

Running Head: INTERPERSONAL ATTRACTION

**Interpersonal Attraction: In Search of a Theoretical Rosetta Stone**

Eli J. Finkel

Northwestern University

Paul W. Eastwick

Texas A&M University

**Date: May 7, 2012**

### **Abstract**

This chapter reviews theory and research on interpersonal attraction, a literature that dates back more than half a century. Although this literature has produced a wealth of empirical data, it also has lacked theoretical coherence. The present chapter takes two significant steps toward the theoretical unification of this literature. First, it identifies three metatheoretical perspectives—the domain-general reward perspective, the domain-specific evolutionary perspective, and the attachment perspective—that collectively account for the large majority of research findings on interpersonal attraction, and it reviews the literature from within that metatheoretical structure. At their core, all three of these perspectives emphasize the needs people bring to attraction contexts. Second, it suggests that the instrumentality principle—that people become attracted to others to the degree that those others help them achieve goals that are currently high in motivational priority—is the core, unifying principle underlying interpersonal attraction. According to this principle, people also become less attracted to others who are instrumental for a certain goal once people have made substantial progress toward achieving that goal, because people tend to shift their emphasis to other goals at that point. Indeed, because people’s motivational priorities can fluctuate rapidly, their attraction to a given target person, and their rank ordering of attraction to others in their social network, will also fluctuate.

### **Interpersonal Attraction: In Search of a Theoretical Rosetta Stone**

Research on interpersonal attraction has a checkered history. It flourished in the 1960s and 1970s before being largely eclipsed by research on established romantic relationships in the 1980s. As the 1990s approached, it reemerged in a barely recognizable form as a major prong of evolutionary psychology, which largely jettisoned the most central research questions from previous decades. Then, in the first decade of the 21<sup>st</sup> century, broad interest in interpersonal attraction reemerged, inspired in part by the power afforded by major dating innovations in the business world, including online dating and speed-dating. This reemergence not only built upon the flourishing literature deriving predictions from evolutionary principles, but it also revitalized topics that had been largely neglected for decades.

Although we view the nascent reemergence of research on interpersonal attraction with enthusiasm, we fear that the status of this research domain remains precarious and vulnerable to supersession. The primary reason for this fear is that the interpersonal attraction literature, as a whole, lacks the theoretical depth and breadth to prevent it from flagging or splintering.

This concern is not new. Indeed, scholars have long observed that theoretical disorganization has stunted the field's development. In the beginning, Newcomb (1956, p. 575) observed that "there exists no very adequate theory of interpersonal attraction." Although the 1960s and 1970s witnessed a major surge of research on this topic, Berscheid (1985, p. 417) concluded from her review of that work that the field "'just grew,' proceeding without the advantage of a master plan." Finkel and Baumeister (2010, p. 421), reviewing the interpersonal attraction literature recently—a half-century after Newcomb and a quarter-century after Berscheid—echoed their sentiments, concluding that the field of interpersonal attraction research "remains a theoretical morass."

As an illustration of this point, consider the organization of the extant integrative reviews of this literature. Such reviews tend to be built around one of two organizational structures. Several

reviews, including those presented in the major textbooks in the field (e.g., Berscheid & Regan, 2005; Bradbury & Karney, 2010; Miller, 2012), organize the literature around the fundamental principles of attraction, such as familiarity, reciprocity, similarity, and the allure of physical attractiveness. Other reviews organize the literature around the key predictors of attraction (e.g., Finkel & Baumeister, 2010; Simpson & Harris, 1994; see Kelley et al., 1983), typically categorizing them as most relevant to (i) the actor (characteristics of the person who experiences attraction), (ii) the target (characteristics of the person to whom the actor is attracted), (iii) the relationship (characteristics of the dyad above and beyond actor and partner characteristics), or (iv) the environment (characteristics of the physical or social environment). Both of these organizational structures have value, but neither is especially theoretical.

Our goal in the present chapter is to take a step toward the theoretical integration of the interpersonal attraction literature. We seek to do so in two ways. First, we suggest that almost all research on interpersonal attraction has been implicitly or explicitly guided by one of three overarching metatheoretical perspectives—domain-general reward perspectives, domain-specific evolutionary perspectives, and attachment perspectives—and we use this tripartite theoretical structure to review the attraction literature. Second, we argue that this literature coheres around a single core principle, the *instrumentality principle*, which suggests that people become attracted to others who help them achieve needs or goals that are currently high in motivational priority.

*Domain-general reward perspectives* emphasize people's fundamental needs (e.g., pleasure, belonging, self-esteem, consistency) that are relevant to diverse life domains (e.g., friendship, work, family, mating). In principle, people can satisfy these needs through diverse nonsocial and social means, including through romantic relationships. For example, people's need to maintain a positive self-view can be satisfied by acing an exam (i.e., nonsocial means) or by receiving a compliment from a friend (i.e., nonromantic social means), and it can also be satisfied by a

spouse's sexual overtures (i.e., romantic social means). In contrast, *domain-specific evolutionary perspectives* emphasize that people possess specific needs that were linked to reproductive success in humans' ancestral past, and these specific needs can be met only through specific means. For example, people's need to reproduce can be satisfied (in a long-term context) by their spouse exhibiting sexual attraction toward them, but not by having their friend compliment them or by acing an exam. Finally, *attachment perspectives*, which are still in their infancy vis-à-vis understanding interpersonal attraction, are built upon the idea that humans are motivated to approach attachment figures in times of distress in an attempt to reestablish a sense of security (Bowlby, 1969). Some elements of the attachment perspective are reminiscent of the domain-general perspective, such as the need for contact comfort, which applies in both parental and mating relationships (Harlow, 1958), yet other elements are reminiscent of the domain-specific perspective, such as the initiation of particular behavioral and physiological patterns (e.g., distress) in response to particular environmental cues (e.g., loss of an attachment figure; Sbarra & Hazan, 2008). Chronologically, the domain-general reward perspective has guided research since scholars began studying interpersonal attraction in the middle of the 20<sup>th</sup> century, the domain-specific evolutionary perspective came to prominence in the late 1980s, and the attachment perspective emerged in the early 1990s and has picked up steam over the past several years.

Finally, after concluding our review of the attraction literature, we argue that the instrumentality principle can serve as the central, unifying principle for the interpersonal attraction literature—a theoretical Rosetta Stone. In building this argument, we offer a selective tour through classic and current perspectives on motivation and motivated cognition. In addition, we suggest that the instrumentality principle is more precise, more empirically tractable, more theoretically generative, and more integrative than the reward principle.

## **Section I: A Review of the Interpersonal Attraction Literature**

### **Domain-General Reward Perspectives**

From the inception of psychological research investigating interpersonal attraction, the single most influential idea has been that people are attracted to others to the degree that those others are rewarding for them. Indeed, Newcomb (1956, p. 577) asserted that “we acquire favorable or unfavorable attitudes toward persons as we are rewarded or punished by them.” Influential scholars frequently echoed this view in the subsequent heyday of research on initial attraction, asserting, for example, that “we like people most whose overall behavior is most rewarding” (Aronson, 1969), that “individuals like those who reward them” (Walster, 1971), and that liking emerges from “the rewards others provide” (Levinger & Snoek, 1972). This view remains dominant today, as illustrated by the assertion, in the interpersonal attraction chapter in a current best-selling textbook on social relationships, that the rewards people experience in the presence of others are “the fundamental basis of attraction” to those others (Miller, 2012, p. 70).

Much of the research on interpersonal attraction has revolved around a handful of the domain-general needs people can seek to satisfy through interpersonal processes, both romantic and platonic. Because the satisfaction of these needs is rewarding, scholars’ explicit or implicit recognition of these needs has influenced their conceptualizations of how interpersonal attraction works. We organize our review of domain-general reward perspectives around five such needs: hedonic pleasure, self-esteem, belonging, consistency, and self-expansion. This review is intended to be neither comprehensive of the literature relevant to any particular domain-general need nor exhaustive of the needs explicitly or implicitly recognized by attraction scholars. Furthermore, it is not intended to imply that a given process promotes attraction by satisfying only one need (indeed, several processes presumably promote attraction by satisfying multiple needs). Rather, it is simply intended to extract some of the domain-general needs that appear to underlie many of the

attraction effects scholars have identified since the 1950s. This extraction approach allows us to discuss disparate interpersonal attraction effects as fulfilling the same need.

**Pleasure.** People tend to approach physical and psychological pleasure and avoid physical and psychological pain (Atkinson, 1964; Freud, 1920/1952; Gray, 1982; Thorndike, 1935). As applied to the attraction domain, people tend to approach others whom they associate with pleasure and avoid others whom they associate with pain (Byrne & Clore, 1974; Lott & Lott, 1974). Some interpersonal pleasures are normative in that they are enjoyed by all; for example, one of the two core dimensions of interpersonal interaction is warmth (Leary, 1957; Wiggins, 1979), and people generally find interactions with warm people to be pleasurable. However, the list of pleasures that people enjoy is, to some extent, also idiographic: “If you like to play piano duets, or tennis, you are apt to be rewarded by those who make it possible for you to do so” (Newcomb, 1956, p. 576). We illustrate the link from pleasure to attraction by discussing two normatively pleasurable factors—physical attractiveness and sense of humor—and the impact of secondary reinforcers.

Others’ *physical attractiveness* is perhaps the single most robust predictor of people’s initial attraction to them (Eastwick & Finkel, 2008a; Feingold, 1990). In a seminal demonstration of this effect, college students attended a dance party with a randomly assigned partner they had not met previously (Walster, Aronson, Abrahams, & Rottman, 1966). The major predictor of attraction was the target’s objectively coded physical attractiveness. Neural evidence speaks to the hedonic value of beholding beautiful people, demonstrating that reward circuitry in the brain (e.g., the nucleus accumbens) activates in response to viewing physically attractive faces (Aharon et al., 2001; Cloutier, Heatherton, Whalen, & Kelley, 2008; O’Doherty et al., 2003). As testimony to the domain-generality of this tendency, people tend to be especially attracted to physically attractive others even in platonic contexts (Feingold, 1990; Langlois et al., 2000), and even three-month-old babies prefer to gaze at the faces of attractive others (Langlois et al., 1987; Slater et al., 1998).

Furthermore, this robust tendency to be attracted to physically attractive others appears to be due, at least in part, to a general tendency to be attracted to beautiful, easy-to-process objects, both human and nonhuman (Reber, Winkielman, & Schwarz, 1998).

Moving beyond physical attractiveness, others' *sense of humor* also predicts attraction to them, presumably because laughter and mirth are inherently pleasurable experiences. For example, a good sense of humor is among the most important qualities that both men and women seek in a potential romantic partner (Buss, 1988; Feingold, 1992). As testimony to the domain-generalty of this desire for humor, people report that possessing a good sense of humor is a desirable quality not only in diverse romantic contexts (a casual sex partner, a dating partner, a marriage partner), but also in both same-sex and cross-sex friendships (Sprecher & Regan, 2002).

In addition to qualities that are inherently pleasurable, scholars have also investigated qualities that provide for indirect access to pleasurable experiences and can consequently function as secondary reinforcers. One such example is a target's *status/resources* (Eastwick & Finkel, 2008a; Fletcher, Simpson, Thomas, & Giles, 1999; Périusse, 1993). For example, people tend to experience attraction to others who are, or who have the potential to be, wealthy or ambitious, presumably in part because interdependence with such others provides people with access to a lifestyle that offers elevated levels of hedonic pleasure.

**Self-esteem.** Despite their undeniable enthusiasm for the pursuit of hedonic pleasure, people are much more than mere pleasure-seekers. For example, people also have a need to possess high *self-esteem*—to evaluate themselves positively—and many of the most powerful means for meeting this need involve interpersonal processes (M. R. Leary & Baumeister, 2000). We suggest that a broad range of interpersonal attraction effects are due, at least in part, to people's desire to pursue or maintain high self-esteem. We discuss four such effects here.



First, ever since Byrne (1961) and Newcomb (1961) published their landmark studies, scholars have explored the attraction-promoting effects of similarity. Recent research has demonstrated that the link between similarity and attraction is strong for *perceived similarity* (i.e., subjective assessments of similarity) but sporadic and weak for actual similarity (i.e., objectively determined similarity) (Montoya et al., 2008; Tidwell, Eastwick, & Finkel, in press). Although there are multiple explanations for the link between perceived similarity and attraction (including the reverse-causality explanation that attraction causes people to perceive relatively high levels of similarity; Morry, Kito, & Ortiz, 2011), we find Thibaut and Kelley's (1959, p. 43) analysis particularly compelling: "If we assume that in many value areas an individual is in need of social support for his opinions and attitudes then another person's agreeing with him will constitute a reward for him." We suggest that others' agreement with people's attitudes or values causes people to like those others, and that this link is partially mediated by the bolstering effect of that agreement on people's view of themselves.

Second, ever since Backman and Secord (1959) published their landmark study, scholars have explored the *reciprocity effect*—the tendency for people to be attracted to others who like them. This emphasis on the reward potential of being liked by others was underscored by interdependence theory (Thibaut & Kelley, 1959) and social exchange theory (Homans, 1961, p. 129), with Homans asserting that the social approval of others is a "generalized reinforcer." In one set of studies, Walster and colleagues (1973) sought to demonstrate that men tend to be attracted to women who "play hard to get" (an effect that could have contradicted the reciprocity effect), but their conclusion based upon six studies was that men are attracted to women who are easy for them to get but hard for other men to get (also see Finkel & Eastwick, 2009b). These findings suggest that people tend to be attracted to others who like them, but only if this liking makes them feel special. A subsequent speed-dating study yielded compatible conclusions: Speed-daters were

especially attracted to partners who liked them more than those partners liked other people, but they were not attracted to partners who indiscriminately liked everybody (Eastwick, Finkel, Mochon, & Ariely, 2007; also see Eastwick & Finkel, 2009). Similarly, classic research suggests that people tend to be more attracted to others who grow to like them over time than to others who have always liked them, who have always disliked them, or who have grown to dislike them over time (Aronson & Linder, 1965). This effect appears to derive from the tendency for people to experience a self-esteem boost from having discerning others like them as they get to know them better. Indeed, people tend to be sufficiently eager for evidence that others like them that they even tend to be attracted to others who ingratiate themselves to win favor (Gordon, 1996; Vonk, 2002).

A third attraction effect inspired, at least in part, by others helping one meet one's self-esteem needs is the *pratfall effect*. People are more attracted to appealing others (but not to unappealing others) who have committed a pratfall, such as spilling coffee on themselves, than to appealing others who have not (Aronson, Willerman, & Floyd, 1966; see Deaux, 1972). The effect seems to occur because although people like appealing others, this attraction is bolstered to the degree that those others do not make them feel inferior by social comparison (Herbst, Gaertner, & Insko, 2003).

A fourth attraction effect inspired, at least in part, by others' ability to meet a person's self-esteem needs is the tendency for people with a *low comparison level*, relative to people with a high comparison level, to experience stronger attraction toward others. People who are dispositionally low in self-esteem or high in attachment anxiety, or who have recently been primed to have relatively low romantic expectations, tend to experience greater attraction to specific targets in part because their standards for receiving an ego boost from romantic involvement are lower. In accordance with this perspective, physically unattractive (vs. attractive) people not only tend to have lower standards for a potential partner (Buss & Shackelford, 2008), but they also tend to

view particular potential partners as more attractive (Montoya, 2008; but see Lee, Loewenstein, Ariely, Hong, & Young, 2008). Similarly, relative to people whose comparison standards have been temporarily raised, people whose comparison standards have not been altered tend to view others as more attractive. For example, male participants rated a target female as less attractive after watching a television show that depicted gorgeous women than after watching a television show that did not (Kenrick & Gutierrez, 1980), and men who had just viewed *Playboy* centerfolds rated their wife as less attractive than did men looking at magazines that did not depict beautiful women (Kenrick, Gutierrez, & Goldberg, 1989).

**Belonging.** A third major need that people can meet through social processes is *belonging*. We focus on three classic attraction effects that appear to be driven, at least in part, by helping people satisfy their need to belong (Baumeister & Leary, 1995): familiarity, self-disclosure, and the social basis of anxiety-reduction. First, people tend to be more attracted to others who are *familiar* to them than to others who are not. For example, people tend to become attracted to others who live in close physical proximity to them. In one classic study, people were about twice as likely to become close friends with somebody who lived next door to them (~20 feet away) than to somebody who lived two doors down (~40 feet away) (Festinger, Schachter, & Back, 1950). This effect has been replicated many times (e.g., Segal, 1974), including in initial attraction contexts (Back, Schmulke, & Egloff, 2008; Reis, Maniaci, Caprariello, Eastwick, & Finkel, 2011a). To be sure, elevated familiarity can sometimes undermine liking (e.g., Ebbeson, Kjos, & Konečni, 1976), but those cases appear to result from the complexities of elevated interdependence rather than from familiarity per se (Reis, Maniaci, Caprariello, Eastwick, & Finkel, 2011b).

Additional evidence in support of the attraction-promoting effects of familiarity comes from research on the mere exposure effect, which suggests that people tend to experience greater attraction to familiar stimuli, including familiar people, than to unfamiliar stimuli (Zajonc, 1968,

2001). This effect cannot be explained by other factors frequently confounded with familiarity, such as the quality of the direct experience, and it emerges even without perceivers being aware they have gained familiarity. In one compelling demonstration, female research assistants posed as students in a lecture course and, by random assignment, attended 0, 5, 10, or 15 of the 40 lectures (Moreland & Beach, 1992). Although these women did not interact with the students in the course, those students rated the women as more attractive as the number of classes the women attended increased, despite having no recollection of having ever seen the women.

A major reason why familiarity tends to promote attraction is that the human psyche is built to bond with others (Hazan & Diamond, 2000; Hazan & Zeifman, 1994). In one study, pairs of unacquainted strangers experienced greater attraction toward each other if they had been randomly assigned to gaze into each other's eyes for two minutes than if they had been assigned to gaze at each other's hands or to engage in asymmetric eye contact (Kellerman, Lewis, & Laird, 1989). These results suggest that experiencing brief intimacy with another person causes attraction to that person, even when people did not choose to interact with him or her. In short, it seems that taking two people at random and assigning them to experience increased contact—through physical proximity, mere exposure, or intimate interaction—tends to promote mutual attraction.

Complementing this research on familiarity is a compelling line of research linking *self-disclosure* to interpersonal attraction. People who disclose intimately tend to be liked more than people who disclose less intimately, and people like others as a result of having disclosed intimately to them (Collins & Miller, 1994; but see Mikulincer & Nachshon, 1991, for individual differences in this effect).

The third line of research differs from the familiarity and self-disclosure work, but it also illustrates that people tend to be attracted to others who meet their belonging needs. Specifically, people experiencing acute anxiety tend to be attracted to others who have the potential to help

them manage that anxiety. In a classic series of studies, for example, women who believed that they would soon endure a stressful experience preferred to wait with another person who was also awaiting that experience rather than wait by themselves, presumably because pursuing social contact with that person would help to assuage their anxiety (Schachter, 1959; also see Rofé, 1984; Shaver & Klinnert, 1982).

**Consistency.** A fourth major need that people frequently seek to meet through interpersonal relationships is *consistency*, defined in terms of people's motivation to believe that their thoughts and behaviors are internally coherent. An early line of research sought to predict interpersonal attraction by building upon Heider's (1958) suggestion that people seek consistency, or *balance*, in their evaluations and associations. In an influential study (Aronson & Cope, 1968), participants tended to be especially attracted to another person who had punished their enemies and rewarded their friends. This effect could not be explained by participants' beliefs that the other person was similar to them, was trying to help or curry favor with them, or could potentially develop some sort of relationship with them in the future. In another example of the importance of consistency, people often look to others for *self-verification*—that is, for feedback that their views of themselves (positive or negative) are accurate, even when doing so causes them distress (Swann, 1983).

Another influential program of research has demonstrated that people not only seek internal consistency—consistent cognitions and self-assessments—but also consistency between the norms they desire for a given relationship and the norms the other person displays. In particular, research on *exchange and communal norms* demonstrates that people tend to be especially attracted to others who immediately reciprocate benefits and favors when people desire exchange norms, which are built upon principles of reciprocity. In contrast, they tend to be especially attracted to

others who do not immediately reciprocate benefits when they desire communal norms, which are built upon principles of responsiveness to needs (Clark & Mills, 1979).

**Self-expansion.** A fifth need that people frequently seek to meet through interpersonal relationships is the need for *self-expansion*. According to self-expansion theory, people are fundamentally motivated to expand their potential efficacy, and one important means by which they do so is through social relationships (Aron, Lewandowski, Mashek, & Aron, in press). People sometimes view themselves as having some degree of ownership over others' resources, perspectives, and identities—the so-called inclusion-of-the-other-in-the-self principle (Aron et al., in press). For example, participants in one study who expected to initiate a new same-sex relationship preferred somebody whom they believed possessed dissimilar interests, presumably because the dissimilarity would provide an opportunity for self-expansion (Aron, Steele, Kashdan, & Perez, 2006).

**The incidental association of others with successful goal pursuit.** Before concluding our discussion of domain-general reward approaches to understanding interpersonal attraction, we discuss one final issue pertaining to this topic: Incidentally associating others with rewards can promote attraction to them, even when those others have not played any causal role in the presence of the rewards. In a seminal study, grade-school children played a novel game in same-sex groups of three (Lott & Lott, 1960). The experimenter randomly assigned each member of each group either to succeed or to fail in the game. Subsequently, in an unrelated context, the children chose two classmates to join them on a hypothetical vacation to outer space. Children who had (vs. had not) succeeded at the game were almost four times more likely to choose a member of their playgroup to join them (23% vs. 6% likelihood). In another classic study, participants in a comfortable room experienced significantly stronger attraction to an anonymous stranger than did participants in an uncomfortably hot and humid room (Griffitt, 1970; also see Griffitt & Veitch, 1971; May &

Hamilton, 1980). Similarly, people who are currently experiencing an incidental happy mood tend to be more attracted to others than people who are currently experiencing an incidental sad mood (Gouaux, 1971; Veitch & Griffitt, 1976).

More recently, several lines of research have demonstrated that such attraction-promoting effects of incidentally associating others with certain psychological states can emerge even when people lack conscious awareness that they are experiencing the relevant psychological state. For example, because people unconsciously associate physical warmth with psychological warmth and physical approach with psychological approach, they tend to be more attracted to others when they have been randomly assigned to hold a cup of hot coffee rather than a cup of iced coffee (Williams & Bargh, 2008) or when they have been randomly assigned to approach those others than to be approached by them (Finkel & Eastwick, 2009a). Similarly, consistent with the classic concept of transference (Freud, 1912/1958), people tend to be more attracted to strangers who cosmetically resemble positive rather than negative significant others in their life, an effect that is not due to the simple positivity or negativity of the stranger's characteristics (Andersen, Reznik, & Manzella, 1996).

**Domain-general reward perspectives: Conclusion.** The preceding review illustrates that the domain-general reward perspective can encompass a broad range of important findings regarding the causes of interpersonal attraction. The common thread running through all of the preceding findings is that people's needs can be satisfied not only through various social means (through diverse interactions with a friend, a romantic partner, a sibling, a classmate, etc.), but also through nonsocial means. The review also addressed circumstances under which people can become attracted to others simply by associating them with domain-general need-fulfilling experiences.

### **Domain-Specific Evolutionary Perspectives**

Dominant evolutionary approaches to human attraction challenge the idea that theoretically generative explanations for attraction phenomena can be achieved with appeals to domain-general needs (Buss, 1992; Buss & Reeve, 2003; Tooby & Cosmides, 1992). The evolutionary psychological perspective on mating came into prominence in the late 1980s on the heels of three major developments in evolutionary theory.

**Three major developments that led to the emergence of the evolutionary psychology of interpersonal attraction.** The first development was the application of the concept of adaptation to human behavior. An *adaptation* is a feature of an organism that arose through natural selection because of its contributions to the organism's reproductive success (Buss, Haselton, Shackelford, Bleske, & Wakefield, 1998). Although adaptation had been an essential element of evolutionary biology even before Darwin's (1859) theory of natural selection achieved widespread acclaim, it was not until the publication of Wilson's (1975) *Sociobiology* that scholars widely began to use the adaptation concept as a tool to explain human behavior. Wilson applied to *Homo sapiens* the same adaptive logic that had long been applied to animal morphology and behavior; that is, natural selection should have fashioned human behaviors in a manner that promotes reproductive success across a variety of life domains (e.g., altruism, aggression, mating; see also Wilson, 1979). Thus, if human mating behaviors were shaped by natural selection, scholars could use evolutionary concepts to understand and predict how humans navigate the mating domain.

The second development was the publication of Trivers' (1972) theory of *differential parental investment*. Trivers noted that females invest more resources in offspring than males do in most animal species (including *Homo sapiens*), and he hypothesized that this difference was the engine that drove sexual selection. When females invest considerably more in offspring than males do, the costs of a poor mating decision for females are especially high, so they should be especially discriminating among sex partners. Under these circumstances, males should compete vigorously



for sexual access to many females, as males' reproductive success is limited only by the number of partners they can acquire. Among animals where the sex difference in parental investment is smaller (e.g., monogamous birds), sex differences in mating behaviors should be smaller.

The third development was the concept of domain-specificity. *Domain-specificity*, when applied to the mind, refers to the idea that a mental system incorporates specific classes of information in the service of a specific functional outcome (Barrett & Kurzban, 2006). For example, a domain-specific module in the mind of a human male might respond to the presence of a sexual cue (e.g., an attractive young female) by increasing his sexual desire and motivating sexual solicitations; the module would not facilitate these responses to the myriad mating-irrelevant cues that he encounters. Cosmides and Tooby integrated the concept of domain-specificity with the emerging discipline of evolutionary psychology in their studies of social exchange (Cosmides, 1985, 1989; Tooby & Cosmides, 1992). Their studies revealed that participants were much better at solving logic problems when the instructions framed the problems in terms of "cheater detection" rather than generic "if-then" reasoning. Tooby and Cosmides (1992) suggested that this content effect reflected domain-specific, specialized mechanisms in the mind of *Homo sapiens* that had been designed by natural selection to solve the specific problem of cheater detection, not generic logic problems. Broadly speaking, these scholars surmised that natural selection would have fashioned the human psyche to consist largely of domain-specific mechanisms, because such a design would have been more efficient and effective than a design consisting largely of content-independent learning or reasoning mechanisms.

**First-generation findings from the evolutionary psychology of interpersonal attraction.**

These three developments laid the foundation for the evolutionary psychological perspective on mating. By the mid-to-late 1980s, there was a precedent for the application of adaptationist principles to humans (Wilson, 1975), and there was a strong theoretical basis for predicting that

adaptations relevant to men's and women's mating behaviors would have evolved differently (Symons, 1979; Trivers, 1972). Furthermore, if the mind consisted largely of domain-specific modules (Cosmides, 1985, 1989; Tooby & Cosmides, 1992), then natural selection might have fashioned sex-differentiated mental modules to solve particular sex-differentiated adaptive problems in the mating domain. With these tools in hand, David Buss revolutionized attraction research with the application of evolutionary psychological principles, starting with an evolutionary analysis of mate preferences.

***Mate preferences.*** This revolution began in the mid-1980s (Buss, 1985; Buss & Barnes, 1986), and it picked up steam soon thereafter with the publication of Buss' (1989) landmark article in *Behavioral and Brain Sciences*. In this article, Buss assessed men's and women's mate preferences in a sample of over 10,000 participants spanning 37 samples drawn from 33 countries, which came from six continents and five islands. In one sense, Buss' mate preferences research was a straightforward extension of research dating back to the first half of the 20<sup>th</sup> century (e.g., Hill, 1945), which asked men and women to report the degree to which certain characteristics were important to them in a potential marriage partner. This work had shown, for example, that people desire partners who are kindhearted and exciting, and Buss replicated those findings. In another sense, though, Buss' mate preference research was a radical departure from everything that had preceded it. His emphasis on identifying specific adaptive problems faced by humans' male and female ancestors and on deriving testable predictions regarding sex differences based upon these adaptive problems gave his research a level of theoretical innovation and scope that had been absent from the research that preceded it.

Building on Trivers' (1972) differential parental investment theory, Buss (1989) advanced three hypotheses about sex differences in the characteristics people seek in a mate. First, based on the ideas that human males frequently monopolized and defended resources in the evolutionary

past and that the survival of women and their offspring had been especially dependent upon gaining access to such resources, Buss hypothesized that women should be more likely than men to seek characteristics associated with resource acquisition in a mate. Consistent with this hypothesis, relative to men's preferences in a mate, women valued good financial prospects significantly more in 36 of the 37 samples (with no significant reversals), they valued ambition and industriousness significantly more in 29 of the 37 samples (with one significant reversal), and they valued having a mate older than themselves in all 37 samples (see also Kenrick & Keefe, 1990). Second, based on the idea that that men's reproductive success is constrained by challenges associated with gaining sexual access to fertile women, Buss hypothesized that men should be more likely than women to seek reproductive capacity in a mate. Consistent with this hypothesis, relative to women's preferences in a mate, men valued physical attractiveness significantly more in 34 of the 37 samples (with no significant reversals), and they valued having a mate younger than themselves in all 37 samples. Third, based on the fact that men can never be 100% certain that they are the parent of a given child (in contrast to women's 100% certainty) and are thus susceptible to cuckoldry, Buss hypothesized that men should be more likely than women to seek characteristics related to sexual chastity in a mate. Consistent with this hypothesis, relative to women's preferences in a mate, men valued chastity, defined as having had no previous sexual partners, significantly more in 23 of the 37 samples (with no significant reversals).

Various scholars have found such sex differences in representative samples within the United States (Sprecher, Sullivan, & Hatfield, 1994), in participants' evaluations of photographs or descriptions of opposite-sex individuals (e.g., Townsend & Wasserman, 1998), and in early meta-analyses of the existing mate preferences literature (Feingold, 1990, 1992). These findings are consistent with Trivers' (1972) logic, with women desiring earning prospects, ambition, and age in a mate because such traits suggest that a man can acquire and provide resources, and with men

desiring physical attractiveness and youth in a mate because such traits suggest that a woman is fertile.

*Short-term versus long-term mating strategies.* In the early 1990s, Buss teamed up with David Schmitt to build a broader theoretical framework, *sexual strategies theory*, for understanding the evolutionary psychology of human mating (Buss & Schmitt, 1993). Sexual strategies theory is predicated on four premises: (a) “In human evolutionary history, both men and women have pursued short-term and long-term matings under certain conditions where the reproductive benefits have outweighed the costs”; (b) “different adaptive problems must be solved when pursuing a short-term sexual strategy as opposed to pursuing a long-term sexual strategy”; (c) “because of a fundamental asymmetry between the sexes in minimum levels of parental investment, men devote a larger proportion of their total mating effort to short-term mating than do women”; and (d) “because the reproductive opportunities and reproductive constraints differ for men and women in these two contexts, the adaptive problems that women must solve when pursuing each strategy are different from those that men must solve, although some problems are common to both sexes” (p. 205). According to this theory, men have historically been constrained in their reproductive success by the challenge of procuring sexual access to fertile women, whereas women have historically been constrained by the challenge of procuring access to resources for themselves and their offspring (“and perhaps secondarily by the quality of the man’s genes”; Buss & Schmitt, 1993, p. 206). Consequently, men and women developed divergent short-term and long-term mating strategies, with *strategies* defined as “evolved solutions to adaptive problems, with no consciousness or awareness on the part of the strategist implied” (p. 206).

Buss and Schmitt (1993) garnered extensive support for core predictions of sexual strategies theory. For example, men tend to report greater interest in short-term mating than women do, but the sexes report comparable levels of interest in long-term mating. In addition, men tend to desire

many more sexual partners in the future than women do, and men report a willingness to engage in sexual intercourse earlier in a relationship than women do. These sex differences are robust; for example, all of them emerged in subsequent 52-nation study that sampled over 16,000 participants (Schmitt et al., 2003).

In one particularly compelling, and particularly famous, demonstration of the sex difference in receptivity to short-term sexual requests, research assistants approached attractive individuals on a college campus and initiated the one-to-one interaction as follows: “I have been noticing you around campus. I find you to be very attractive” (R. D. Clark & Hatfield, 1989). By random assignment, the research assistant concluded these introductory comments with one of three questions: “Would you go out with me tonight?”, “Would you come over to my apartment tonight?”, or “Would you go to bed with me tonight?” Consistent with Buss and Schmitt’s (1993) finding that men and women are equally interested in pursuing long-term mating opportunities, approximately 50% of both sexes were likely to say yes to the simple “go out” request. In contrast, but consistent with sexual strategies theory, men were much more likely than women to say yes to both the “apartment” request (69% vs. 3%) and the “bed” request (72% vs. 0%).

Scholars have complemented this work investigating sex differences in the pursuit of short-term mating opportunities by examining sex differences in *sociosexuality*, a personality variable representing people’s tendency or willingness to have short-term, uncommitted sexual relationships (Simpson & Gangestad, 1991). In the 52-nation study by Schmitt and colleagues (2005), men exhibited higher levels of sociosexuality in all 52 nations.

Taken together, evolutionary psychologists have procured extensive evidence that men are more interested in short-term mating opportunities than women are, a finding that is consistent with Trivers’ (1972) ideas regarding differential parental investment. In addition, consistent with the evidence that sex differences in sexual receptivity appear to be much stronger in short-term

than in long-term mating contexts, sex differences in mate preferences also tend to be stronger in short-term than in long-term mating contexts (Kenrick, Groth, Trost, & Sadalla, 1993).

*Critiques of first-generation findings from the evolutionary psychology of interpersonal attraction.* Although these first-generation findings have been enormously influential, they are among the most controversial in the field's history, and a brief discussion of some of the critiques of this first-generation work is warranted. Perhaps the most notable critique was offered by Eagly and Wood (1999; Wood & Eagly, 2002), who suggested that alternative theoretical perspectives can readily accommodate the findings. These scholars argued that the sex differences demonstrated by Buss and others derive not from domain-specific naturally selected mechanisms, but from socialization processes that equip men and women for the roles that people of their sex typically occupy. Given that, in most industrialized societies, women are more likely than men to perform the roles of homemaker and caretaker, and men are more likely than women to perform the role of resource provider, social role theory predicts that society will instill nurturance-related characteristics in women and ambition-related characteristics in men. Over time, these sex differences become enshrined in broader gender roles, which in turn shape people's expectations about how the sexes behave (Prentice & Carranza, 2002).

Consistent with their social role theory analysis, Eagly and Wood (1999) reanalyzed the data from Buss' (1989) 37-cultures study, demonstrating that sex differences in the preference for good financial prospects and youth in a mate were smaller in countries with greater gender equality. In other words, as the roles occupied by men and women in a society converged, so did their romantic partner preferences. Subsequent research showed that the sex difference in sociosexuality shows a similar trend, shrinking as a culture becomes more gender-equal (Schmitt et al., 2005).

Other critiques of the first-generation findings involved methodological concerns with important theoretical implications. One such critique observed that the sex differences in

preferences for earning prospects and physical attractiveness are robust in methodological paradigms in which attraction is assessed regarding hypothetical or abstract romantic partners, but nonexistent in paradigms in which attraction is assessed regarding specific romantic partners whom participants have actually met (Eastwick & Finkel, 2008a; see Feingold, 1992). In an initial attraction context, for example, speed-daters tended to be much more attracted to partners who were high rather than low in physical attractiveness, and somewhat more attracted to partners who were high rather than low in earning prospects. Crucially, however, men and women did not differ in the degree to which either of these traits inspired their romantic attraction (Eastwick & Finkel, 2008a; Finkel & Eastwick, 2008). These results, which have been replicated in non-speed-dating contexts and among middle-aged adults (Eastwick, Finkel, & Eagly, 2011), suggest that people's stated mate preferences for specific traits may be largely irrelevant to the attraction that they experience for potential romantic partners (see also Eastwick, Eagly, Finkel, & Johnson, 2011).

A second methodological critique applied specifically to R. D. Clark and Hatfield's (1989) "three questions" study. Specifically, Conley (2011) identified a confound in that study: The procedure not only manipulated the sex of the responder (the participant, who either did or did not agree to the request), but also the sex of the proposer (the confederate, who made the request). Manipulating this second variable is not inherently problematic, but it becomes a confound because men believe the female proposer to be much more sexually skilled than women believe the male proposer to be, and the proposer's perceived sexual skill is a strong predictor of agreeing to sexual contact for both men and women. Consequently, relative to the women in the R. D. Clark and Hatfield (1989) study, it is likely that the men were propositioned by a person they perceived to be better in bed. When controlling for both the proposer's sexual skills and the perceived stigma associated with engaging in casual sex, the massive sex difference in receptivity to casual sex disappears (Conley, 2011). Perhaps not surprisingly, evolutionary psychologists have voiced

considerable reservations about both the social role (e.g., Gangestad, Haselton, & Buss, 2006) and the methodological (Schmitt et al., 2012) critiques, and future research is sure to advance scholars' understanding of these sex differences.

**Second-generation findings from the evolutionary psychology of interpersonal attraction.**

These critiques notwithstanding, the evolutionary psychology of interpersonal attraction has continued to flourish, and the explanatory principles have become increasingly sophisticated over time. These second-generation approaches have doubled down on Buss and Schmitt's (1993) distinction between short-term and long-term mating, investigating how people make strategic tradeoffs when allocating their mating-related resources. For example, people can invest various resources in pursuing short-term mating, but, to a large degree, those resources will no longer be available for long-term mating. This idea, too, derives from Trivers (1972), who argued that mating effort (e.g., working to procure access to sexual partners) is frequently in competition with parenting effort (e.g., working to raise healthy offspring).

***Strategic pluralism.*** The most ambitious and influential second-generation approach to the evolutionary psychology of interpersonal attraction is Gangestad and Simpson's (2000) *strategic pluralism theory*. One of the most important aspects of this theory is that it provides a sophisticated analysis of strategic tradeoffs not only between sexes, but also within each sex. For example, some ancestral men might have achieved significant reproductive success by pursuing short-term mating strategies with multiple partners, but most ancestral men were probably unable to pursue this strategy successfully, so such men likely pursued long-term mating strategies with a small number of partners, perhaps only one. From this perspective, men's relatively strong desire for short-term mating (Buss & Schmitt, 1993) might not mean that many men have historically engaged in successful short-term mating. In fact, it is plausible that most men, like most women, achieved the greatest reproductive success from pursuing long-term rather than short-term mating



strategies. Consistent with this strategic pluralism analysis that casual sex was historically available only to a select subset of men, men who possess characteristics indicative of biological features such as healthy immune functioning (e.g., possessing a symmetrical face and body; Gangestad & Thornhill, 1997; Thornhill & Gangestad, 1994) and exposure to high levels of prenatal testosterone relative to estrogen (e.g., possessing a long ring finger relative to the index finger; Schwarz, Mustafić, Hassebrauck, & Jörg, 2011) tend to be especially likely to pursue short-term mating opportunities (see Gangestad & Simpson, 2000).

According to strategic pluralism theory, women, too, faced evolutionary pressures that allowed for multiple reproductive strategies, and women, too, can achieve reproductive success through both short-term and long-term mating strategies. For example, women can extract genetic resources from a casual sexual encounter, and there are circumstances under which these genetic resources might be sufficiently advantageous, in evolutionary terms, to override the disadvantages of being impregnated by a man who will not invest resources in the offspring. For example, girls who received insufficient parental care sometimes grow into women who are pessimistic that they will find a mate who will invest in their offspring (Belsky, Steinberg, & Draper, 1991), and such women might conclude that the best strategy available to them is to procure robust genes.

The most extensive program of research investigating women's strategic pluralism examines how the mating behavior of women who are not taking hormonal contraceptives changes across their ovulatory cycle (Gangestad, Thornhill, & Garver-Apgar, 2005). Women are most likely to conceive just prior to ovulation, and many evolutionary scholars have argued that, as a result, women at this fertile stage of their ovulatory cycle are especially likely to focus on a potential short-term sexual partner's genetic qualities when deciding whether to have sex with him. Consistent with this hypothesis, women at the fertile (vs. the nonfertile) stage of their ovulatory cycle tend to be more attentive to attractive men (Anderson et al., 2010). In addition, they have a

stronger preference for the scent of men who are symmetrical rather than asymmetrical (Gangestad & Thornhill, 1998; also see Thornhill & Gangestad, 1999). Similarly, when considering a short-term sexual partner, they prefer physically attractive, masculine, muscular, socially respectable, dominant, intersexually competitive men with deep voices (Gangestad, Garver-Apgar, Simpson, & Cousins, 2007; Gangestad, Simpson, Cousins, Garver-Apgar, & Christensen, 2004; Havlicek, Roberts, Flegr, 2005; Jones et al., 2008; Puts, 2005). Furthermore, women who are currently involved in a serious romantic relationship report greater attraction to, and flirtatious behavior with, other men at the fertile stage of their cycle, but only among those women whose current partner is not physically attractive (Haselton & Gangestad, 2006).

Complementing this research demonstrating that women's preferences for a short-term sexual encounter change across their ovulatory cycle is research demonstrating that men's attraction to women for a short-term sexual encounter changes, in a parallel manner, across the women's ovulatory cycle. For example, men find ovulating women to possess more appealing voices and scents than nonovulating women (Pipitone & Gallup, 2008; Thornhill et al., 2003). In addition, they pay ovulating strippers much more money than nonovulating strippers for lap dances (G. Miller, Tybur, & Jordan, 2007), and they are more likely to engage in subtle forms of affiliative behavior (e.g., mimicry) with an ovulating than with a nonovulating research confederate (S. L. Miller & Maner, 2011).

***Social cognition.*** Recent research spearheaded by Maner and colleagues has also begun to investigate the intersection of the evolutionary psychology of human mating with the massive literature on social cognition. For example, one study employed eye-tracking procedures to test the hypothesis that people, especially those high in sociosexuality, find it more difficult to look away from attractive relative to unattractive faces of opposite-sex targets (Maner et al., 2003).

Subsequent research demonstrated that, among participants high in sociosexuality, this attentional

adhesion effect was stronger among those who had been primed with sexual thoughts than among those in a control prime condition (Maner, Gailliot, Rouby, & Miller, 2007).

A follow-up line of research examined whether participants' current relationship status moderates such effects. Whereas single (romantically unattached) participants exhibited greater attentional adhesion to attractive opposite-sex faces when primed with mating words like *kiss* and *lust* than when primed with mating-irrelevant words like *talk* and *floor*, romantically attached participants exhibited the opposite pattern (Maner, Gailliot, & Miller, 2009). Similarly, romantically attached participants exhibited less attentional adhesion to attractive opposite-sex faces when primed with love for their partner than when primed with happiness (Maner, Rouby, & Gonzaga, 2008). In a particularly impressive study, romantically attached male participants viewed an attractive female confederate as less appealing following a face-to-face interaction when she was at the fertile rather than the nonfertile phase of her ovulatory cycle (S. L. Miller & Maner, 2010b). Such findings are broadly consistent with an extensive line of research demonstrating that romantically involved and psychologically committed people tend to derogate attractive alternative partners and turn their attention away from them (Finkel, Molden, Johnson, & Eastwick, 2009; Johnson & Rusbult, 1989; Lydon, Fitzsimons, & Naidoo, 2003; Lydon, Meana, Sepinwall, Richards, & Mayman, 1999; R. S. Miller, 1997; Simpson, Gangestad, & Lerma, 1990).

**Domain-specific evolutionary perspectives: Conclusion.** The preceding review illustrates that, like the domain-general reward perspective, the domain-specific evolutionary perspective can encompass a broad range of important findings regarding the causes of interpersonal attraction. The common thread running through all of the preceding findings is that the relevant needs appear to be domain-specific. For example, men's eagerness for short-term relationships is specific to short-term sexual partners rather than relevant to social relationships more generally.

### **Attachment Perspectives**

The third major theoretical approach that scholars have applied to the topic of interpersonal attraction derives from attachment theory. *Attachment theory* proposes that humans are motivated to seek out attachment figures in times of stress in an attempt to reestablish a sense of security, and people's initial experiences with attachment figures shape how they approach relationships throughout their lives. Although attachment theory has inspired thousands of studies on established romantic relationships over the past 25 years, the number of applications of the theory to the attraction domain is much more modest, perhaps because one might suspect a priori that attraction might not be an attachment-relevant context. After all, it takes about two years to form a full-fledged attachment bond to a romantic partner (Fagundes & Schindler, in press; Fraley & Davis, 1997; Hazan & Zeifman, 1994). If the attachment behavioral system becomes relevant to an adult romantic relationship only after the bond has been established, then the pursuit of a potential relationship partner would have few attachment-relevant implications. Nevertheless, emerging evidence suggests that the desire for an attachment bond may be a strong motivator of relationship initiation, and new research deriving from both the individual differences and normative elements of attachment theory have generated a host of new findings in recent years.

**Individual differences attachment perspectives.** The individual differences component of attachment theory posits that people's early experiences with significant caregivers affect how they think, feel, and behave in romantic relationships later in life (Hazan & Shaver, 1987). People's expectations about interactions with attachment figures reside within mental representations called "internal working models"; variability in such expectations cause people to exhibit personality differences, sometimes called *attachment styles*, that affect behavior in attachment-relevant contexts (Bowlby, 1969, 1973). If attachment figures are available and responsive, people develop a sense of attachment security and come to believe that caregivers are

dependable sources of support and comfort. However, if people find that attachment figures are unresponsive or erratically responsive, they may develop a sense of attachment-related insecurity.

Current perspectives on the measurement of attachment styles suggest that insecurity can take either or both of two forms: *attachment anxiety*, which means that an individual is hypervigilant for signs of rejection and highly preoccupied with attaining closeness and protection, and *attachment avoidance*, which means that an individual is uncomfortable with close relationships and prefers not to depend on others (Brennan, Clark, & Shaver, 1998; Simpson, Rholes, & Phillips, 1996). Individuals who are low on both the anxiety and avoidance dimensions are secure with respect to attachment; they generally expect romantic partners to be available and responsive, and they are comfortable with closeness and interdependence. Research inspired by the individual differences component of attachment theory has focused largely on two attraction-relevant questions: How does attachment style affect the way people approach relationship initiation (i.e., actor effects), and how much attraction do participants report to people who possess a particular attachment style (i.e., partner effects)? We now review these two lines of research in turn.

***Attachment style differences in relationship initiation.*** People who are high in attachment anxiety are highly motivated to establish relationships (Mikulincer & Shaver, 2007). Their attachment system is hyperactivated, which means that they engage in intense, obsessive acts of proximity seeking as a means of achieving closeness with romantic partners. Furthermore, this hyperactivation interferes with their ability to assess interpersonal threat accurately, causing them to exaggerate the potential for and consequences of rejection. Therefore, individuals who are high in attachment anxiety experience an approach-avoidance conflict in close relationships: They strongly desire close relationships, but they fear that they will be rejected. One recent study provided evidence of the approach-oriented inclinations of anxious individuals by examining their tendency to be receptive or unreceptive to opposite-sex speed-dating partners for a follow-up

interaction (McClure, Lydon, Baccus, & Baldwin, 2010). Participants who were high in attachment anxiety were generally more likely to say yes to their speed-dating partners; that is, they tended to be unselective. Furthermore, to the extent that participants were anxious about attachment, they were more likely to report attending the speed-dating event because they were lonely. In short, such individuals appear to be relatively unselective in initial attraction contexts, perhaps because their strong needs for social connection are unmet, making them willing to view an especially wide swath of potential romantic partners as acceptable.

Given this tendency, it would also make sense for attachment-anxious individuals to communicate more romantic interest in potential partners, on average, than attachment-secure individuals do. In support of this hypothesis, attachment anxiety predicts subtle behaviors (e.g., choosing a colored pen that gives the appearance of working on the same team as a desirable opposite-sex partner; Clark, 1984) that potentially indicate a desire for a close, communal relationship (Bartz & Lydon, 2006). However, in some situations, fears of rejection may cause anxious individuals to be ineffective at communicating their romantic interest. In one study, participants who were relatively high in attachment anxiety and romantically interested in an opposite-sex interaction partner were especially likely to overestimate the extent to which their behaviors communicated romantic interest (Vorauer, Cameron, Holmes, & Pearce, 2003). This *signal amplification bias* emerges because anxious individuals mistakenly believe that an interaction partner will take their fears of rejection into account when interpreting the level of romantic interest conveyed in their romantic overtures. In summary, individuals high in attachment anxiety often face the approach-avoidance conflict of strongly desiring connection with potential partners while at the same time fearing rejection and failing to communicate their desire for connection clearly.

The romantic attraction strategies of people who are avoidant with respect to attachment differ markedly from those of attachment-anxious individuals. Attachment-related avoidance is associated with a reduced desire for closeness and intimacy; therefore, avoidant individuals should favor strategies that are unlikely to lead to the formation of a committed relationship. For example, avoidance correlates positively with approval of casual sexual relationships (Brennan & Shaver, 1995; Feeney, Noller, & Patty, 1993) and negatively with the self-reported desire to form an exclusive relationship (Schachner & Shaver, 2002). Furthermore, avoidant individuals are especially likely to report having sex to impress their peers, and they seek out short-term sexual opportunities to avoid the emotional entanglements of long-term relationships (Schachner & Shaver, 2004). Indeed, attachment-related avoidance is negatively associated with the desire to engage in intimate sexual behaviors such as holding hands, mutual gazing, and cuddling (Fraley, Davis, & Shaver, 1998). Finally, avoidantly attached individuals are more likely to be poached and to poach others' mates for short-term relationships (Schachner & Shaver, 2002). Although avoidant individuals do not eschew romantic pursuits entirely, their relationship initiation strategies suggest that they care less than nonavoidant people about the emotionally intimate components of romantic relationships.

Also relevant to the effects of attachment styles on relationship initiation is one study that examined how people's relationship-specific attachment orientations might transfer from one relationship partner to another (Brumbaugh & Fraley, 2006). Participants in this study read descriptions of two potential dating partners: one who resembled a past partner of the participant and one who resembled a past partner of a different participant (i.e., a yoked control). Participants' relationship-specific anxious and avoidant attachment tendencies regarding these new potential partners were significantly associated with their anxious and avoidant attachment tendencies with their past partner, and these associations were especially strong for the potential partner who

resembled their own past partner. In other words, participants seem to apply their attachment orientation with a former dating partner to new potential dating relationships, even if they have learned through only minimal descriptive information that the new partner resembles the former partner.

***Attachment style differences in romantic desirability.*** Other research has examined whether people experience differing levels of attraction to potential partners who possess secure, anxious, or avoidant attachment styles. In studies where people peruse descriptions of potential dating partners, participants tended to prefer descriptions of secure individuals the most and descriptions of avoidant individuals the least (Baldwin, Keelan, Fehr, Enns, & Koh-Rangarajoo, 1996; Chappell & Davis, 1998; Klohnen & Luo, 2003; Latty-Mann & Davis, 1996; Pietromonaco & Carnelley, 1994; for a review, see Holmes & Johnson, 2009). Several studies have also found that people are more attracted to potential partners described as having attachment styles that are similar to their own (Klohnen & Luo, 2003; Frazier, Byer, Fischer, Wright, & Debord, 1996) or that are similar to the style with which they have been recently primed (Baldwin et al., 1996).

However, live dating studies tell a somewhat different story: Participants actually experience less attraction to potential partners to the extent that those partners are anxious with respect to attachment, whereas participants' attraction ratings are not associated with partners' avoidant attachment scores (McClure et al., 2010). In other words, secure potential partners come across as appealing in both scenario and live dating contexts, but the desirability of anxious vs. avoidant partners differs between the two contexts. Perhaps avoidant individuals sound less desirable than anxious individuals in the abstract, but in a real-life interaction, anxious individuals' neediness may be more apparent than avoidant individuals' discomfort with intimacy. Or perhaps first interactions provide insufficient information to assess relationship liabilities characteristic of



attachment-related avoidance, liabilities which are likely to become increasingly relevant as interdependence increases.

Why might attachment security inspire more attraction on average than attachment insecurity? Although only a few studies (reviewed above) have examined attachment styles in live initial romantic contexts (e.g., Bartz & Lydon, 2006; McClure et al., 2010; Vorauer et al., 2003), a huge corpus of research has examined the interpersonal consequences of attachment styles more generally. For example, anxious and avoidant attachment scores correlate negatively with extraversion and agreeableness—two appealing interpersonal qualities (McCrae & Costa, 1989)—although these negative correlations emerge more consistently for avoidance than for anxiety (Mikulincer & Shaver, 2007). With regard to emotional communication, avoidance is associated with a reduced likelihood of expressing one's feelings (Mikulincer & Shaver, 2007), whereas attachment anxiety is associated with poorer accuracy in reading others' emotions (Fraleigh, Niedenthal, Marks, Brumbaugh, & Vicary, 2006). Relative to secure individuals, anxious and avoidant individuals are also more likely to use ineffective conflict-management strategies (L. Campbell, Simpson, Kashy, & Boldry, 2005), and they have difficulties coordinating with partners on problem-solving tasks (Mikulincer & Shaver, 2007). Avoidance is also associated with a lower likelihood of expressing gratitude (Mikulincer, Shaver, & Slav, 2006), and attachment anxiety is associated with a greater likelihood of responding with hostility to the provision of support by an interaction partner (Feeney, Cassidy, & Ramos-Marcuse, 2008) and with the perpetration of intimate partner violence (Finkel & Slotter, 2007). In short, individuals with insecure attachment styles exhibit a variety of interpersonal deficits, although it remains unclear which deficits translate to a greater likelihood of being disliked in initial attraction situations.

**Normative Attachment Perspectives.** Hazan and Diamond (2000) argued that mainstream evolutionary psychological examinations of mate selection had neglected important elements of

the way humans form and maintain mating relationships. Drawing from the normative components of attachment theory, they argued that the species-typical form of long-term mating was not the pairing of young women with resource-rich men (Buss & Schmitt, 1993), but rather the formation of an emotionally close pair-bonded relationship. The pair-bond, they argued, was itself an evolved adaptation and reflected natural selection's co-option of the infant-caregiver attachment behavioral system to bond adult mating partners for the purpose of raising costly and vulnerable offspring. Although evolutionary approaches had long recognized humans' use of long-term mating strategies, they tended to emphasize men's ability to provide tangible resources and to guard against rivals for the purpose of achieving paternity certainty. Attachment theory, in contrast, emphasized adaptive couple-level processes such as emotional co-regulation (Diamond, Hicks, & Otter-Henderson, 2008; Sbarra & Hazan, 2008), caregiving (Simpson, Rholes, & Nelligan, 1992), and support of goal strivings (Feeney, 2004). Thus, Hazan and Diamond (2000) posited that normative components of attachment theory could offer a complementary evolutionary perspective on the initiation of close relationships, and an emerging empirical literature has examined how the pair-bonding elements of the human mating psyche shape relationship formation.

*Partner-specific attachment anxiety as an engine of relationship initiation.* One set of studies tested two hypotheses about the possible functional role of the state-like experience of attachment anxiety (i.e., partner-specific anxiety) in the attraction process (Eastwick & Finkel, 2008b). First, consistent with the idea that fledgling relationships tend to elicit those feelings of uncertainty and the need for reassurance that are core features of attachment anxiety, the researchers predicted that partner-specific anxiety would be a normative experience in the developing phases of potential romantic relationships. In support of this hypothesis, participants reported greater partner-specific attachment anxiety about a desired romantic partner than about an

established romantic partner. Second, the researchers proposed that partner-specific anxiety might signal the activation of the attachment system and would therefore predict the presence of attachment-relevant features, such as proximity-seeking, support behavior, and passionate love. Indeed, correlational and experimental evidence suggested that partner-specific anxiety motivates participants to engage in these behaviors, and partner-specific anxiety was at least as strong a predictor of these behaviors as sexual desire was. In short, partner-specific attachment anxiety seems to be a normative experience in fledgling relationships that motivates people to seek out contact with potential partners and begin forming an attachment bond (Eastwick & Finkel, 2008b).

*Situating adaptations for pair-bonding within the time-course of human evolution.* Another set of studies merged normative attachment and evolutionary psychological approaches to examine how developing attachment bonds might intersect with ovulatory cycle adaptations (Eastwick & Finkel, 2012). Ovulatory adaptations have been part of the hominid mating psyche for many millions of years—longer than adult pair-bonds—and these adaptations could have destabilized the pair-bond if they periodically inspired women to pursue extrapair partners with good genes. However, attachment bonds between adult mating partners emerged more recently in humans' evolutionary lineage (~2 million years ago), and thus attachment bonds should have evolved the capacity to refocus the effects of prior adaptations toward the purpose of strengthening the bond (Eastwick, 2009). Two studies suggested that to the extent that a woman's attachment bond to her sexual partner was strong, she exhibited elevated desire for intimacy-building sexual contact with her partner when she was at the fertile rather than the nonfertile phase of her ovulatory cycle. These results suggest that adaptations for attachment bonds may refocus the effects of ovulatory adaptations to inspire behaviors that might actually strengthen, not destabilize, the pair-bond. Consistent with Hazan and Diamond's (2000) suggestion that pair-bonds are also part of *Homo sapiens*' adaptive legacy, these studies suggest that researchers can draw upon the

time course of human evolution (i.e., phylogeny) to advance predictions about how attachment bonds might intersect with other evolved elements of the human mating psyche (Eastwick & Finkel, 2012).

Several additional findings are broadly consistent with this normative attachment perspective on interpersonal attraction. For example, people consistently rate warmth and kindness as the most important qualities in a romantic partner (Buss & Barnes, 1986), and these are precisely the qualities that would make for a good attachment figure (Hazan & Diamond, 2000). Along these lines, one recent study demonstrated that participants were more attracted to a new acquaintance to the extent that they perceived the acquaintance to exhibit responsiveness (Lemay & Clark, 2008). In addition, attachment theory can shed new light on the tendency for people to become attracted to others with whom they interact frequently (e.g., Festinger et al., 1950). This tendency could reflect the opportunistic operation of the attachment behavioral system, which functions in infancy to bond children to the nearest available and responsive caregiver (Hazan & Diamond, 2000).

**Attachment perspectives: Conclusion.** The preceding review illustrates that although attachment perspectives on interpersonal attraction are newer and less entrenched than domain-general reward perspectives and domain-specific evolutionary perspectives, they, too, encompass a broad range of important findings regarding interpersonal attraction. Scholars have typically employed attachment theory principles to established relationships, but recent research suggests that these principles also yield novel insights regarding initial attraction.

## **Section II: Introducing Instrumentality as the Crucial**

### **Principle Underlying Interpersonal Attraction**

Having reviewed many of the major findings in the interpersonal attraction literature from these three overarching perspectives—domain-general reward perspectives, domain-specific evolutionary perspectives, and attachment perspectives—we now turn to our second major task in

this chapter: building an argument that instrumentality can serve as the central organizing principle for the attraction literature. In particular, we argue that people's current goal-pursuits fundamentally alter their perceptions and evaluations of target objects in their environment, including their perceptions and evaluations of other people, frequently without their awareness. We also argue that the instrumentality principle can help to integrate the attraction literature by providing a language, a theoretical orientation, and a methodological approach that cut across the three overarching metatheoretical perspectives introduced in Section I.

### **Motivated Cognition: Active Goals Fundamentally Alter Perception and Evaluation**

The view that interpersonal attraction is fundamentally dependent on others' instrumentality for achieving one's goals is steeped in the motivation-relevant theoretical traditions spawned by Jerome Bruner and Kurt Lewin in the first half of the 20<sup>th</sup> century. For example, Bruner and Goodman (1947) argued that people's goals function as filters that color their perceptions of the world, causing them to focus their attention on goal-relevant over goal-irrelevant objects and to alter their evaluations of such objects based upon the objects' potential to facilitate versus undermine their goal-pursuit. In a compelling recent demonstration, research participants who believed that a computer would assign them to drink a delicious beverage by briefly flashing a letter of the alphabet on the screen or to drink a disgusting beverage by briefly flashing a number on the screen systematically interpreted an ambiguous figure as the letter *B* rather than as the number *13* (Balcetis & Dunning, 2006). Indeed, of the participants who saw the briefly flashed figure, 100% of them perceived it as a letter. In contrast, only 28% of participants who were randomly assigned to possess the inverse motivational priorities (letter = disgusting drink; number = delicious drink) interpreted the ambiguous figure as the letter *B*. This huge discrepancy across the two conditions illustrates the sometimes profound biasing effects of motivation on people's perception of reality.

Recent research on automatic attitude activation has examined the biasing effects of motivation on evaluative processes, demonstrating that people's automatic attitudes tend to be more positive toward goal-relevant than toward goal-irrelevant objects. For example, research participants exhibited more positive implicit attitudes toward the letter *C* when they were actively searching for *C*s than when they were not, presumably because people value objects that are immediately usable for the pursuit of a current goal (Ferguson & Bargh, 2004). On the flipside, cigarette smokers who had been deprived of cigarettes valued cash less than cigarette smokers who had not been so deprived, presumably because people devalue objects that are not immediately useful for a current goal pursuit (Brendl, Markman, & Messner, 2003). Such findings caused the authors of the recent chapter on motivation in the *Handbook of Social Psychology* to assert that "the level of proximal control over behavior and higher mental processes may be not the self but, rather, the currently active goal" (Bargh, Gollwitzer, & Oettingen, 2010, p. 289).

### **Instrumentality: The Crucial Organizing Principle Underlying Interpersonal Attraction**

We suggest that a similar analysis applies to interpersonal attraction. As Lewin (1935) argued long ago, people tend to evaluate others positively rather than negatively as a function of the degree to which those others facilitate versus hinder their goal pursuits. And, as observed previously, Newcomb (1956) observed that people find others rewarding to the degree that those others facilitate their ability to engage in activities they find enjoyable (e.g., piano duets or tennis). This observation that others are rewarding insofar as they help people pursue their idiographic goals underscores the importance of instrumentality for understanding why one person is likely to become attracted to another. However, research on interpersonal attraction has insufficiently appreciated how fundamental instrumentality is to the attraction process. Fortunately, scholars have begun to emphasize the importance of instrumentality for close relationships, an emphasis

that served as the inspiration for the present integration of the interpersonal attraction literature around the instrumentality principle.

**Instrumentality and relationship closeness.** Given the prominent role that social relationships play in people's everyday lives, scholars have long theorized that people strategically regulate their social life in ways that facilitate their goal achievement (Kelley, 1979; Seeley & Gardner, 2006). Indeed, Berscheid and Ammazzalorso (2001, p. 319) went so far as to suggest that the interpersonal facilitation of one's goal pursuits is "the *raison d'être* of most close relationships" (i.e., the reason why such relationships exist). Building upon this insight, and upon the observation that "people are in constant pursuit of personal goals" (p. 319), Fitzsimons and Shah (2008) published a seminal article testing the *instrumentality principle*, which they define as the tendency for people to "draw closer to instrumental others, evaluate them more positively, and approach them more readily, while distancing themselves from noninstrumental others, evaluating them more negatively, and avoiding them more readily" (p. 320). Across a broad range of elegant experiments, Fitzsimons and Shah (2008) demonstrated that people indeed manifest such preferences for significant others who are instrumental for a currently activated goal (e.g., to achieve academically, to enjoy social activities). Furthermore, this tendency to feel closer to significant others who are instrumental for a given goal than to those who are not disappears once people believe that they have made good progress toward achieving that goal, a social disengagement process that allows them to focus their self-regulatory efforts on goals that require more urgent attention (Fitzsimons & Fishbach, 2010; also see Converse & Fishbach, in press).

**Applying the instrumentality principle to the interpersonal attraction domain.** As noted previously, our central thesis is that the fundamental principle underlying almost all interpersonal attraction is that people become attracted to others to the degree that those others help them achieve goals that are currently high in motivational priority. Furthermore, we suggest that people

become less attracted to others who are instrumental for a certain goal once people have made substantial progress toward achieving that goal—because people tend to shift their emphasis to other goals at that point. Indeed, because people can fluctuate rapidly in terms of which goals have motivational priority (Bargh, Gollwitzer, Lee-Chai, Barndollar, & Trötschel, 2001; Carver & Scheier, 1998), they will also fluctuate not only in terms of their attraction to a given target person, but also in terms of whether (or the degree to which) they continue to be more attracted to one target person over another.

For example, people seeking to satisfy a sexual goal might experience especially strong attraction to others who are physically attractive and sexually skilled—or at least sexually willing. If people are able to satisfy their sexual needs, however, those needs will lose motivational priority for a while, and other needs (e.g., for belonging or consistency) are likely to rise to the fore. This motivational shift will undermine attraction toward others who are potentially instrumental for people's sexual needs and bolster attraction toward others who are instrumental for those other needs. More concretely, a college freshman who is experiencing strong sexual desire might be especially attracted to the casual sex partner she met when she first arrived on campus a few weeks previously, but the quenching of this sexual desire might lead it to plummet in motivational priority, allowing the stress regarding tomorrow's calculus exam to rise to the fore. With these major, but quite common, shifts in motivational priority, our college student may become less attracted to the casual sex partner who was so appealing 30 minutes earlier, and more attracted to her roommate, who serves as her study partner and who was entirely forgotten 30 minutes earlier.

As a second example, people whose need to belong (Baumeister & Leary, 1995) is currently high in motivational priority, perhaps because they are currently backpacking around Europe by themselves, are likely to be especially attracted to others who can potentially be instrumental



toward fostering emotional intimacy. However, once people's belonging needs have been sated, they tend to prioritize other goals (DeWall, Baumeister, & Vohs, 2008; Kumashiro, Rusbult, & Finkel, 2008). This analysis dovetails with classic theorizing in the attachment literature (Ainsworth, Blehar, Waters, & Wall, 1978; Bowlby, 1969), which suggests that people are only willing to pursue a broad range of exploration-related goals once they have achieved a sense of felt security. No research has yet examined the effects of satiation of one's belonging or attachment needs on interpersonal attraction, but we suggest that people currently experiencing such satiation tend to be less attracted to others with the potential to foster further belonging and more attracted to others with the potential to promote the pursuit of other goals.

In general, we suggest that others are likely to be instrumental to the degree that they possess both the ability and the motivation to help people achieve their goals, where *ability* refers to goal-relevant skills and resources and *motivation* refers to the eagerness or willingness to deploy these skills and resources in a manner that can help people achieve their goals. For example, if a poor young man seeks to advance his financial and psychological well-being by attending cooking school, others who have relevant resources (e.g., money for tuition or skills for tutoring) have the ability to be instrumental, but they will actualize this potential instrumentality only if they are willing to spend these resources on his cooking development.

**Three Motivational Principles Relevant to the Instrumentality–Attraction Link.** In crucial ways, the preceding analysis differs radically from prevailing perspectives on interpersonal attraction. For example, it implies that Jason should be more attracted to Scott, the telephone-based tech-support representative who is currently helping him fix a problem with his computer, than to Rachel, his wife of 20 years. Do we, the authors, really believe something so seemingly absurd?

Yes, we do. To be sure, if researchers interrupted Jason at that moment to ask him whether he is more attracted to Scott or to Rachel, he would almost certainly report greater attraction to his wife. And that report would be accurate. But such reports require cognitive abstractions that synthesize information well beyond Jason's immediate psychological experience. When aggregating across time and motivational domain, as such a report requires Jason to do, there is little doubt that Rachel satisfies his needs better than Scott does. However, consider an alternative dependent measure, one that does not require that Jason remove himself psychologically from the immediate situation. For example, imagine that Rachel, who is feeling frisky, begins to seduce him 45 minutes into the call. Jason's emotional and behavioral responses to her overtures will depend on his current motivational priorities. If his desire to have a properly functioning computer is especially strong, perhaps because he needs to get an important document to his boss within the hour, then he will almost certainly rebuff his wife's advances (perhaps in annoyance) in favor of additional time with Scott. In contrast, if his desire to have his computer fixed is weaker, then he might ask Scott if they can continue their tech-support meeting after a brief, hot delay. In short, from an instrumentality perspective, momentary fluctuations in motivational priority exert profound effects on interpersonal attraction to others who are helpful versus unhelpful for currently activated goals, and scholars have generally neglected these effects because they typically assess attraction with measurement instruments that are largely insensitive to them.

More generally, we suggest that understanding people's attraction to various members of their social network depends upon a deeper understanding of motivational principles than the interpersonal attraction literature has recognized. A comprehensive analysis along those lines is beyond the scope of the present chapter (for relevant recent discussions, see Bargh et al., 2010; Förster, Liberman, & Friedman, 2007), but we illustrate this approach by discussing three motivational principles. The first is that goals vary in their *chronicity*—the degree to which a

given goal is frequently activated for a given individual (for a related discussion, see Bargh, Bond, Lombardi, & Tota, 1986). Chronicity is determined both by species-typical psychological architecture and by individual-specific ontogeny, and greater chronicity predicts greater frequency of attraction to others who are instrumental for that goal. For example, one reason why Jason tends, at any random moment in time, to be more attracted to Rachel than to Scott is that the needs and goals that she is better at helping him satisfy (e.g., belonging, sexuality) are more chronic than his computer functionality needs.

The second motivational principle is that goals vary in their *importance*—the degree to which a given goal, when activated, tends to be high in motivational priority for a given individual (Emmons, 1986). In other words, whereas chronicity refers to the frequency with which a given goal is activated, importance refers to the typical motivational priority of that goal when it is activated. For example, although Jason typically values his belonging needs quite highly, he values strong performance on standardized tests even more strongly during those rare occasions when such performance is relevant. Consequently, just as he withdrew from friends and family leading up to the SAT, he may withdraw from Rachel in the weeks preceding his medical board exam. Indeed, during that brief but intense study period, the enormous importance he places on passing the board exam may cause him to become more attracted to his study partner than to his wife.

The third motivational principle is that other people vary in their *multifinality*—the degree to which those others are instrumental for many rather than few of an individual's goals (Kruglanski et al., 2002). For example, all else equal, if Jason finds Rachel and his colleague James to be equally instrumental in helping him train for an upcoming marathon, he will ultimately experience greater attraction to Rachel if she is more instrumental to his other goals than James is, especially if those goals are high in chronicity and importance. For example, if he values nightly pillow talk

and family dinners more than any goals James can help him achieve, Jason will tend to be more attracted to Rachel. After all, once his fitness goals have been attained (e.g., by running 10 miles), then other goals come to the fore. In general, if another person is instrumental for many of one's goals—that is, if the person is multifinal—then the attainment of one goal for which that person is instrumental is not especially likely to undermine that person's instrumentality for a new goal that has now gained motivational priority.

**Advantages of the Instrumentality over the Reward Principle.** Although reward-based theories have been influential in the attraction literature since its inception, the reward construct is broad and vague. We share both Berscheid's (1985, p. 439) assessment that "the major problem with the general reinforcement approach ... is the determination of what constitutes a reward or a cost to whom and when," and Lott and Lott's (1974, pp. 173–174) assessment that when considering what serves as a reward, "one must know what that human being needs or wants, what he or she considers valuable, desirable, or positive, and to what conditions the human being has been previously exposed." In short, to understand how others can be rewarding for people, scholars investigating attraction must first understand what people need and want—what their goals are.

To be sure, some of these issues remain challenging when thinking in terms of instrumentality rather than reward, but the instrumentality principle has four crucial advantages over the reward principle. First, instrumentality is the more precise construct. Although strict behaviorists have long conceptualized the term reward in precise, behavioral terms, scholars of interpersonal attraction have frequently defined the term in broad, intrapsychic ways (e.g., in terms of cognitive consistency or self-esteem maintenance) that would distress John B. Watson and B. F. Skinner. The reward construct has become sufficiently bloated over time that it is no longer especially useful, especially in terms of deriving novel hypotheses or inspiring innovative empirical

investigations. In contrast, as reviewed previously, scholars have defined instrumentality precisely (e.g., Fitzsimons & Shah, 2008).

Second, identifying instrumentality, rather than reward, as the crucial organizing principle underlying interpersonal attraction immediately links the attraction literature to the broad array of innovative and compelling empirical paradigms from the motivation literature, all of which can be retrofitted to the study of interpersonal attraction. The research methods with the greatest immediate relevance for the interpersonal attraction literature are those developed by Fitzsimons and colleagues to examine instrumentality dynamics in close relationship contexts. Scholars could adapt procedures from Fitzsimons and Shah (2008), priming people with certain goals and then studying their attraction to others. For example, scholars could prime some participants (acute goal activation) with a goal to achieve academically and other participants with a goal to have fun socially, and then assess the degree to which participants in each experimental condition are attracted to strangers with characteristics associated with each of those goals (e.g., to others who are wearing glasses vs. holding a beer). Similarly, scholars could adapt these procedures to study attraction in stereotype-relevant domains. For example, they could prime the same two goals and then assess attraction to strangers from ethnic or racial groups associated with one of the goals. For example, such participants might be more attracted to Asian-Americans, who are stereotypically associated with strong academic achievement, in the academic goal priming condition, whereas they might be more attracted to fraternity members, who are stereotypically associated with partying, in the social goal priming condition. Scholars could also adapt procedures from Fitzsimons and Fishbach (2010), priming participants' self-perception that they either have or have not made good progress toward achieving a certain goal, and then assessing the degree to which participants in each experimental condition are attracted to strangers who have the potential to be instrumental for that goal.

Third, identifying instrumentality as the crucial organizing principle underlying interpersonal attraction immediately links the attraction literature to the motivation literature, which is currently witnessing a period of immense theoretical ferment. Not only has the longstanding literature examining people's use of conscious thought in their goal-pursuit efforts exhibited a renaissance over the past two decades, but a new literature examining people's use of nonconscious thought in their goal-pursuit efforts has exploded onto the scene in that same timeframe (Bargh et al., 2010). One major development, which is related to the chronicity point discussed previously, is the recognition that goal priorities fluctuate markedly over time, even nonconsciously (Bargh, 1990; Bargh et al., 2001). A second major development is the emergence of goal systems theory, which identifies a range of crucial tenets regarding the cognitive underpinnings of goal-pursuit, all of which are relevant to interpersonal attraction (Kruglanski et al., 2002). For example, one tenet is that whichever goal is currently highest in motivational priority dominates a given means, thereby reducing the degree to which that means is used to serve a different goal. In the attraction domain, an intense desire to view the self positively (e.g., following failure on a final examination) might cause people to interpret signs of similarity with another person as evidence that they possess desirable qualities rather than as evidence they view the world accurately.

Fourth, identifying instrumentality as the crucial organizing principle underlying interpersonal attraction enables scholars to talk in a common language about attraction phenomena from all three overarching metatheories. In that sense, the instrumentality principle can function as a Rosetta Stone for the attraction literature, providing a unifying theoretical framework and establishing a coherent set of empirical methodologies, thereby facilitating inter-metatheory communication. To be sure, the specifics of the theoretical analyses and the methodologies will vary from topic to topic, but scholars adopting any of the three metatheoretical orientations can now discuss concepts such as needs and goals, seek to identify which other people are

instrumental for which goals under which circumstances, and capitalize on theoretically powerful methodologies such as goal priming. For example, from a domain-general reward perspective, scholars can investigate whether people tend to be more attracted to others who introduce them to new activities (and can help them pursue self-expansion goals) than to others who do not, and whether those effects are strongest among people whose self-expansion motivation is especially strong (either dispositionally or situationally). From a domain-specific evolutionary perspective, scholars can investigate whether men have a stronger preference for women with fertile-looking body shapes (which has historically helped men pursue reproductive goals) when the women are ovulating than when they are not. From an attachment perspective, scholars can investigate whether people tend to be more attracted to responsive others (who can help them pursue bonding goals) when those people are feeling emotionally vulnerable rather than secure.

### **Implications and Future Directions**

People's goals are complex and multiply determined. Regarding interpersonal attraction, goals vary as a function of people's immediate environment (e.g., the physical attractiveness of a stranger at the sporting event), their present life circumstances (e.g., their current lack of a romantic partner), their life-course ontogeny (e.g., past successes versus failures in their romantic overtures toward attractive others), cultural factors (e.g., norms about cross-race romance), species-typical evolutionary pressures (e.g., physical indicators of reproductive viability), and so forth. We suggest that the primary tasks facing scholars who seek to understand interpersonal attraction are: (a) to identify which needs are particularly salient and important under which circumstances; (b) to discern which other people (potential targets of attraction) are especially, perhaps uniquely, effective at helping people meet those needs; and (c) to establish the circumstances under which others' instrumentality elicits one form of attraction rather than another (e.g., platonic affection vs. sexual frenzy)—which is almost certainly due in large part to

the fundamental nature of the need or goal in question (e.g., a sexual goal vs. a productivity goal). Accomplishing these tasks, we suggest, will allow scholars to account for the lion's share of the variance in predicting whether one person will become attracted to another in a given context.

More immediately, conceptualizing the interpersonal attraction literature from the perspective of the instrumentality principle has many important implications, all of which suggest future research possibilities. We discuss five such implications here. First, this new conceptualization allows for the integration of disparate scholarly literatures underneath a single theoretical umbrella. For example, the literatures on attraction to romantic alternatives (e.g., Johnson & Rusbult, 1989) and on extrarerelationship sexuality (Atkins, Baucom, & Jacobson, 2001) have emerged largely independently from the literature on interpersonal attraction, but we suggest that instrumentality dynamics represent a major force in both contexts. In particular, we suggest that attraction to a given romantic alternative, and the likelihood of engaging in extrarerelationship sexual activity with him or her, increases to the degree that the alternative in question is instrumental for a goal that is of high motivational priority to the person in question. For example, if a person feels acutely deprived of excitement in her relationship, she will be especially likely to experience attraction toward a romantic alternative who is exciting. The instrumentality perspective can also shed light on why people sometimes engage in extrarerelationship behaviors that cause them acute guilt and distress moments later, once the motivational priority of the goal or goals that contributed to those behaviors have been attained by enacting those behaviors.

Other examples of how the instrumentality perspective can link disparate literatures together abound. For example, as noted previously, the instrumentality perspective can help to integrate the massive literature on stereotyping and prejudice with the interpersonal attraction literature (also see Graziano, Bruce, Sheese, & Tobin, 2007). Scholars have long suggested, for example, that people tend to experience diminished liking toward members of ethnic or racial groups whom



people perceive to be undermining their pursuit of an important goal, such as competing with them for employment opportunities.

Second, in contrast to the traditional conceptualization of the link between reward and interpersonal attraction, the link between instrumentality and interpersonal attraction is not monotonic. For example, if a given person requires 10 units of social connection to sate a current belonging need then the association of a target's instrumentality for the person's belonging goal with attraction should be monotonically, albeit nonlinearly, positive from 0 to 9 units. However, that association should be flat or even negative upon hitting the 10<sup>th</sup> unit and progressing behind it. At that point, the person will become less attracted to others who promote social connection and more attracted to others who are instrumental for whichever needs have increased in motivational priority in the wake of the satiation of the belonging need.

Third, people are likely to experience greater interpersonal attraction toward a stranger to the degree that he or she is instrumental for goals for which members of their current social network are not instrumental. For example, when one's current social network does not adequately meet one's need for emotional intimacy (or for cognitive consistency, academic achievement, and so forth), one is likely to be especially attracted to others with the potential to meet that need.

Fourth, as discussed previously, the instrumentality principle has the potential to bring substantial explanatory power to the scholarly understanding of the fickleness of interpersonal attraction. As people's motivational priorities change—over the course of years, days, or even seconds—their attraction to others who are more effective at helping them achieve some goals rather than others will change, too (see Fitzsimons & Fishbach, 2010). Interpersonal attraction scholars could fruitfully incorporate some of the major recent advances scholars of self-regulation have made in recent years to understand the nature of motivational fluctuation over time (e.g., Louro, Pieters, & Zeelenberg, 2007).

Fifth, our application of the instrumentality principle has assumed that people's goals emerge and fluctuate independently of their attraction to a given target, but abundant research over the past decade shows that social processes exert powerful influences on people's self-regulation (see Finkel & Fitzsimons, 2011; Fitzsimons & Finkel, 2010). In other words, targets of attraction might not only influence how people pursue their goals, but also the setting of such goals in the first place. As such, an important direction for future research is to examine the ways in which targets of interpersonal attraction alter people's goals (e.g., triggering the novel goal to learn Japanese), and the ways in which these effects alter the attraction that people experience both toward members of their current social network and toward strangers they will meet going forward.

### **Conclusion**

Scholars have explicitly or implicitly adopted one or more of three overarching perspectives to understand interpersonal attraction: domain-general reward perspectives, domain-specific evolutionary perspectives, and attachment perspectives. At their core, all three of these perspectives are dependent upon understanding the needs people bring to attraction contexts. In light of this observation, we suggest that the key unifying principle underlying the interpersonal attraction literature is instrumentality—people are attracted to others to the degree that those others help them achieve the goals that are currently high in motivational priority. Linking the attraction literature to the goal-pursuit literature unleashes a torrent of immediately accessible directions for future research. Our hope is that that the theoretical contributions of the present chapter—both the theoretical structure for reviewing the extant literature and the novel emphasis on instrumentality—will serve as an important step toward the theoretical integration of the interpersonal attraction literature.

## References

- Aharon, I., Etcoff, N., Ariely, D., Chabris, C. F., O'Connor, E., & Breiter, H. C. (2001). Beautiful faces have variable reward value: fMRI and behavioral evidence. *Neuron*, *32*, 537-551.
- Ainsworth, M. D. S., Blehar, M., Waters, E., & Wall, S. (1978). *Patterns of attachment*. Hillsdale, NJ: Erlbaum.
- Andersen, S.M., Reznik, I., & Manzella, L.M. (1996). Eliciting facial affect, motivation, and expectancies in transference: Significant-other representations in social relations. *Journal of Personality and Social Psychology*, *71*, 1108-1129.
- Anderson, U. S., Perea, E. F., Becker, D. V., Ackerman, J. M., Shapiro, J. R., Neuberg, S. L., et al. (2010). I only have eyes for you: Ovulation redirects attention (but not memory) to attractive men. *Journal of Experimental Social Psychology*, *46*, 804-808.
- Aron, A., Lewandowski, G. W. Jr., Mashek, & Aron, E. N. (in press). The self-expansion model of motivation and cognition in close relationships. In J. A. Simpson & L. Campbell (Eds.). (2012). *Oxford Handbook of Close Relationships*.
- Aron, A., Steele, J., Kashdan, T., & Perez, M. (2006). When similars do not attract: Tests of a prediction from the self-expansion model. *Personal Relationships*, *13*, 387-396.
- Aronson, E. (1969). Some antecedents of interpersonal attraction. In W. J. Arnold, & D. Levine (Eds.), *Nebraska symposium on motivation* (Vol. 17, pp. 143-173). Lincoln: University of Nebraska press.
- Aronson, E., & Cope, V. (1968). My enemy's enemy is my friend. *Journal of Personality and Social Psychology*, *8*, 8-12.
- Aronson, E., & Linder, D. (1965). Gain and loss of esteem as determinants of interpersonal attractiveness. *Journal of Experimental Social Psychology*, *1*, 156-172.
- Aronson, E., Willerman, B., & Floyd, J. (1966). The effect of a pratfall on increasing interpersonal attractiveness. *Psychonomic Science*, *4*, 227-228.
- Atkins, D. S., Baucom, D. H., & Jacobson, N. S. (2001). Understanding infidelity: Correlates in a national random sample. *Journal of Family Psychology*, *15*, 735-749.
- Atkinson, J. W. (1964). *An introduction to motivation*. Princeton, NJ: Van Nostrand.
- Back, M. D., Schmulke, S. C., & Egloff, B. (2008). Becoming friends by chance. *Psychological Science*, *19*, 439-440.
- Backman, C. W., & Secord, P. F. (1959). The effect of perceived liking on interpersonal attraction. *Human Relations*, *12*, 379-384.
- Balci, E., & Dunning, D. (2006). See what you want to see: Motivational influences on visual perception. *Journal of Personality and Social Psychology*, *91*, 612-625.

- Baldwin, M. W., Keelan, J. P. R., Fehr, B., Enns, V., & Koh-Rangarajoo, E. (1996). Social-cognitive conceptualization of attachment working models: Availability and accessibility effects. *Journal of Personality and Social Psychology*, *71*, 94-109.
- Barrett, H. C., & Kurzban, R. (2006). Modularity in cognition: Framing the debate. *Psychological Review*, *113*, 628-647.
- Bargh, J. A. (1990). Auto-motives: Preconscious determinants of social interaction. In E. T. Higgins & R. M. Sorrentino (Eds.), *Handbook of motivation and cognition* (Vol. 2, pp. 93 – 130). New York: Guilford Press.
- Bargh, J. A., Bond, R. N., Lombardi, W. J., & Tota, M. E. (1986). The additive nature of chronic and temporary sources of construct accessibility. *Journal of Personality and Social Psychology*, *50*, 869-878.
- Bargh, J. A., Gollwitzer, P. M., Lee-Chai, A., Barndollar, K., & Trötschel, R. (2001). The automated will: Unconscious activation and pursuit of behavioral goals. *Journal of Personality and Social Psychology*, *81*, 1004 – 1027.
- Bargh, J. A., Gollwitzer, P. M., & Oettingen, G. (2010). Motivation. In S. Fiske, D. T. Gilbert, & G. Lindzey (Eds.), *Handbook of social psychology* (5th ed., pp. 268-316). New York: Wiley.
- Bartz, J. A., & Lydon, J. E. (2006). Navigating the interdependence dilemma: Attachment goals and the use of communal norms with potential close others. *Journal of Personality and Social Psychology*, *91*, 77-96.
- Baumeister, R. F., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin*, *117*, 497-529.
- Belsky, J., Steinberg, L., & Draper, P. (1991). Childhood experience, interpersonal development, and reproductive strategy: An evolutionary theory of socialization. *Child Development*, *62*, 647-670.
- Berscheid, E. (1985). Interpersonal attraction. In G. Lindzey & E. Aronson (Eds.), *Handbook of social psychology* (3<sup>rd</sup> ed., pp. 413-484). New York: Random House.
- Berscheid, E., & Ammazzalorso, H. (2001). *Emotional experience in close relationships*. In M. Hewstone & M. Brewer (Eds.), *Blackwell handbook of social psychology: Vol. 2. Interpersonal processes* (pp. 308–330). Oxford, England: Blackwell.
- Berscheid, E., & Regan, P. (2005). *The psychology of interpersonal relationships*. New York: Prentice-Hall.
- Bowlby, J. (1969). *Attachment and loss: Vol. 1. Attachment*. New York: Basic Books.
- Bowlby, J. (1973). *Attachment and loss, Vol. 2: Separation*. New York: Basic Books.
- Bradbury, T. N., & Karney, B. R. (2010). *Intimate relationships*. New York: W. W. Norton.
- Brendl, C. M., Markman, A. B., & Messner, C. (2003). The devaluation effect: Activating a need devalues unrelated choice options. *Journal of Consumer Research*, *29*, 463–473.

- Brennan, K. A., Clark, C. L., & Shaver, P. R. (1998). Self-report measurement of adult attachment: An integrative overview. In J. A. Simpson & W. S. Rholes (Eds.), *Attachment theory and close relationships* (pp. 46-76). New York: Guilford Press.
- Brennan, K. A., & Shaver, P. R. (1995). Dimensions of adult attachment, affect regulation, and romantic relationship functioning. *Personality and Social Psychology Bulletin, 21*, 267-283.
- Brumbaugh, C. C., & Fraley, R. C. (2006). Transference and attachment: How do attachment patterns get carried forward from one relationship to the next? *Personality and Social Psychology Bulletin, 32*, 552 - 560.
- Bruner, J. S., & Goodman, C. C. (1947). Value and need as organizing factors in perception. *Journal of Abnormal and Social Psychology, 42*, 33-44.
- Buss, D. M. (1985). Human mate selection. *American Scientist, 73*, 47-51.
- Buss, D. M. (1988). The evolution of human intrasexual competition: Tactics of mate attraction. *Journal of Personality and Social Psychology, 54*, 616-628.
- Buss, D. M. (1989). Sex differences in human mate preferences: Evolutionary hypotheses tested in 37 cultures. *Behavioral and Brain Sciences, 12*, 1-49.
- Buss, D. M. (1992). Mate preference mechanisms: Consequences for partner choice and intrasexual competition. In J. H. Barkow, L. Cosmides, & J. Tooby (Eds.), *The adapted mind: Evolutionary psychology and the generation of culture* (pp. 249-266). New York: Oxford University Press.
- Buss, D. M., & Barnes, M. L. (1986). Preferences in human mate selection. *Journal of Personality and Social Psychology, 50*, 559-570.
- Buss, D. M., Haselton, M. G., Shackelford, T. K., Bleske, A. L., & Wakefield, J. C. (1998). Adaptations, exaptations, and spandrels. *American Psychologist, 53*, 533-548.
- Buss, D. M., & Reeve, H. K. (2003). Evolutionary psychology and developmental dynamics: Comment on Lickliter and Honeycutt (2003). *Psychological Bulletin, 129*, 848-853.
- Buss, D. M., & Schmitt, D. P. (1993). Sexual strategies theory: An evolutionary perspective on human mating. *Psychological Review, 100*, 204-232.
- Buss, D. M., & Shackelford, T. K. (2008). Attractive women want it all: Good genes, economic investment, parenting proclivities, and emotional commitment. *Evolutionary Psychology, 6*, 134-146.
- Byrne, D. (1961). Interpersonal attraction and attitude similarity. *Journal of Abnormal and Social Psychology, 62*, 713-715.
- Byrne, D. (1971). *The attraction paradigm*. New York: Academic Press.
- Campbell, L., Simpson, J. A., Boldry, J., & Kashy, D. A. (2005). Perceptions of conflict and support in romantic relationships: The role of attachment anxiety. *Journal of Personality and Social Psychology, 88*, 510-531.

- Carver, C. S., & Scheier, M. F. (1998). *On the self - regulation of behavior*. Cambridge, England: Cambridge University Press.
- Chappell, K. D., and Davis, K. E. (1998). Attachment, partner choice, and perception of romantic partners: An experimental test of the attachment-security hypothesis. *Personal Relationships*, 3, 117–136.
- Clark, M. S. (1984). Record keeping in two types of relationships. *Journal of Personality and Social Psychology*, 47, 549-557.
- Clark, M. S., & Mills, J. (1979). Interpersonal attraction in exchange and communal relationships. *Journal of Personality and Social Psychology*, 37, 12-24.
- Clark, R. D., & Hatfield, E. (1989). Gender differences in receptivity to sexual offers. *Journal of Psychology and Human Sexuality*, 2, 39-55.
- Clore, G. L., & Byrne, D. (1974). The reinforcement-affect model of attraction. In T. L. Huston (Ed.), *Foundations of interpersonal attraction* (pp. 143-170). New York: Academic Press.
- Cloutier, J., Heatherton, T. F., Whalen, P. J., & Kelley, W. M. (2008). Are attractive people rewarding? Sex differences in the neural substrates of facial attractiveness. *Journal of Cognitive Neuroscience*, 20, 941-951.
- Collins, N. L., & Miller, L. C. (1994). Self-disclosure and liking: A meta-analytic review. *Psychological Bulletin*, 116, 457-575.
- Conley, T. D. (2011). Perceived proposer personality characteristics and gender differences in acceptance of casual sex offers. *Journal of Personality and Social Psychology*, 100, 309-329.
- Converse, B. A., & Fishbach, A. (in press). Instrumentality boosts appreciation: Helpers are more appreciated while they are useful. *Psychological Science*.
- Cosmides, L. (1989). *Deduction or Darwinian algorithms? An explanation of the "elusive" content effect on the Wason selection task*. Unpublished doctoral dissertation, Harvard University.
- Cosmides, L. (1989). The logic of social exchange: Has natural selection shaped how humans reason? Studies with the Wason selection task. *Cognition*, 31, 187-276.
- Darwin, C. (1859). *On the origin of species by means of natural selection*. London: J. Murray.
- Deaux, K. (1972). To err is humanizing: But sex makes a difference. *Representative Research in Social Psychology*, 3, 20-28.
- DeWall, C. N., Baumeister, R. F., & Vohs, K. D. (2008). Satiated with belongingness? Effects of acceptance, rejection, and task framing on self-regulatory performance. *Journal of Personality and Social Psychology*, 95, 1367-1382.
- Diamond, L. M., Hicks, A. M., & Otter-Henderson, K. D. (2008). Every time you go away: Changes in affect, behavior, and physiology associated with travel-related separations from romantic partners. *Journal of Personality and Social Psychology*, 95, 385-403.

- Eagly, A. H., & Wood, W. (1999). The origins of sex differences in human behavior: Evolved dispositions versus social roles. *American Psychologist, 54*, 408-423.
- Eastwick, P. W. (2009). Beyond the Pleistocene: Using phylogeny and constraint to inform the evolutionary psychology of human mating. *Psychological Bulletin, 135*, 794-821.
- Eastwick, P. W., Eagly, A. H., Finkel, E. J., & Johnson, S. E. (2011). Implicit and explicit preferences for physical attractiveness in a romantic partner: A double dissociation in predictive validity. *Journal of Personality and Social Psychology, 101*, 993-1011.
- Eastwick, P. W., & Finkel, E. J. (2008a). Sex differences in mate preferences revisited: Do people know what they initially desire in a romantic partner? *Journal of Personality and Social Psychology, 94*, 245-264.
- Eastwick, P. W., & Finkel, E. J. (2008b). The attachment system in fledgling relationships: An activating role for attachment anxiety. *Journal of Personality and Social Psychology, 95*, 628-647.
- Eastwick, P. W., & Finkel, E. J. (2009). Reciprocity of liking. In H. T. Reis & S. Sprecher (Eds.), *Encyclopedia of human relations* (pp. 1333-1336). Thousand Oaks, CA: Sage.
- Eastwick, P. W., & Finkel, E. J. (2012). The evolutionary armistice: Attachment bonds moderate the function of ovulatory cycle adaptations. *Personality and Social Psychology Bulletin, 38*, 174-184.
- Eastwick, P. W., Finkel, E. J., & Eagly, A. H. (2011). When and why do ideal partner preferences affect the processes of initiating and maintaining romantic relationships? *Journal of Personality and Social Psychology, 101*, 1012-1032.
- Eastwick, P. W., Finkel, E. J., Mochon, D., & Ariely, D. (2007). Selective versus unselective romantic desire: Not all reciprocity is created equal. *Psychological Science, 18*, 317-319.
- Ebbeson, E. B., Kjos, G. L., & Konečni, V. J. (1976). Spatial ecology: Its effects on the choice of friends and enemies. *Journal of Experimental Social Psychology, 12*, 505-518.
- Emmons, R. A. (1986). Personal strivings: An approach to personality and subjective well-being. *Journal of Personality and Social Psychology, 51*, 1058-1068.
- Fagundes, C. P., & Schindler, I. (in press). Making of romantic attachment bonds: Longitudinal trajectories and implications for relationship stability. *Personal Relationships*.
- Feeney, B. C. (2004). A secure base: Responsive support of goal strivings and exploration in adult intimate relationships. *Journal of Personality and Social Psychology, 87*, 631-648.
- Feeney, B. C., Cassidy, J., & Ramos-Marcuse, F. (2008). The generalization of attachment representations to new social situations: Predicting behavior during initial interactions with strangers. *Journal of Personality and Social Psychology, 95*, 1481-1498.
- Feeney, J. A., Noller, P., & Patty, J. (1993). Adolescents' interactions with the opposite sex: Influence of attachment style and gender. *Journal of Adolescence, 16*, 169-186.

- Feingold, A. (1990). Gender differences in effects of physical attractiveness on romantic attraction: A comparison across five research paradigms. *Journal of Personality and Social Psychology*, *59*, 981–993.
- Feingold, A. (1992). Gender differences in mate selection preferences: A test of the parental investment model. *Psychological Bulletin*, *112*, 125-139.
- Ferguson, M. J., & Bargh, J. A. (2004). Liking is for doing: The effect of goal pursuit on automatically activated attitudes. *Journal of Personality and Social Psychology*, *87*, 557–572.
- Festinger, L., Schachter, S., & Back, K. (1950). *Social pressures in informal groups: A study of human factors in housing*. Stanford, CA: Stanford University Press.
- Finkel, E. J., & Baumeister, R. F. (2010). Attraction and rejection. In R. F. Baumeister & E. J. Finkel (Eds.), *Advanced social psychology: The state of the science* (pp. 419-459). New York: Oxford University Press.
- Finkel, E. J., & Eastwick, P. W. (2008). Speed-dating. *Current Directions in Psychological Science*, *17*, 193-197.
- Finkel, E. J., & Eastwick, P. W. (2009a). Arbitrary social norms and sex differences in romantic selectivity. *Psychological Science*, *20*, 1290-1295.
- Finkel, E. J., & Eastwick, P. W. (2009b). Hard-to-get phenomenon. In H. T. Reis & S. Sprecher (Eds.), *Encyclopedia of human relations* (pp. 788-790). Thousand Oaks, CA: Sage.
- Finkel, E. J., & Fitzsimons, G. M. (2011). The effects of social relationships on self-regulation. In K. D. Vohs, & R. F. Baumeister (Eds.), *Handbook of self-regulation: Research, theory, and applications* (2<sup>nd</sup> ed., pp. 390-406). New York: Guilford Press.
- Finkel, E. J., Molden, D. C., Johnson, S. E., & Eastwick, P. W. (2009). Regulatory focus and romantic alternatives. In J. P. Forgas, R. F. Baumeister, & D. M. Tice (Eds.), *Self-regulation: Cognitive, affective, and motivational processes* (pp. 319-335). New York: Psychology Press.
- Finkel, E. J., & Slotter, E. B. (2007). An attachment theory perspective on the perpetration of intimate partner violence. *DePaul Law Review*, *56*, 895-907.
- Fitzsimons, G. M., & Finkel, E. J. (2010). Interpersonal influences on self-regulation. *Current Directions in Psychological Science*, *19*, 101-105.
- Fitzsimons, G. M., & Fishbach, A. (2010). Shifting closeness: Interpersonal effects of personal goal progress. *Journal of Personality and Social Psychology*, *98*, 535-549.
- Fitzsimons, G. M., & Shah, J. (2008). How goal instrumentality shapes relationship evaluations. *Journal of Personality and Social Psychology*, *95*, 319–337.
- Fletcher, G. J. O., Simpson, J. A., Thomas, G., & Giles, L. (1999). Ideals in intimate relationships. *Journal of Personality and Social Psychology*, *76*, 72–89.
- Förster, J., Liberman, N., & Friedman, R. S. (2007). Seven principles of goal activation: A systematic approach to distinguishing goal priming from priming of non-goal constructs. *Personality and Social Psychology Review*, *11*, 211-233.



- Fraley, R. C., & Davis, K. E. (1997). Attachment formation and transfer in young adults' close friendships and romantic relationships. 1997. *Personal Relationships*, 4, 131-144.
- Fraley, R. C., Niedenthal, P. M., Marks, M. J., Brumbaugh, C. C., & Vicary, A. (2006). Adult attachment and the perception of emotional expressions: Probing the hyperactivating strategies underlying anxious attachment. *Journal of Personality*, 74, 1163-1190.
- Frazier, P.A., Byer, A. L., Fischer, A. R., Wright, D. M., & Debord, K. A. (1996). Adult attachment style and partner choice: Correlational and experimental findings. *Personal Relationships*, 3, 117-136.
- Freud, S. (1912/1958). The dynamics of transference. In J. Strachey (Ed. and trans.), *The standard edition of the complete psychological works of Sigmund Freud* (Vol. 12, pp. 97-108). London: Hogarth Press.
- Freud, S. (1920/1952). *A general introduction to psychoanalysis*. New York: Washington Square Press.
- Gangestad, S. W., Garver-Apgar, C. E., Simpson, J. A., & Cousins, A. J. (2007). Changes in women's mate preferences across the ovulatory cycle. *Journal of Personality and Social Psychology*, 92, 151-163.
- Gangestad, S. W., & Simpson, J. A. (2000). The evolution of human mating: Trade-offs and strategic pluralism. *Behavioral and Brain Sciences*, 23, 573-644.
- Gangestad, S. W., Simpson, J. A., Cousins, A. J., Garver-Apgar, C. E., & Christensen, P. (2004). Women's preferences for male behavioral displays change across the menstrual cycle. *Psychological Science*, 15, 203-206.
- Gangestad, S. W., & Thornhill, R. (1997). The evolutionary psychology of extrapair sex: The role of fluctuating asymmetry. *Evolution and Human Behavior*, 18, 69-88.
- Gangestad, S. W., & Thornhill, R. (1998). Menstrual cycle variation in women's preference for the scent of symmetrical men. *Proceedings of the Royal Society of London, Series B*, 265, 927-933.
- Gangestad, S. W., Thornhill, R., & Garver-Apgar, C. E. (2005). Adaptations to ovulation: Implications for sexual and social behavior. *Current Directions in Psychological Science*, 14, 312-316.
- Gordon, R. A. (1996). Impact of ingratiation on judgments and evaluations: A meta-analytic investigation. *Journal of Personality and Social Psychology*, 71, 54-70.
- Graziano, W. G., Bruce, J. W., Sheese, B. E. & Tobin, R. M. (2007). Attraction, personality and prejudice: Liking none of the people most of the time. *Journal of Personality and Social Psychology*, 93, 565-582.
- Griffitt, W. (1970). Environmental effects on interpersonal affective behavior: Ambient effective temperature and attraction. *Journal of Personality and Social Psychology*, 15, 240-244.

- Griffitt, W., & Veitch, R. (1971). Hot and crowded: Influences of population density and temperature on interpersonal affective behavior. *Journal of Personality and Social Psychology*, *17*, 92-98.
- Gouaux, C. (1971). Induced affective states and interpersonal attraction. *Journal of Personality and Social Psychology*, *20*, 37-43.
- Gray, J. A. (1982). *The neuropsychology of anxiety: An enquiry into the functions of the septo-hippocampal system*. New York: Oxford University Press.
- Harlow, H. F. (1958). The nature of love. *American Psychologist*, *13*, 573-685.
- Haselton, M. G., & Gangestad, S. W. (2006). Conditional expression of women's desires and men's mate guarding across the ovulatory cycle. *Hormones and Behavior*, *49*, 509-518.
- Havlicek, J., Roberts, S. C., & Flegr, J. (2005). Women's preference for dominant male odour: Effects of menstrual cycle and relationship status. *Biology Letters*, *1*, 256-259.
- Hazan, C., & Diamond, L. M. (2000). The place of attachment in human mating. *Review of General Psychology*, *4*, 186-204.
- Hazan, C., & Zeifman, D. (1994). Sex and the psychological tether. *Advances in Personal Relationships*, *5*, 151-177.
- Heider, F. (1958). *The psychology of interpersonal relations*. New York: Wiley.
- Herbst, K. C., Gaertner, L., & Insko, C. A. (2003). My head says yes but my heart says no: Cognitive and affective attraction as a function of similarity to the ideal self. *Journal of Personality and Social Psychology*, *84*, 1206-1219.
- Hill, R. (1945). Campus values in mate-selection. *Journal of Home Economics*, *37*, 554-558.
- Holmes, B. M., & Johnson, K. R. (2009). Adult attachment and romantic partner preference: A review. *Journal of Social and Personal Relationships*, *26*, 833-852.
- Homans, G. C. (1961). *Social behavior: Its elementary forms*. New York: Harcourt, Brace, and World.
- Johnson, D. J., & Rusbult, C. E. (1989). Resisting temptation: Devaluation of alternative partners as a means of maintaining commitment in close relationships. *Journal of Personality and Social Psychology*, *57*, 967-980.
- Jones, B. C., DeBruine, L. M., Perrett, D. I., Little, A. C., Feinberg, D. R., & Law Smith, M. J. (2008). Effects of menstrual cycle phase on face preferences. *Archives of Sexual Behavior*, *37*, 78-84.
- Kellerman, J., Lewis, J., & Laird, J. D. (1989). Looking and loving: The effects of mutual gaze on feelings of romantic love. *Journal of Research in Personality*, *23*, 145-161.
- Kelley, H. H. (1979). *Personal relationships: Their structure and processes*. Hillsdale, NJ: Erlbaum.

- Kelley, H. H., Berscheid, E., Christensen, A., Harvey, J. H., Huston, T. L., Levinger, G., McClintock, E., Peplau, L. A., & Peterson, D. R. (1983). *Close relationships*. New York: Freeman.
- Kenrick, D. T., & Gutierrez, S. E. (1980). Contrast effects and judgments of physical attractiveness: When beauty becomes a social problem. *Journal of Personality and Social Psychology*, *38*, 131-140.
- Kenrick, D. T., Groth, G. E., Trost, M. R., & Sadalla, E. K. (1993). Integrating evolutionary and social exchange perspectives on relationships: Effects of gender, self-appraisal, and involvement level on mate selection criteria. *Journal of Personality and Social Psychology*, *64*, 951-969.
- Kenrick, D. T., Gutierrez, S. E., & Goldberg, L. L. (1989). Influence of popular erotica on judgments of strangers and mates. *Journal of Experimental Social Psychology*, *25*, 159-167.
- Klohn, E. C., & Luo, S. (2003). Interpersonal attraction and personality: What is attractive—self similarity, ideal similarity, complementarity or attachment security? *Journal of Personality and Social Psychology*, *85*, 709-722.
- Kruglanski, A. W., Shah, J. Y., Fishbach, A., Friedman, R., Chun, W. Y., & Sleeth-Keppler, D. (2002). A theory of goal systems. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (pp. 331–378). San Diego, CA: Academic Press.
- Kumashiro, M., Rusbult, C. E., & Finkel, E. J. (2008). Navigating personal and relational concerns: The quest for equilibrium. *Journal of Personality and Social Psychology*, *95*, 94-110.
- Langlois, J. H., Kalakanis, L., Rubenstein, A. J., Larson A., Hallam, M., & Smoot, M. (2000). Maxims or myths of beauty? A meta-analytic and theoretical review. *Psychological Bulletin*, *126*, 390-423.
- Langlois, J. H., Roggman, L. A., Casey, R. J., Ritter, J. M., Rieser-Danner, L. A., & Jenkins. V. Y. (1987). Infant preferences for attractive faces: Rudiments of a stereotype? *Developmental Psychology*, *23*, 363-369.
- Latty-Mann, H., & Davis, K. E. (1996). Attachment theory and partner choice: Preference and actuality. *Journal of Social and Personality Relationships*, *13*, 5-23.
- Leary, M. R., & Baumeister, R. F. (2000). The nature and function of self-esteem: Sociometer theory. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 32, pp. 1-62). San Diego, CA: Academic Press.
- Leary, T. (1957). *Interpersonal diagnosis of personality: A functional theory and methodology for personality evaluation*. Oxford, England: Ronald Press.
- Lee, L., Loewenstein, G., Ariely, D., Hong, J., & Young, J. (2008). If I'm not hot, are you hot or not: Physical attractiveness evaluation and dating preferences as a function of one's own attractiveness. *Psychological Science*, *19*, 669-677.

- Lemay, E. P., Jr. & Clark, M. S. (2008). How the head liberates the heart: Projection of communal responsiveness guides relationship promotion. *Journal of Personality and Social Psychology*, *94*, 647-671.
- Levinger, G., & Snoek, J. D. (1972). *Attraction in relationship: A new look at interpersonal attraction*. New York: General Learning Press.
- Lewin, K. (1935). *A dynamic theory of personality*. New York: McGraw-Hill.
- Lott, B. E., & Lott, A. J. (1960). The formation of positive attitudes toward group members. *Journal of Abnormal and Social Psychology*, *61*, 297-300.
- Lott, B. E., & Lott, A. J. (1974). The role of reward in the formulation of positive interpersonal attitudes. In T. L. Huston (Ed.), *Foundations of interpersonal attraction* (p. 171-192). New York: Academic Press.
- Louro, M. J., Pieters, R., & Zeelenberg, M. (2007). Dynamics of multiple-goal pursuit. *Journal of Personality and Social Psychology*, *93*, 174-193.
- Lydon, J. E., Fitzsimons, G. M., & Naidoo, L. (2003). Devaluation versus enhancement of attractive alternatives: A critical test using the calibration paradigm. *Personality and Social Psychology Bulletin*, *29*, 349-359.
- Lydon, J. E., Meana, M., Sepinwall, D., Richards, N., & Mayman, S. (1999). The commitment calibration hypothesis: When do people devalue attractive alternatives? *Personality and Social Psychology Bulletin*, *25*, 152-161.
- Maner, J. K., Gailliot, M. T., & Miller, S. L. (2009). The implicit cognition of relationship maintenance: Inattention to attractive alternatives. *Journal of Experimental Social Psychology*, *45*, 174-179.
- Maner, J. K., Gailliot, M. T., Rouby, D. A., & Miller, S. L. (2007). Can't take my eyes off you: Attentional adhesion to mates and rivals. *Journal of Personality and Social Psychology*, *93*, 389-401.
- Maner, J. K., Kenrick, D. T., Becker, D., Delton, A. W., Hofer, B., Wilbur, C. J., et al. (2003). Sexually selective cognition: Beauty captures the mind of the beholder. *Journal of Personality and Social Psychology*, *85*, 1107-1120.
- Maner, J. K., Rouby, D. A., & Gonzaga, G. C. (2008). Automatic inattention to attractive alternatives: The evolved psychology of relationship maintenance. *Evolution and Human Behavior*, *29*, 343-349.
- Maslow, A. H. (1943). A theory of human motivation, *Psychological Review*, *50*, 370-396.
- May, J. L., & Hamilton, P. A. (1980). Effects of musically evoked affect on women's interpersonal attraction toward and perceptual judgments of physical attractiveness of men. *Motivation and Emotion*, *4*, 217-228.

- McClure, M. J., Lydon, J. E., Baccus, J. R., & Baldwin, M. W. (2010). A signal detection analysis of chronic attachment anxiety at speed dating: Being unpopular is the only first part of the problem. *Personality and Social Psychology Bulletin*, *36*, 1024-1036.
- McCrae R. R., & Costa P. T. (1989). The structure of interpersonal traits: Wiggins's circumplex and the five-factor model. *Journal of Personality and Social Psychology*, *56*, 586-595.
- Mikulincer, M., & Nachshon, O. (1991). Attachment styles and patterns of self-disclosure. *Journal of Personality and Social Psychology*, *61*, 321-332.
- Mikulincer, M., & Shaver, P. R. (2007). *Attachment in adulthood: Structure, dynamics, and change*. New York: Guilford Press.
- Mikulincer, M., Shaver, P. R., & Slav, K. (2006). Attachment, mental representations of others, and gratitude and forgiveness in romantic relationships. In M. Mikulincer & G. S. Goodman (Eds.), *Dynamics of romantic love: Attachment, caregiving, and sex* (pp. 190-215). New York: Guilford Press.
- Miller, G., Tybur, J. M., & Jordan, B. D. (2007). Ovulatory cycle effects on tip earnings by lap dancers: Economic evidence for human estrus? *Evolution and Human Behavior*, *28*, 375-381.
- Miller, R. S. (1997). Inattentive and contented: Relationship commitment and attention to alternatives. *Journal of Personality and Social Psychology*, *73*, 758-766.
- Miller, R. S. (2012). *Intimate relationships* (6<sup>th</sup> ed.). New York: McGraw-Hill.
- Miller, S. L., & Maner, J. K. (2010a). Evolution and relationship maintenance: Fertility cues lead committed men to devalue relationship alternatives. *Journal of Experimental Social Psychology*, *46*, 1081-1084.
- Miller, S. L., & Maner, J. K. (2010b). Scent of a woman: Men's testosterone responses to olfactory ovulation cues. *Psychological Science*, *21*, 276-283.
- Montoya, R. M. (2008). I'm hot, so I'd say you're not: The influence of objective physical attractiveness on mate selection. *Personality and Social Psychology Bulletin*, *34*, 1315-1331.
- Montoya, R. M., Horton, R. S., & Kirchner, J. (2008). Is actual similarity necessary for attraction? A meta-analysis of actual and perceived similarity. *Journal of Social and Personal Relationships*, *25*, 889-922.
- Moreland, R. L., & Beach, S. R. (1992). Exposure effects in the classroom: The development of affinity among students. *Journal of Experimental Social Psychology*, *28*, 255-276.
- Morry, M. M., Kito, M. I. E., & Ortiz, L. (2011). The attraction-similarity model and dating couples: Projection, perceived similarity, and psychological benefits. *Personal Relationships*, *18*, 125-143.
- Newcomb, T. M. (1956). The prediction of interpersonal attraction. *American Psychologist*, *11*, 575-586.
- Newcomb, T. M. (1961). *The acquaintance process*. New York: Holt, Rinehart, and Winston.

- O'Doherty, J., Winston, J., Critchley, H., Perrett, D., Burt, D. M., & Dolan, R. J. (2003). Beauty in a smile: The role of medial orbitofrontal cortex in facial attractiveness. *Neuropsychologia*, *41*, 147–155.
- Pérusse, D. (1993). Cultural and reproductive success in industrial societies: Testing the relationship at the proximate and ultimate levels. *Behavioral and Brain Sciences*, *16*, 267-322.
- Pietromonaco, P. R., & Carnelley, K. B. (1994). Gender and working models of attachment: Consequences for perceptions of self and romantic relationships. *Personal Relationships*, *1*, 63-82.
- Pipitone, R. N., & Gallup, G. G. (2008). Women's voice attractiveness varies across the menstrual cycle. *Evolution and Human Behavior*, *29*, 268-274.
- Puts, D. A. (2005). Mating context and menstrual phase affect women's preferences for male voice pitch. *Evolution and Human Behavior*, *26*, 388-397.
- Prentice, D. A., & Carranza, E. (2002). What women and men should be, shouldn't be, are allowed to be, and don't have to be: The contents of prescriptive gender stereotypes. *Psychology of Women Quarterly*, *26*, 269-281.
- Reber, R., Winkielman, P., & Schwarz, N. (1998). Effects of perceptual fluency on affective judgments. *Psychological Science*, *9*, 45–48.
- Reis, H. T., Maniaci, M. R., Caprariello, P. A., Eastwick, P. W., & Finkel, E. J. (2011a). Familiarity does indeed lead to attraction in live interaction. *Journal of Personality and Social Psychology*, *557-570*.
- Reis, H. T., Maniaci, M. R., Caprariello, P. A., Eastwick, P. W., & Finkel, E. J. (2011b). In live interaction, does familiarity promote attraction or contempt? A reply to Norton, Frost, and Ariely (2011). *Journal of Personality and Social Psychology*, *575-578*.
- Rofé, Y. (1984). Stress and affiliation: A utility theory. *Psychological Review*, *91*, 235-250.
- Sbarra, D. A., & Hazan, C. (2008). Coregulation, dysregulation, self-regulation: An integrative analysis and empirical agenda for understanding adult attachment, separation, loss, and recovery. *Personality and Social Psychology Review*, *12*, 141-167.
- Schachner, D. A., & Shaver, P. R. (2002). Attachment style and human mate poaching. *New Review of Social Psychology*, *1*, 122–129.
- Schachner, D. A., & Shaver, P. R. (2004). Attachment dimensions and sexual motives. *Personal Relationships*, *11*, 179-195.
- Schachter, S. (1959). *The psychology of affiliation: Experimental studies of the sources of gregariousness*. Stanford, CA: Stanford University Press.
- Schmitt, D. P., Alcalay, L., Allensworth, M., Allik, J., Ault, L., Austers, I., et al. (2003). Universal sex differences in the desire for sexual variety: Tests from 52 nations, 6 continents, and 13 islands. *Journal of Personality and Social Psychology*, *85*, 85-104.

- Schmitt, D. P., Alcalay, L., Allensworth, M., Allik, J., Ault, L., Austers, I., et al. (2005). Sociosexuality from Argentina to Zimbabwe: A 48-nation study of sex, culture, and the strategies of human mating. *Behavioral and Brain Sciences*, *28*, 247-311.
- Schwarz, S., Mustafić, M., Hassebrauck, M., & Jörg, J. (2011). Short-and long-term relationship orientation and 2d:4d finger-length ratio. *Archives of Sexual Behavior*, *40*, 1-10.
- Seeley, E. A., & Gardner, W. L. (2006). Succeeding at self-control through a focus on others: The roles of social practice and accountability in self-regulation. In K. D. Vohs & E. J. Finkel (Eds.), *Self and relationships: Connecting intrapersonal and interpersonal processes* (pp. 407–425). New York: Guilford Press.
- Segal, M. W. (1974). Alphabet and attraction: An unobtrusive measure of the effect of propinquity in a field setting. *Journal of Personality and Social Psychology*, *30*, 654–657.
- Shaver, P. R., & Klinnert, M. (1982). Schachter's theories of affiliation and emotion: Implications of developmental research. In L. Wheeler (Ed.), *Review of personality and social psychology* (Vol. 3, pp. 37-72). Beverly Hills, CA: Sage.
- Simpson, J. A., Gangestad, S. W., & Lerma, M. (1990). Perceptions of physical attractiveness: Mechanisms involved in the maintenance of romantic relationships. *Journal of Personality and Social Psychology*, *59*, 1192-1201.
- Simpson, J. A., & Harris, B. A. (1994). Interpersonal attraction. In A. L. Weber & J. H. Harvey (Eds.), *Perspectives on close relationships* (pp. 45-66). Boston: Allyn & Bacon.
- Simpson, J. A., Rholes, W. S., & Phillips, D. (1996). Conflict in close relationships: An attachment perspective. *Journal of Personality and Social Psychology*, *71*, 899-914.
- Simpson, J. A., Rholes, W. S., & Nelligan, J. S. (1992). Support seeking and support giving within couples in an anxiety-provoking situation: The role of attachment styles. *Journal of Personality and Social Psychology*, *62*, 434-446.
- Slater, A., Von der Schulenburg, C., Brown, E., Badenoch, M., Butterworth, G., Parsons, S., & Samuels, C. (1998). Newborn infants prefer attractive faces. *Infant Behavior and Development*, *21*, 345-354.
- Sprecher, S., & Regan, P. C. (2002). Liking some things (in some people) more than others: Partner preferences in romantic relationships and friendships. *Journal of Social and Personal Relationships*, *19*, 463-481.
- Sprecher, S., Sullivan, Q., & Hatfield, E. (1994). Mate selection preferences: Gender differences examined in a national sample. *Journal of Personality and Social Psychology*, *66*, 1074-1080.
- Swann, W. B., Jr. (1983). Self-verification: Bringing social reality into harmony with the self. In J. Suls & A. G. Greenwald (Eds.), *Social psychological perspectives on the self* (Vol. 2, pp. 33-66). Hillsdale, NJ: Erlbaum.
- Symons, D. (1979). *The evolution of human sexuality*. New York: Oxford University Press.

- Tesser, A. (2000). Confluence of self-esteem regulation mechanisms: On integrating the self-zoo. *Personality and Social Psychology Review*, *26*, 1476-1489.
- Thorndike, E. L. (1935). *The psychology, of wants, interests, and attitudes*. New York: Appleton-Century-Crofts.
- Thibaut, J. W., & Kelley, H. H. (1959). *The social psychology of groups*. New York: Wiley.
- Thornhill, R., & Gangestad, S. W. (1994). Human fluctuating asymmetry and sexual behavior. *Psychological Science*, *5*, 297-302.
- Thornhill, R., & Gangestad, S. W. (1999). The scent of symmetry: A human sex pheromone that signals fitness? *Evolution and Human Behavior*, *20*, 175-201.
- Thornhill, R., Gangestad, S. W., Miller, R., Scheyd, G., McCollough, J. K., & Franklin, M. (2003). Major histocompatibility complex genes, symmetry, and body scent attractiveness in men and women. *Behavioral Ecology*, *14*, 668-678.
- Tidwell, N. D., Eastwick, P. W., & Finkel, E. J. (in press). Perceived, not actual, similarity predicts initial attraction in a live romantic context: Evidence from the speed-dating paradigm. *Personal Relationships*.
- Tooby, J., & Cosmides, L. (1992). The psychological foundations of culture. In J. H. Barkow, L. Cosmides & J. Tooby (Eds.), *The adapted mind: Evolutionary psychology and the generation of culture* (pp. 19-136). New York: Oxford University Press.
- Townsend, J. M., & Wasserman, T. (1998). Sexual attractiveness: Sex differences in assessment and criteria. *Evolution and Human Behavior*, *19*, 171-191.
- Trivers, R. L. (1972). Parental investment and sexual selection. In B. G. Campbell (Ed.), *Sexual selection and the descent of man, 1871-1971* (pp. 136-179). Chicago, IL: Aldine.
- Veitch, R., & Griffitt, W. (1976). Good news-bad news: Affective and interpersonal effects. *Journal of Applied Social Psychology*, *6*, 69-75.
- Vonk, R. (2002). Self-serving interpretations of flattery: Why ingratiation works. *Journal of Personality and Social Psychology*, *82*, 515-526.
- Vorauer, J. D., Cameron, J. J., Holmes, J. G., Pearce, D. G. (2003). Invisible overtures: Fears of rejection and the signal amplification bias. *Journal of Personality and Social Psychology*, *84*, 793-812.
- Walster, E. (1971). Passionate love. In B. L. Murstein (Ed.), *Theories of attraction and love* (pp. 85-99). New York: Springer.
- Walster, E., Aronson, V., Abrahams, D., & Rottmann, L. (1966). Importance of physical attractiveness in dating behavior. *Journal of Personality and Social Psychology*, *4*, 508-516.
- Walster, E., Walster, G. W., Piliavin, J., & Schmidt, L. (1973). "Playing hard to get": Understanding an elusive phenomenon. *Journal of Personality and Social Psychology*, *26*, 113-121.



- Wiggins, J. S. (1979). A psychological taxonomy of trait-descriptive terms: The interpersonal domain. *Journal of Personality and Social Psychology*, *33*, 409–420.
- Williams, L. E., & Bargh, J. A. (2008). Experiencing physical warmth promotes interpersonal warmth. *Science*, *322*, 606-607.
- Wilson, E. O. (1975). *Sociobiology: The new synthesis*. Cambridge, MA: Harvard University Press.
- Wilson, E. O. (1979). *On human nature*. Cambridge, MA: Harvard University Press.
- Wood, W., & Eagly, A. H. (2002). A cross-cultural analysis of the behavior of women and men: Implications for the origins of sex differences. *Psychological Bulletin*, *128*, 699-727.
- Zajonc, R. B. (1968). Attitudinal effects of mere exposure. *Journal of Personality and Social Psychology*, *9*, 1–27.
- Zajonc, R. B. (2001). Mere exposure: A gateway to the subliminal. *Current Directions in Psychological Science*, *10*, 224-228.