents and females), independents and males are less likely to conform in response to social pressure (see [Eagly & Chryala, 1986](#); [Torelli, 2006](#)), show less sensitivity to the context in which stimuli appear (see [Kühnen, Hannover, & Schubert, 2001](#); [Noseworthy et al., 2011](#)), display less sensitivity to the mental perspective of another person (see [Wu & Keysar, 2007](#); [You et al., 2011](#)), attend more to generalities versus specifics (e.g., traits vs. exemplars; see [Ng & Houston, 2006](#); [Roalf, Lowery, & Turetsky, 2006](#)), adopt a promotion (versus prevention) regulatory focus (see [Aaker & Lee, 2001](#); [McKay-Nesbitt et al., 2013](#)), and exhibit greater impulsiveness (see [Cross, Copping, & Campbell, 2011](#); [Zhang & Shrum, 2009](#)).

#### *Agency-aligned emotions: anger and hostility*

Anger is experienced about equally by both genders ([Kring, 2000](#)), a finding consistent across cultures ([Fischer et al., 2004](#)). However, the expression of anger differs by gender. Anger tends to trigger direct forms of aggression, such as irritability, conduct disorders, confrontation and violence, more commonly for men and boys than for women and girls ([Anderson & Bushman, 2002](#); [Baxendale, Cross, & Johnston, 2012](#); [Berkout, Young, & Gross, 2011](#)). In contrast, females use more indirect aggression, such as excluding others, and use direct aggression only when resources are extremely scarce ([Griskevicius et al., 2009](#)).

Different theories can explain males' greater involvement in crime and violence that is precipitated by anger. Social role theorists contend that gender differences in poverty, parenting styles, and coping styles in response to stress contribute to such differences ([Bennett, Farrington, & Huesmann, 2005](#); [Berkout et al., 2011](#)). For example, females may be more apt to learn verbal "scripts" to use in response to anger and they may also benefit from greater interhemispheric communication ([Bennett et al., 2005](#)). Evolutionary theory suggests that aggression is an expression of males' desire for status and dominance as this facilitates acquiring mates ([Griskevicius et al., 2009](#)). Biological theories posit that such gender differences may stem from hormonal variation, such as males' higher level of testosterone, a hormone that has been linked to feelings of power, anger, dominance, and aggression ([Peterson & Harmon-Jones, 2012](#)).

### *Sexual activities*

Clear gender differences exist in cognitions, attitudes, and behaviors related to sexual activity. Men exhibit a stronger sex drive than women (Baumeister, Catanese, & Vohs, 2001; Petersen & Hyde, 2010), as evidenced by more frequent thoughts about sex, desiring sex more often, desiring more sexual partners, masturbation frequency, more initiation of sex, greater likelihood of engaging in casual sex, more permissive attitudes toward casual sex, greater use of pornography, and more interest in a broader variety of sexual activities. No studies report more desire for sexual activity among women than men (Baumeister et al., 2001).

Both biological and socio-cultural theories argue that men have a greater desire for casual sex and women have a greater desire for long-term commitment. Evolutionary theory (e.g., Buss & Schmitt, 1993) proposes that because women tend to invest more time and energy in producing offspring, they are more selective and likely to seek a partner who will commit to a long-term relationship. In contrast, men produce more offspring by engaging in sexual activity with many women, fostering a drive for more and varied sex. And at some threshold level, hormones, like higher levels of testosterone, can increase the sex drives of both men and women (cf. Baumeister et al., 2001). A socio-cultural view (e.g., Wood & Eagly, 2012) proposes that the male role is associated with power and control of resources, and due to their more dominant status, men may be more likely to expect women to satisfy their physical needs. Women's preferences for committed relationships may stem from their historical dependence on men to secure resources and their greater desire for interpersonal communication. Cultural components such as sexualized images in media also may reinforce gender power and role differences.

Based on a meta-analysis and large data sets, Petersen and Hyde (2010) found that while men have more permissive sexual attitudes and more varied experiences, gender differences are smaller in cultures that have more gender equity. Others (e.g., Wood & Eagly, 2012) contend that context based gender differences may exist. For example, differing cognitive processing styles may contribute to gender effects in reporting incidence of sexual partners. Men tend to estimate the number of partners and then round up, while women try to recall each partner and, due to occasional forgetting of some, tend to undercount (Baumeister et al., 2001). Note that females' use of a more detailed internal search is consistent with the selectivity hypothesis.

An emerging body of literature on sexuality suggests that the female sex drive is more malleable than males' in response to socio-cultural and contextual variables. Baumeister (2000) reviewed three types of evidence supporting this thesis. First, individual women more than individual men vary in their sexual behavior across time. For example, women are better than men at adapting to more or less sexual activity, and they also tend to develop more permissive attitudes toward sexual activity over their lifetimes. Second, females' versus males' sexuality responses show larger effects to socio-cultural variables like education, religion, political ideology, or peer influence. Third, the relationship between sexual attitudes and

sexual behaviors is lower for women than for men. For example, attitudes toward virginity or approval of extramarital sex have weaker links to behavior for women than for men. Further, women report higher sexual incidence when told that their responses are private (versus public) and when told that lying can be detected (Alexander & Fisher, 2003). Baumeister (2000) proposes that women may need to adapt to the needs of men who have greater control of resources. Such malleability is consistent too with the selectivity hypothesis in that women may be more likely than men to review contextual information and weigh that in addition to their physical arousal. Women also have the ability to have intercourse at times when they lack sexual desire, whereas men generally do not. In contrast to women's varied responses, research suggests that men's responses are determined more consistently by physiological arousal.

A meta-analysis that examined how the genders respond to sexually explicit content showed that women responded more negatively than men (Allen et al., 2007). Dahl, Sengupta, and Vohs (2009) also observed more negative responses from women to sexually explicit advertising. But they were able to reduce these negative responses by priming women with data about a man's commitment to a woman. In contrast, men's responses did not vary with such a prime or even when the sexually explicit content was paired with thoughts of a disloyal partner.

Baumeister and Vohs (2004) proposed a sexual economics theory of gender differences in sexual activity. They contend that the price of sex will vary with supply and demand, competition, and other marketplace factors. Given their greater desire for sexual activity, men are the "buyers" and female sexuality is the valued product. Supportive evidence for this comes from research on prostitution, courtship rituals (e.g., gift-giving), and female competition (e.g., sexual appeal relative to other women). The researchers concluded that in heterosexual relationships, female sexuality has high exchange value, whereas male sexuality has little or none.

### **Conclusions**

The research discussed in this review implies several important conclusions. First, it reinforces the agentic–communal gender role distinction by indicating that males generally emphasize instrumentality and independence, whereas females value inclusiveness and interdependence. A smattering of the many examples includes the following. Compared to females, males are likely to favor promotions that benefit the self (versus others), spend more money to elevate their status when they shop with others, favor more efficient online shopping, and use detachment to cope with negative emotions. In contrast, females more than males favor equity-based resource allocations that benefit both self and others, indicate greater awareness of how their actions affect others, are more responsive to message appeals that focus on helping others (not just people in their own in-group), prefer the social- and sensory-rich atmosphere of traditional shopping, favor loyalty programs that are personalized yet not visible to others, and use social support to cope with negative emotions. Notably, many other examples of such differences also appear in the power and self-construal literatures,

where these constructs are claimed to be defined by variation in agency/independence versus communality/interdependence and assorted outcomes observed on these constructs show parallel gender differences.

A second conclusion from the research is that compared to males, females temper or exhibit more cautiousness and avoidance in their behavior, whereas men show more risk seeking, assertiveness and directness. To exemplify, females show more caution in economic transactions and competitive situations, are less trusting in e-commerce and investment contexts, are more concerned about their privacy, report lower incidence of sexual activity when told that their responses are public (versus private), and express anger indirectly (versus directly). In contrast, males are more likely to be risk takers in economic transactions, engage in more casual sex, use more directive speech, express anger directly with aggression, and respond impulsively.

A third conclusion is that females, perhaps owing to their greater cautiousness, display greater sensitivity and responsiveness than do males to stimuli that could have negative implications. Thus, in addition to avoiding negative consequences associated with risk and fraud, females are better able than males to resist temptations, delay gratification, and regulate their anger. In addition, females react more strongly or unfavorably to negative images, negative messages, corporate transgressions, incidences of product harm, and stimuli that evoke pain. Further, they also express negative emotions, such as fear, sadness, anxiety, worry, and depression, more than males do.

A fourth conclusion that emerges from this review is that females tend to be more inclusive or comprehensive than males in detecting and using data. Evidence appears in search, communication, and assessment contexts. Compared to males, females show better detection, use, and memory for subtle facial cues, enter more words in online queries, spend more time viewing online search results, perform more general and specific in-store searches, draw more inferences or ruminate about data concerning others or professionally pertinent issues (e.g., patient health care, loan applications, supervisory relationships), detect and form perceptions based on multiple (versus a single) meanings of esthetic stimuli, and engage in more extensive thought in stressful situations. In contrast, males fixate on less data, engage in less elaborative talk with their children, pursue more simplified or directed search when shopping by relying on salesperson recommendations or price data, and rely more on heuristics or intuitions when rendering assessments. Two observations that may help explain the preceding differences are females' greater connectivity between their brain hemispheres and their greater use of bilateral processing. Such properties may enable females to access and integrate qualitatively different representations of the same information from their two brain hemispheres or to access more target-related data stored in different hemispheres.

A final conclusion indicated by this review is that females display more nuanced or differentiated responses than do males to subtle and discriminating contextual cues. For example, only among females is their competitive performance sensitive to their competitors' sex, the framing of the situation, and the person (i.e., self or other) who benefits from their performance,

their trust sensitive to the type of out-group the target person belongs to, and their persuasion sensitive to subtle claim wording (e.g., hedge or pledge words). Females are also more responsive than males to subtle variation in negative facial expressions, and their sexual activity is more varied over a lifetime and as a function of factors like education, religion, and peers.

Finally, many and possibly all of these conclusions may be explained by the three origin-focused theories of gender differences (the socio-cultural, evolutionary, and hormone-brain accounts), as discussed in various sections of our gender literature review. Likewise, the selectivity hypothesis can account for the conclusions. Indeed, it is noteworthy that the final two conclusions follow directly from that theory's tenets concerning females' fuller processing and synthesis of a larger array of relevant data.

### **Opportunities**

How can our understanding of gender differences be furthered and grown? One challenge is to develop a larger and more encompassing theory capable of integrating the many individual gender difference findings. Along such lines, connections may exist between each gender's cognitive processing approach and their temperament. For example, could females' greater expression of anxiety, worry, fear, and sadness emerge as a consequence of their more comprehensive processing? If females consider their environment and related contexts more fully than males by, say, elaborating on each constituent event, imagining the alternative ways in which their actions might play out, ruminating about both the upsides and downsides of potential outcomes, such cognition might exert a toll on their feelings (i.e., increase the incidence of negative emotions) and prompt females to be more wary of risk and competition as well as experience deflated confidence concerning their prospects. Likewise it could be that males' increased propensity to exhibit direct anger, greater aggression, and weaker resistance to temptations are consequences of their more selective processing. Research needs to explore such possible connections. In addition, theory is needed that not only sheds light on the full spectrum of potential benefits and costs of each gender's manner of processing or response pattern, but also anticipates when which type of these outcomes (i.e., benefits or costs) will occur.

A second avenue for making progress—one of particular benefit to consumer research—would be to deepen our understanding of the cognitive mechanisms that underlie the genders' responses. This might entail developing new mid-range gender theories that, similar to the selectivity hypothesis, shed light on important aspects of the genders' cognitive processing. Examples of questions in need of answers are: how do males and females identify which pieces of data will be most influential in shaping their responses, how do they resolve conflicting implications suggested by multiple yet equally accessible and compelling pieces of data, and how do they prioritize the importance they assign to explicit claims versus the inferences they make from such claims?

A third question that must be answered entails distinguishing between and anticipating when data will serve simply as a detail and when it will serve as a heuristic cue. Specifically, when will



information that is often viewed as tangential and of scant diagnosticity for the target issue (e.g., the color of store signage or a service provider's manner of dress) operate as a detail cue that females, as more comprehensive processors, are more likely to detect and incorporate in their assessments, and when will it operate as a single, salient, easily processed heuristic cue that males are more likely to employ to simplify assessment-making?

A fourth opportunity for advancement involves identifying critical factors that can qualify whether gender differences will be observed or alter the nature of their direction. Insufficient identification or explication of such factors can mask gender differences in meta-analyses, which typically are regarded as the most powerful tests of such differences, and this may explain why multiple meta-analyses may arrive at different conclusions. For example, although abundant studies find that females are more moral or ethical than males, a meta-analysis produced an inconclusive verdict (Jaffee & Hyde, 2000). It is possible that an important qualifying factor ignored by the meta-analysis was whether the studies assessed participants' self-reported responses to a list of options provided about a self-generated or hypothetical ethical situation, or studies instead assessed participants' actual behavior to an experienced ethical situation responded to in real-time.

A final area that requires more investigation involves conducting studies that provide more direct evidence for the five conclusions identified in the preceding section. Although considerable extant research seems to support these deductions, for all but the first conclusion, few studies have been designed expressly to test the focal premises. Systematic, theoretical, and programmatic research that focuses squarely on understanding gender differences is especially sparse in the consumer literature, even though this topic seems to be of crucial importance to both consumer researchers and marketers whose interest centers on consumers and their behavior. Further, consumer research itself could be advanced if researchers investigated when gender differences emerge in various consumption-related domains, such as products (e.g., instructions or claims on packaging, selection of brand names and symbols), price (e.g., reliance on price-quality inferences, consumers' derivation of reference prices), promotion (e.g., the use of color to influence emotions or motivations, brand positioning, social media practices), and place (e.g., website design, in-store experiential activities).

We hope that this article and the opportunities identified will serve as a catalyst for researchers, particularly consumer researchers, to study gender. Although considerable progress has been made in understanding how consumers' gender affects their assessments and other consumption-related behaviors, many compelling questions still remain to be tackled and provide every reason to believe that inquiry into this topic will continue to be a fascinating, fruitful, and relevant area of study.

### Contribution statement

To date, researchers of consumer psychology have devoted limited theoretical attention to gender differences, even though such differences would seem to be central to understanding consumer behavior. Moreover, no review of the research on

gender differences has been published in the consumer literature. This paper aims to address this gap and propel further research in this area. It discusses the major theories that have been offered concerning the ontogeny of gender differences, and it reviews the past 14 years of research published on gender differences in the areas of marketing, psychology, and biomedicine. Based on a synthesis of this literature, we propose five major conclusions concerning gender differences that emerge from the work reviewed, and identify several areas of opportunity that offer important and fruitful avenues for advancing our understanding of gender differences.

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