

Cultural Influences on Attraction

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Abstract

This chapter reviews extant research and theory on culture and romantic attraction. After describing the methods that researchers frequently use to study cultural processes, the chapter covers the major topic areas in the attraction and mating literature that have received cross-cultural attention. These topics are passionate love and partner choice (e.g., arranged vs. love marriages), the system of marriage (e.g., polygyny vs. monogamy), appropriate sexual behavior (e.g., sexual attitudes, mate poaching), mate preferences (e.g., physical attractiveness, age differences), standards of attractiveness (e.g., weight, waist-to-hip ratio), the principles of attraction (e.g., familiarity, similarity), and adult attachment styles (e.g., anxious vs. avoidant). Next, the chapter reviews the two major meta-theoretical perspectives on culture—transmitted and evoked culture—highlighting the unique contributions of each meta-theory in predicting cross-cultural phenomena and the different, sometimes incompatible mechanisms implied by the two perspectives. Finally, the chapter presents the new Psychological Model of Transmitted and Evoked Cultural Change, a model that depicts a possible integration of the two meta-theories. This model draws attention to the psychological mechanisms by which humans invent, alter, evaluate, and adopt discrete units of culture and should aid researchers in developing precise explanations for cross-cultural differences that account for humans' complete evolutionary heritage.

Key Words: attraction, evoked culture, transmitted culture, sex, mating, evolution, love

Cultural Influences on Attraction

Consider this scene: With a drink in your hand, you find yourself chatting with a charming stranger. Although you had been hanging out with your friends just a few moments earlier, they have given you some space to talk to your new companion one on one about your shared love of travel and the Independent Film Channel. The conversation continues to go well, and by the end of the evening, the two of you have made plans to go see a local band perform tomorrow night. Just a few steps out the door, you send a text saying how you can't wait to hang out tomorrow.

Now imagine that you are attending a social event at a local mosque. At this event, there are a

number of other single men and women, but you know that it would be inappropriate to approach a member of the opposite sex and interact one on one. Instead, you spend some time talking with a few of the parents. One father asks you about your career plans and family background and wonders whether or not you plan to settle down in this country. After impressing him, he suggests that you give him a call to arrange a time for you to come and meet the whole family—including your prospective spouse.

Most individuals who have been raised in a secular, Western culture are likely to find the former attraction script to be far more familiar (and probably far more appealing) than the latter. Yet there are millions of individuals living in North America

who are more comfortable when the relationship initiation process involves substantial parental input, and worldwide, it is more common than not for a marital relationship to entail some form of parental involvement. These examples illustrate cultural influences on attraction and relationship initiation processes. Indeed, *Homo sapiens* vary considerably in their preferences for and approach to mating relationships, and this variability can often be explained by appealing to culture as an explanatory framework.

In this chapter, I define *culture* as information—usually consisting of attitudes, values, beliefs, practices, and knowledge—that members of a social group share, incorporate into the self-concept, and use to guide their behavior (Mead, 1934). Following Richerson and Boyd (2005), I refer to the discrete units of information that constitute culture as *cultural variants* (similar to *memes*; Dawkins, 1976). Often, scholars use the term culture to refer to distinct, identifiable populations, but cultural processes can also operate on a smaller scale: For example, a small group of individuals might endorse a set of specific cultural variants, and individual people frequently modify existing cultural variants and transmit those variants to other receptive minds. In essence, culture can meaningfully describe variability at the level of the population as well as behavior exhibited by individuals within a social context (Heine, 2010).

This chapter is organized into four sections. In the first section, I introduce the methods that psychologists typically use to study cultural variability, cultural change, and the process of transmitting cultural variants from one mind to another. In the second section, I review previous studies on culture and attraction, most of which have identified variability across cultures in the attraction and relationship initiation process. Because no theoretical framework is yet capable of organizing all of these findings, they will be reviewed topic by topic (e.g., sexual attitudes, mate preferences, attachment styles). In the third section, I describe current theoretical perspectives on culture, specifically noting the meta-theoretical distinction between evoked and transmitted culture. Although evoked and transmitted culture are conceptually distinct and have both successfully predicted cross-cultural phenomena, at present it is difficult for researchers to cleanly distinguish evoked from transmitted explanations for the existence of a particular source of cultural variability. Thus, in the fourth and final section, I propose a model that differentiates evoked from transmitted

cultural *mechanisms* toward the goal of strengthening scholars' understanding of cultural influences on mating and attraction.

Methods Used to Study Culture

How can researchers document the effects of culture? There are three broad strategies: Document differences across populations, document changes over time in a single population, or document how cultural variants are passed from one mind to another.

Differences across Populations

The most common method that researchers use to study cultural influences on attraction is to identify differences across populations in attraction-relevant constructs or the relationship initiation process. Some studies document differences across two cultures that differ a priori on a relevant dimension (e.g., independence and interdependence; You & Malley-Morrison, 2000), whereas others engage in ambitious investigations across multiple cultures simultaneously (e.g., Buss, 1989). In the cross-cultural literature writ large, it is more common for researchers to compare two cultures than to examine multiple cultures at once (Norenzayan & Heine, 2005). However, as will become evident in the review below, the cross-cultural literature on attraction is replete with impressive examples of multiple-culture investigations (e.g., Buss, 1989; Levine, Sato, Hashimoto, & Verma, 1995; Marlowe, 2003; Schmitt et al., 2005).

Norenzayan and Heine (2005) provide a useful taxonomy for scholars to consider as they attempt to identify cross-cultural universals and differences. With respect to a particular psychological feature, cultures can reveal differences in accessibility, function, and existence. Differences in *accessibility* are relatively easy to document; when participants in two or more cultures differ in the extent to which they endorse a particular attitude or differ in the frequency with which they perform a behavior, researchers can claim a cultural difference in accessibility. An example of a difference in accessibility is that people are more likely to believe that love is a prerequisite for marriage in Western industrialized nations than in Eastern nations (Levine et al., 1995). Differences in *function* are illustrated by demonstrations that a particular psychological variable predicts different outcomes depending on one's cultural group membership. One classic example of this phenomenon in the cross-cultural literature is that failure feedback leads Western participants

to self-enhance but may lead Asian participants to self-improve (Heine et al., 2001). Considering racial groups as a proxy for culture, one functional difference within the attraction domain is that political conservatism predicts that white participants will be attracted to a member of their racial ingroup but that black participants will be attracted to a member of a racial outgroup (Eastwick, Richeson, Finkel, & Son, 2009). Finally, differences in *existence* indicate that a psychological construct simply is not present among any members of a culture. This type of difference requires a large burden of proof, and cultural differences in existence may only emerge in the attraction domain when a culture imposes severe consequences for engaging in the particular practice. One candidate for such a difference in existence is the practice of polygamy: Although many cultures worldwide do permit polygamy (Murdock, 1967), it is against the law in the contemporary United States, so it is possible that the practice of polygamy is effectively nonexistent in mainstream Western contexts (outside of specific religious subcultures that endorse it).

Differences across Time

Although the paradigmatic cross-cultural study involves the comparison of at least two different cultures at a single point in time, cultural change can also occur within the context of a single population over time. For example, even the classic subjects of psychological study—American college students—do not evidence the same attitudes and beliefs about romantic relationships today as they did 50 years ago. For example, between the middle and late 20th century, college students increased in their importance ratings of love and mutual attraction in an ideal romantic partner and decreased the importance placed on chastity (Buss, Shackelford, Kirkpatrick, & Larsen, 2001; Simpson, Campbell, & Berscheid, 1986). Other examples of cultural change over time can be identified by studying the assimilation of immigrant or other minority groups: Researchers might attempt to document how sexual attitudes or behaviors within a minority population change as members of that group have more contact with a majority culture (e.g., Ford & Norris, 1993; Hussey et al., 2007). In addition, individuals change over time as they are idiosyncratically exposed to different ideas and cultural practices. Some scholars have examined this idea using computer models to simulate how men's and women's sexual strategies might shift as they encounter individuals who possess different attitudes about sex (Kenrick, Li, &

Butner, 2003). Indeed, some recent data suggest that sexual behavior changes as people are exposed to a collegiate environment that promotes different values and standards regarding appropriate sexual behavior (e.g., Patrick & Lee, 2010; Patrick, Maggs, & Abar, 2007).

Intentional Transmission of Cultural Variants

Given that cultural variants are often passed from one mind to another, culture can also be studied using interventions or other experimental manipulations of the social transmission process. That is, researchers can examine how people's attitudes, beliefs, and behaviors change in the moment that they are exposed to different cultural variants. For example, public officials frequently wish to change the behavior of a segment of the population (e.g., increase condom use, decrease sexual aggression). To achieve these goals, they will implement programs that are designed to persuade and inform people of the costs and benefits of engaging in particular behaviors and holding particular beliefs. Many facets of the attraction and relationship initiation process are amenable to interventions, with evidence suggesting that such intervention programs are effective at decreasing the frequency of unprotected sex (Mullen, Ramirez, Strouse, Hedges, & Sogolow, 2002) and reducing acceptance of rape myths (L. A. Anderson & Whiston, 2005). Yet other beliefs and behaviors may be relatively impervious to intervention, such as the practice of abstinence (Silva, 2002). Finally, cultural transmission can also take place as people are subtly exposed to different cultural variants: Examples include studies of media influence in which participants encounter different standards for beauty and adopt these standards when evaluating the attractiveness of average members of the opposite sex (Kenrick & Gutierrez, 1980) and their own romantic partners (Kenrick, Gutierrez, & Goldberg, 1989). A controversial example of possible media influence is whether exposure to pornography causes men to become more sexually aggressive (Seto, Maric, & Barbaree, 2001). Although intervention and media influence studies are rarely framed as studies of culture, they do address the process of cultural transmission whereby cultural variants are passed between minds.

Key Findings on Culture and Attraction

Only a few decades ago, the vast majority of cross-cultural studies related to attraction were conducted by anthropologists (Rosenblatt, 1974). Many

of these impressive works continue to be widely cited (e.g., Eibl-Eibesfeldt, 1989; Murdock & White, 1969), and anthropological studies have tremendous potential to inform psychological theories and hypotheses (Eastwick, 2009). Nevertheless, psychological scholars who study attraction and relationship initiation processes have become especially proficient at adapting their methods for cross-cultural study in recent decades. Below, I review some of the major topics in the cross-cultural literature on attraction, emphasizing both psychological and anthropological contributions.

Passionate Love and Partner Choice

One of the first attraction-related topics to receive cross-cultural research attention was the extent to which people have personal freedom to choose their spouse (e.g., Rosenblatt & Cozby, 1972). In many Western societies, it is common for two people to choose to marry each other without first obtaining approval from parents or other extended family. In societies like the United States where individualistic values are emphasized, people frequently fulfill their own personal needs for intimacy and companionship through romantic relationships, and families function as a support system for the individual (Bradbury & Karney, 2010). However, freedom of choice in selecting a spouse may be limited in cultures characterized by collectivistic values that emphasize duty to the ingroup instead of the pursuit of personal goals (Triandis, 1989), especially when the selection of a spouse has implications for the social standing and stability of the broader family unit (Goode, 1959). Arranged marriages account for these familial considerations by permitting parents to play a large role in both selecting and approving mates for their children. Indeed, arranged marriages are common in some areas of China, India, Japan, and the Middle East, and in many nonindustrial societies where interdependence among family members is strong (De Munck, 1996; Hatfield & Rapson, 2006; Jankowiak, 1995). Arranged marriages do not require that two people be forced to marry each other; individuals considering an arranged marriage often retain a substantial amount of input into their choice of partner. The major difference between arranged marriages and typical Western love marriages is that the wishes and needs of the broader family unit play a substantial role in an arranged marriage and affect the relationship formation process, perhaps before prospective spouses even meet each other.

Many individuals from Western societies likely find the concept of an arranged marriage to be uncomfortable because it is hard to reconcile such a deliberate, calculated partner selection process with the experience of passionate love that typically accompanies romantic relationships. But passionate love still exists in cultures in which arranged marriages are common; in fact, passionate love has been documented worldwide in nearly every culture studied to date (Jankowiak & Fisher, 1992). Rather, cultures have different narratives about the character and experience of passionate love: For example, people tend to emphasize the positive emotional components of passion in the United States and the negative emotional components in China (Shaver, Wu, & Schwartz, 1991). Perhaps because of these different narratives, a cross-cultural difference emerges such that people in the West believe that love and passion are appropriate considerations when selecting a marriage partner, but people from societies where arranged marriages are common are less likely to hold this belief. This finding was documented in a study that surveyed individuals across eleven cultures and asked them whether they would be willing to marry someone they did not love but who had all the qualities they desired in a partner (Levine et al., 1995). Very few participants in the United States (3.5 percent) endorsed this belief, but approximately 50 percent of participants in India and Pakistan did so. The researchers also found that the extent to which a nation was characterized as individualistic versus collectivistic was associated with endorsement of the belief that love is a prerequisite in initiating a marriage. The prevalence of this belief has changed over time in the contemporary United States as well: In 1967, a large percentage of men (24 percent) and women (72 percent) were “undecided” on this same item (Kephart, 1967), but by 1984, a full 85 percent of men and women reported that they would not marry without being in love with their future spouse (Simpson et al., 1986). These data suggest that the prioritization of individual needs and desires in the United States is associated with Americans’ tendency to view love as an important consideration in choosing a partner; this belief differs from those held by people in more interdependent societies and from those held by Americans only one or two generations ago.

Do arranged marriages fare better than love marriages? The evidence on this front is somewhat mixed. Two studies of Chinese marriages found that those who had chosen their own spouse reported greater marital satisfaction than those who had

an arranged marriage (Jin & Xu, 2006; Xiaohe & Whyte, 1990), and similar results emerged in a sample of Turkish marriages (Demir & Fisiloglu, 1999). Yet studies in India have revealed the opposite pattern of findings, with participants in arranged marriages reporting greater marital satisfaction than those in freely chosen marriages (Kumar & Dhyani, 1996; Yelsma & Athappilly, 1988). Furthermore, differences in satisfaction may be moderated by the length of the marriage: Spouses in arranged marriages may not experience the same declines in satisfaction over time that characterize the typical love marriage (Gupta & Singh, 1982). Although controlled experimental studies are unlikely to be feasible in this domain, additional cross-cultural research could fruitfully tease apart the conditions under which people in arranged versus love marriages experience different relational outcomes.

System of Marriage and the Sex Ratio

The system of marriage practiced in most contemporary industrialized nations is *monogamy*, which means that each person is permitted to marry one person at a given time. Because divorce and repartnering are also permitted in most of these same cultures, an alternative apt term might be *serial monogamy*, indicating that people can be married to one person at a given time but may be married to several people during their entire lifetime (H. E. Fisher, 1989). However, only a minority of cultures worldwide strictly enforce the practice of monogamy. Approximately 17 percent of cultures have a monogamous mating system in the Standard Cross Cultural Sample (SCCS), which is a sample of 186 cultures that range from small hunter-gatherer groups to postindustrial nation-states and that represent all regions of the world across a variety of time periods (Murdock, 1967; Murdock & White, 1969). In this same sample, *polyandry*, which is a marriage system whereby one woman can be married to multiple husbands, exists in only 1 percent of cultures (the Toda and the Marquesans). The remaining 82 percent of cultures practice some form of *polygyny*, which is a marriage system whereby one man can be married to multiple wives. Many of these cultures (about 50 percent of the SCCS) are characterized as “slightly” polygynous, indicating that fewer than 20 percent of the men have multiple wives (Low, 1988). The remaining cultures (about 30 percent of the SCCS) in which greater than 20 percent of the men have multiple wives are called “generally” polygynous (Marlowe, 2000). These data suggest that, despite the fact that polygyny is the dominant

mating system worldwide, most men and women actually experience monogamous marriage because it is very difficult for men to amass the resources needed to acquire and provide for multiple wives.

To explain why cultures develop a particular mating system, scholars turn to other aspects of the culture and the local ecology. The belief in “partible paternity” that exists in some South American societies illustrates how particular cultural variants can affect the mating system: In these cultures, the belief that all men who have sex with a woman during her pregnancy share the biological fatherhood of the child results in a polyandrous system (Beckerman et al., 1998). The ecology and mode of subsistence (e.g., hunting-gathering vs. agriculture) also shape the system of marriage. In cultures in which pathogen stress is severe (e.g., parasites, infectious diseases), a form of polygyny may emerge that favors healthy males with a strong ability to resist pathogens (Ember, Ember, & Low, 2007; Low, 1990; Marlowe, 2003).

In addition, when there is great variability in the extent to which males can accrue wealth and status, polygyny is more likely to emerge, and those men who can acquire significant resources are the ones likely to have multiple wives (Barber, 2008; Marlowe, 2000). This association between variability in wealth and extent of polygyny can be explained in part by the polygyny threshold model (Orians, 1969), which predicts that a given woman can achieve better reproductive success as a second wife rather than a first wife if the resources of the already-married man are considerably greater than the unmarried man. In addition, monogamy is more common (and polygyny less common) to the extent that men contribute to their offspring in terms of provisioning and direct paternal investment (Marlowe, 2000, 2003). Taken together, these findings suggest that monogamy is especially likely to emerge in cultures in which (1) male provisioning is important for the reproductive success of offspring, and (2) the extent of this provisioning varies little across men. These two conditions are more likely to describe foragers who do not practice agriculture or animal husbandry (i.e., hunter-gatherers) than groups characterized by agricultural economies, which tend to exhibit social stratification and hierarchies of dominance (Knauff, 1991; Marlowe, 2000). Despite the prevalence of social stratification in contemporary industrialized nation-states, most of these modern cultures have made the transition to “socially imposed monogamy” (Alexander, 1979), a term that refers to the use of legal sanctions

to enforce a monogamous mating system; such a system tends to emerge in the wake of democratic movements that force wealthy individuals to share power (MacDonald, 1995).

Polygyny is also more likely to emerge to the extent that reproductively available men are relatively scarce in a population (i.e., a low operational sex ratio), and monogamy is more likely to emerge when women are relatively scarce (i.e., a high operational sex ratio). To the extent that one sex is scarcer than the other in the population, that sex possesses greater relative bargaining power in the sexual marketplace (Guttentag & Secord, 1983). This association has been demonstrated in the SCCS using male mortality due to warfare as a proxy for a low sex ratio: When warfare is common, polygyny is more likely to emerge (Ember et al., 2007). The operational sex ratio also predicts sexual mores and behaviors across cultures that technically have a monogamous marriage system. That is, when women are more numerous than men, men are less willing to commit to romantic relationships and favor short-term sexual liaisons—a sort of informal polygyny. Alternatively, when women are in short supply, men are more willing to invest in a committed relationship. This association between the operational sex ratio and people's orientation to serious versus casual romantic relationships has been demonstrated in historical comparisons (e.g., Athens vs. Sparta; Guttentag & Secord, 1983) and across time periods in the United States (Guttentag & Secord, 1983; Pedersen, 1991). A consistent pattern also emerges across major U.S. metropolitan areas such that young men are more likely to be married to the extent that women are scarce in a particular city (Kruger & Schlemmer, 2009). The fact that the operational sex ratio influences both the official system of marriage cross-culturally and the relative commitment level required to initiate a sexual relationship suggests that the sex that is less numerous in the population has greater power in the sexual marketplace.

Appropriate Sexual Behavior

In 2011, Brandon Davies was suspended from the Brigham Young University men's basketball team for admitting to having premarital sex, an act that is strictly forbidden at BYU. Had Mr. Davies decided to play basketball for a different university, it seems likely that he would have encountered other young men who enjoy having premarital sex on a regular basis without the threat of such a punishment. If Mr. Davies felt unjustly punished for his actions, he

might feel better knowing that it could have been much worse: Repeated premarital sex “offenders” are subject to the death penalty in Iran. In short, the behaviors that constitute appropriate sexual behavior vary across cultures, and people must learn to negotiate the costs and benefits of engaging in particular sexual behaviors in order to be a successful member of a cultural group. The cross-cultural variability in the definition of appropriate sexual behavior can manifest as differences in beliefs and values across cultures, and at times, these beliefs and values can be enshrined in particular rules or laws. Although many of the differences highlighted below show considerable within-culture variability, these between-cultural differences are likely to be maintained as people encounter other members of their cultural groups and receive feedback on the beliefs and attitudes that are more or less acceptable.

SEXUAL ATTITUDES

People in the United States hold somewhat conservative attitudes about sex relative to many other countries. In fact, one recent survey found that people in the United States were more disapproving of sex before marriage, sex before age 16, extramarital sex, and gay and lesbian sex than people in several other industrialized nations, including Canada, Germany, Great Britain, Japan, and Russia (Widmer, Treas, & Newcomb, 1998). This study also found that attitudes toward teen sex and gay and lesbian sex strongly differentiated countries from one another; that is, people in some countries tended to be highly approving of these kinds of sex, whereas people in other countries tended to generally disapprove. These attitudes have also changed over time within the United States: For example, because of increases in education and secularism over time, attitudes toward gay and lesbian sex have tended to become more accepting (Treas, 2002). Furthermore, these same forces may maintain regional differences in sexual attitudes within the United States. For example, people living in New England and on the West Coast tend to hold permissive or recreational attitudes toward sexuality, whereas people living in the South tend to hold relatively conservative attitudes (Laumann, Gagnon, Michael, & Michaels, 1994). Indeed, education and secularism tend to be higher in these more permissive areas than in the more conservative areas of the United States. Finally, religions can serve as subcultures that emphasize different norms for appropriate sexual behavior: Religious people are less likely than nonreligious individuals to engage in premarital sex

(Laumann et al., 1994) as well as a wide variety of other sexual acts (e.g., oral sex, mutual masturbation; Mahoney, 1980), and people who view religiosity as a worthy goal are less likely to engage in casual sex and desire fewer sexual partners in general (Rowatt & Schmitt, 2003).

Attitudes toward sexuality and engaging in particular sexual behaviors also change as people are exposed to different subcultures that have different norms about appropriate sexuality. One classic study found that teenagers influence each other's sexual behavior: Specifically, white women whose best friends were nonvirgins were more likely to lose their virginity over a 2-year period than were white women whose best friends were virgins (Billy & Udry, 1985). Consistent with models of cultural transmission (Richerson & Boyd, 2005), this peer influence could take place through a combination of observational modeling and explicit discussions of normative standards for appropriate sexual behavior (see also Collins et al., 2004). Recent studies using rigorous controls have suggested that these influence effects are unlikely to be due entirely to cohort effects or other possible third-variable confounds (Jaccard, Blanton, & Dodge, 2005). The transition to college also exposes young individuals to different norms for appropriate sexual behavior, and their own sexual decisions may change accordingly. For example, those students who relaxed their beliefs about the immorality of casual sex between the summer before and March of their first year of college were more likely to lose their virginity during this time frame (Patrick & Lee, 2010). Finally, some studies have documented the power of explicit normative standards regarding casual sex when those standards are shared among friends: For example, relative to those who made no pacts over spring break, female friends who made a pact to have sex were more likely to do so, and female friends who made a pact *not* to have sex were less likely to do so (Maticka-Tyndale, Herold, & Mewhinney, 1998).

SOCIOSEXUALITY

Sociosexuality refers the tendency or willingness to have sex outside of a committed relationship (Kinsey, Pomeroy, & Martin, 1948; Kinsey, Pomeroy, Martin, & Gebhard, 1953; Simpson & Gangestad, 1991). Thus, the concept of sociosexuality subsumes many of the sexual attitudes discussed above, such as the willingness to have extramarital sex or sex outside of marriage. Popular measures of sociosexuality also include assessments of the frequency of sexual fantasy as well number of

desired and actual sex partners (Penke & Asendorpf, 2008; Simpson & Gangestad, 1991). People who score high on measures of sociosexuality (i.e., an unrestricted orientation) tend to have more sex partners, fantasize about sex more frequently, and have positive attitudes toward casual sex, whereas restricted individuals exhibit the opposite pattern of responding. Given the relevance of sociosexuality to the theoretical distinction between short-term and long-term mating in the evolutionary psychological literature (e.g., Gangestad & Simpson, 2000), it has received considerable research attention in the past several decades.

The most expansive cross-cultural study of sociosexuality was conducted by Schmitt and colleagues (2005) as part of the International Sexuality Description Project. These scholars translated the Simpson and Gangestad (1991) sociosexuality scale into twenty-five languages and assessed men's and women's responses to this scale in forty-eight nations. Several nation-level predictors of sociosexuality emerged. For example, people tended to report greater levels of sociosexuality in nations characterized by a low sex ratio (i.e., more women than men), consistent with the "informal polygyny" findings noted above (Pedersen, 1991). Strategic pluralism theory (Gangestad & Simpson, 2000) predicts that monogamous biparental partnerships become more important for successful reproduction in harsh environments, and the Schmitt et al. (2005) data indeed revealed that sociosexuality tended to be lower in environments that were developmentally taxing (e.g., low birth weight, high infant mortality). Subsequent reanalyses of the Schmitt et al. (2005) data also found that sociosexuality tended to be lower in areas of the world with high rates of infectious disease, another form of environmental harshness that may foster a cautious interpersonal style (Schaller & Murray, 2008). Finally, consistent sex differences emerged across nations such that men reported greater sociosexuality than women; furthermore, the size of this sex difference varied predictably across cultures. As predicted by social role theories of sex differences (Eagly, Wood, & Diekmann, 2000; Wood & Eagly, 2002), the size of the sex difference in sociosexuality tended to be smaller in nations where women had greater economic and political power.

In summary, the worldwide prevalence of unrestricted versus restricted sociosexual orientations appears to be sensibly related to various aspects of the local ecology as well as the relative power of the sexes. Because sociosexuality has typically been

conceptualized as a personality variable or a stable individual difference (e.g., Schaller & Murray, 2008), there is little research that has examined how and why a person's sociosexuality might change over time as they are exposed to different norms, values, or subcultures (see Penke & Asendorpf, 2008, for a fictional portrayal of this possibility). Given that sociosexuality incorporates an attitudinal component, research on sociosexuality change using methods that have documented changes over time in other sexual attitudes (e.g., Patrick & Lee, 2010) could be especially illuminating.

MATE POACHING

Also as part of the International Sexuality Description Project, Schmitt and colleagues (2004b) documented cultural differences in the prevalence of mate poaching—that is, attempting to attract someone who is already involved in a romantic relationship. Across fifty-three nations, results revealed that people were more likely to successfully poach and succumb to mate poaching attempts for a short-term relationship to the extent that they inhabited a nation with a higher gross domestic product. In other words, participants from relatively poor regions of the world were less likely to engage in a sexual relationship with someone other than their current partner, consistent with the association between environmental harshness and reduced sociosexuality noted above (Schmitt et al., 2005). Also, poaching rates for either a long-term or short-term relationship were negatively associated with the sex ratio: Poaching attempts were more common when men were scarce, suggesting that relationships tend to be less stable when men have greater relative sexual bargaining power (Guttentag & Secord, 1983; Pedersen, 1991). Finally, as predicted by social role theories of sex differences (Eagly & Wood, 1999; Wood & Eagly, 2002), the sex difference in the likelihood of mate poaching—an activity typically initiated by men more than women—was smaller in regions of the world where women had greater access to resources.

SEXUAL SCRIPTS

Social scripting theory suggests that people use internalized scripts to assess the meaning of others' behavior and to guide their own responses to social situations and, furthermore, that people have elaborate scripts that pertain to the sexual domain (Gagnon & Simon, 1973). These sexual scripts prescribe normative sexual behavior and are presumably learned through experience with the

practices, narratives, and laws of a given culture (Wiederman, 2005). For example, there is substantial consensus among college-aged men and women about the coital sequence whereby kissing leads to subsequent sexual foreplay, which leads to sexual intercourse (Geer & Broussard, 1990), and this script appears to have incorporated more oral sex over the course of the 20th century (Gagnon & Simon, 1987). Researchers have also identified other socially shared sexual scripts, such as those surrounding first dates (Rose & Frieze, 1993) as well as relationship dissolution (Battaglia, Richard, Datteri, & Lord, 1998). Furthermore, the script that is applied to a particular scenario can affect people's psychological responses to it: One study found that people were more aroused to pornographic films when the male and female protagonists were described as just having met at a dance (i.e., a casual sex theme) than when they were described as a married couple or as a prostitute and client (W. A. Fisher & Byrne, 1978).

Although the theoretical perspective underlying the study of sexual scripts relies heavily on cultural influence and transmission processes (Gagnon & Simon, 2005; Simon & Gagnon, 1986), most of the empirical research in this tradition has yet to encompass a truly cross-cultural perspective. Surely, cultural differences in sexual scripts exist (e.g., Gagnon & Simon, 2005), but these examples are mainly illustrative and do not involve the systematic examinations of several cultures within a single empirical study. However, some recent research has documented differences in sexual scripts between subcultures in the United States. For example, the sexual scripts of Greek men (i.e., fraternity members) were more likely than those of non-Greek men to include sexual activity as part of a "typical date" (Bartoli & Clark, 2006), and men from a military academy were less likely than men from a public university to generate scripts for a "date rape" scenario suggesting that the man was at fault (Carroll & Clark, 2006). Future studies that document sexual script similarities and differences across cultural groups would help to integrate sexual script research with the rest of the literature on culture and attraction.

Mate Preferences

Buss's (1989) seminal study examined the extent to which people valued particular traits in an ideal romantic partner across thirty-seven cultures. Although Buss (1989) focused mainly on sex differences in the desire for particular qualities, the

more extensive Buss et al. (1990) report described in greater detail how people's mate preferences varied across these cultures. Buss et al. (1990) found substantial cultural variability for most of the mate preferences that he examined; for example, large differences across cultures emerged for "traditional" mate preferences (e.g., chastity, good cook and housekeeper, desire for home and children), which tended to be valued less in Western cultures (e.g., United States, Canada, Western Europe) than in other parts of the world. In addition, the preference for physical attractiveness tended to be higher in Western societies, perhaps owing to the substantial mass media influences in these cultures (e.g., Kenrick et al., 1989; see Gangestad, Haselton, & Buss, 2006). Finally, inspired by Low's (1990) examinations of pathogen stress and the prevalence of polygyny, reanalyses of Buss's data on thirty-seven cultures found that people tended to emphasize physical attractiveness, good health, intelligence, and status in a romantic partner in countries where parasites were common (Gangestad & Buss, 1993; Gangestad et al., 2006).

Many of the sex differences in mate preferences documented by Buss (1989) shift predictably across cultures as well. Kasser and Sharma (1999) found that the preference for ambition and financial prospects in a partner, which is typically stronger for women, exhibited smaller sex differences in countries where women had greater reproductive freedom and educational equality. That is, the sexes' preferences for a resourceful partner were especially discrepant in cultures in which men held considerably greater power over women. Eagly and Wood (1999) documented a similar finding using the Gender Empowerment Measure and Gender-Related Development Index as nation-level indicators of gender equality. The Gender Empowerment Measure assesses women's relative share of income, professional positions, and parliamentary seats, and the Gender-Related Development Index assesses the extent to which women have access to health care and education. Both of these indicators correlated with the sex difference in the preference for earning prospects such that greater gender equality was associated with smaller sex differences in this preference. In addition, the sex difference in the preference for (1) a partner who is good cook and housekeeper and (2) a partner who is younger versus older was less pronounced to the extent that women experienced greater equality according to these two indicators. Thus, in nations where men and women inhabit similar roles and have similar access to resources, their preferences

for these qualities in an ideal romantic partner also become more similar.

What Is Attractive?

As the above data attest, the preference for physical attractiveness in an ideal romantic partner varies predictably across cultures. In addition, the way that physical attractiveness is defined also exhibits significant variability; that is, factors such as weight and waist-to-hip ratio predict attractiveness judgments differently depending on one's culture. Regarding the weight-attractiveness association, an examination of the SCCS found that heavier women were considered more attractive in cultures in which the food supply was unreliable and food storage technology was underdeveloped (J. L. Anderson, Crawford, Nadeau, & Lindberg, 1992). Because body fat serves an important function in supporting pregnancy and lactation (Brown & Konner, 1987), heavier women would be more likely than thin women to successfully reproduce in these unreliable environments according to the environmental security hypothesis (Pettijohn & Jungeberg, 2004). This trend also emerges in studies in which respondents view line drawings and photographs of women of varying weights: For example, participants in Uganda, a relatively poor country, rated drawings of heavier women as more attractive than participants in Greece or the United Kingdom (Furnham, Moutafi, & Baguma, 2002; see also Tovee, Swami, Furnham, & Mangalparsad, 2006). The weight standard for women has also changed over time in the United States, as evidenced by the fact that *Playboy* playmates have tended to be heavier (Pettijohn & Jungeberg, 2004) and *Vogue* models have tended to be more curvaceous (Barber, 1998) during hard economic times. Furthermore, the Barber (1998) data also revealed that the female standard became more slender as women started to eschew traditional child caretaker and homemaker roles and entered the workforce, perhaps because a slender body type better conveys competence and occupational success. Finally, different racial groups within the United States adhere to different standards of feminine beauty. Because obesity is less stigmatized in black subcultures, black men and women consider heavy women to be more attractive than whites do (Cunningham, Roberts, Barbee, Druen, & Wu, 1995; Hebl & Heatherton, 1998).

A related feature that has received considerable cross-cultural attention is preferred waist-to-hip ratio in women. Singh's pioneering research on this topic (Singh, 1993a, 1993b) demonstrated

that men and women find a waist-to-hip ratio of approximately 0.7 to be especially attractive. Data on *Playboy* playmates and Miss America contest winners also suggested that this standard has remained relatively stable over time, even while the standard for weight was decreasing (Singh, 1993a). Initial cross-cultural examinations suggested that this waist-to-hip ratio preference might not vary substantially across cultures (e.g., Singh & Luis, 1995); however, subsequent investigations have documented consistent cultural differences in this standard of attractiveness as well. For example, men from the relatively isolated Matsigenka indigenous population gave higher attractiveness ratings to line drawings of high (0.9) rather than moderate (0.7) waist-to-hip ratios, whereas a group of more Westernized Matsigenka men living outside of the reserve revealed the Western waist-to-hip ratio preference of 0.7 (Yu & Shepard, 1998). Similar results have emerged in comparisons of men in the United States and the Hadza foraging society (Marlowe & Wetsman, 2001). Using logic similar to that outlined above explaining variation in the weight preference, Marlowe and Wetsman (2001) suggested that a preference for a higher waist-to-hip ratio is pronounced in subsistence economies in which thin women are energetically stressed, whereas a preference for a lower waist-to-hip ratio is pronounced in developed nations where a surplus of food increases the prevalence of obesity and associated health risks.

Ratings of facial attractiveness have also been examined extensively across cultures, although the evidence to date suggests that the cultural variability in the preference for particular features is smaller than the preference for weight and waist-to-hip ratio. In other words, cultures reveal substantial agreement in the extent to which different faces are judged to be attractive or unattractive (Langlois et al., 2000). However, cultural differences for some specific facial features may exist despite substantial cross-cultural agreement: For example, although Asian, Hispanic, and white individuals find neotonomous features attractive in women (e.g., large eyes, small nose), Asian men find sexually mature features (e.g., large chin) to be less attractive than non-Asian men (Cunningham et al., 1995). In addition, although symmetry is typically associated with facial attractiveness judgments (Grammer & Thornhill, 1994), this association is stronger among the Hadza than among U.K. participants (Little, Apicella, & Marlowe, 2007). Finally, it is noteworthy that judgments of men's bodies have

received little cross-cultural research attention: Although men with broad shoulders and a muscular build typically receive high attractiveness ratings (Franzoi & Herzog, 1987; Frederick & Haselton, 2007), cross-cultural differences in this preference have not been examined extensively.

The Familiarity, Similarity, and Reciprocity Principles of Attraction

Literature reviews of attraction research are frequently organized by “principles” (Berscheid & Reis, 1998; Bradbury & Karney, 2010; Miller & Perlman, 2009), and three of the most thoroughly examined principles are familiarity, similarity, and reciprocity. Many studies have demonstrated that familiarity, similarity, and reciprocity predict greater attraction on average, with some caveats (e.g., Eastwick, Finkel, Mochon, & Ariely, 2007; Montoya, Horton, & Kirchner, 2008; Norton, Frost, & Ariely, 2007); these topics (along with physical attractiveness, as reviewed above) collectively form the foundation of attraction research over the past 40 years.

Despite the size of this literature, these three principles have received remarkably little cross-cultural attention. One exception was a study by Heine and Renshaw (2002) that examined associations between all three factors and liking among Japanese and American individuals who knew each other from small student groups at their respective universities. Data revealed that familiarity (e.g., frequency of interaction with each group member) was positively associated with liking, and this association was identical in the Japanese and American samples. However, the positive association between perceived similarity and liking was much stronger for Americans than for Japanese (see also Heine, Foster, & Spina, 2009), as was the reciprocity correlation (e.g., the extent to which two individuals tended to like each other).

These findings are broadly consistent with the large literature on cross-cultural differences in the self-concept (Heine, 2010; Markus & Kitayama, 1991). In general, Americans tend to be high in independence, which means that they derive their identity from inner attributes, whereas the Japanese tend to be high in interdependence, which means that they view themselves as having different roles and attributes depending on the social context. The results of the Heine and Renshaw (2002) study suggest that the familiarity–attraction principle may function consistently across cultures that vary in independence versus interdependence, but the similarity–attraction and reciprocity principles

may be more pronounced in independent than in interdependent cultures. These findings are consistent with favored theoretical explanations for the similarity–attraction and reciprocity effects: People tend to like similar and reciprocating others in part because these others will confirm one’s likable qualities and promote positive feelings about oneself (Bradbury & Karney, 2010; Byrne & Clore, 1970), and the motivation to feel good about the self is weaker among individuals in interdependent cultures (Heine, Lehman, Markus, & Kitayama, 1999). Additional cross-cultural research on these topics will be useful in supplementing the recent studies by Heine and colleagues.

Adult Romantic Attachment Styles

Bowlby (1969, 1973) developed attachment theory to explain the dynamics between infants and their caregivers, and this theory was later extended to adult romantic relationships (Hazan & Shaver, 1987). That is, the attachment–behavioral system, which generally functions to bond infants to caregivers among primates, was co-opted by natural selection to bond adult reproductive partners to each other (Eastwick, 2009; Hazan & Diamond, 2000). In the attachment tradition, a huge corpus of research has examined how individual differences in adult attachment styles (e.g., secure, anxious, avoidant) are related to functioning in romantic relationships (see also Chapter 4). Attachment in childhood has received increased cross-cultural research attention over the past decade (Van IJzendoorn & Sagi-Schwartz, 2008); here, we focus on the somewhat smaller literature on cross-cultural differences in adult attachment styles as applied to the domain of romantic relationships.

The best cross-cultural work on this topic again comes from the International Sexuality Description Project (Schmitt, 2008; Schmitt et al., 2003, 2004a). Across sixty-two cultures worldwide, Schmitt et al. (2004a) found that the secure attachment style (e.g., “I am comfortable depending on others and having others depend on me”) was endorsed by a majority of participants in most (79 percent) cultures. Consistent with variation in childhood attachment style across cultures, these data also revealed that individuals from South and East Asia and from more collectivist cultures were more likely to report an anxious attachment style (“I sometimes worry that others don’t value me as much as I value them”) than individuals from other regions of the world and from individualistic cultures (see also You & Malley-Morrison, 2000). In addition, life

history theory perspectives on attachment suggest that stressful environments result in less sensitive parenting behaviors, which in turn cause children to develop either an anxious or avoidant (e.g., “I am comfortable without close emotional relationships”) attachment style (Belsky, Steinberg, & Draper, 1991). Consistent with this logic, Schmitt and colleagues found that environmental harshness (e.g., low standard of living and gross domestic product) predicted the prevalence of anxious and avoidant attachment styles. Finally, some research has examined whether attachment styles predict different outcomes depending on culture. One recent investigation found that attachment avoidance, which emphasizes individual pursuits and independence from others, predicted relationship problems more strongly in Hong Kong (a collectivist culture) than the United States (an individualistic culture; Friedman et al., 2010). Although the attachment–behavioral system is likely to have relevance to romantic relationships across the world, the functioning of the attachment system is surely affected by a variety of cultural forces.

Theoretical Perspectives on Culture and Attraction

The prior section contained descriptions of a variety of different topics in the empirical literature on attraction and relationship initiation that have been subjected to cross-cultural study. Although the focus was mainly on description, explanation is also critical: Psychologists need strong theories of cultural differences, cultural change over time within a population, and cultural transmission between individual minds. Coherent explanatory theories of culture can aid scholars of attraction and mating in connecting their research with other social psychological perspectives as well as other scientific disciplines.

There is no shortage of theories to explain cultural differences. Indeed, the review above touched on nine cross-cultural theoretical perspectives, which were (in order): individualism versus collectivism (see sections “Passionate Love and Partner Choice,” “Adult Romantic Attachment Styles”; Triandis, 1989), pathogen stress (“System of Marriage and the Sex Ratio,” “Mate Preferences”; Low, 1990), sex ratio (“System of Marriage and the Sex Ratio,” “Sociosexuality,” “Mate Poaching”; Guttentag & Secord, 1983; Pedersen, 1991), strategic pluralism (“Sociosexuality”; Gangestad & Simpson, 2000), social role theory (“Sociosexuality,” “Mate Poaching,” “Mate Preferences”; Eagly et al., 2000),

social scripting theory (“Sexual Scripts”; Gagnon & Simon, 1973), the environmental security hypothesis (“What Is Attractive?”; Pettijohn & Jungeberg, 2004), independence versus interdependence (“The Familiarity, Similarity, and Reciprocity Principles of Attraction”; Markus & Kitayama, 1991), and life history theory (“Adult Romantic Attachment Styles”; Belsky et al., 1991). Four of these nine theories are typically associated with transmitted culture meta-theoretical perspectives (individualism vs. collectivism, social role theory, social scripting theory, and independence vs. interdependence), whereas four are typically associated with evoked culture meta-theoretical perspectives (pathogen stress, strategic pluralism, the environmental security hypothesis, and life history theory; see also Chapter 7). (Sex ratio theories derive from both transmitted, Guttentag & Secord, 1983, and evoked, Pedersen, 1991, cultural perspectives.) Rather than reviewing each of the nine theories in additional detail, I focus here on the transmitted and evoked meta-theories of culture in an effort to provide the broadest possible perspective on the study of cultural differences.

The Transmitted Culture Meta-theoretical Perspective

Transmitted culture refers to the tendency for humans to communicate different cultural variants (e.g., beliefs, practices, knowledge), to adopt some cultural variants instead of others, and to accumulate improvements to existing cultural variants (Confer et al., 2010; Eastwick, 2009; Henrich & McElreath, 2003; Nisbett, 2003; Richerson & Boyd, 2005; Sperber, 1996; Tooby & Cosmides, 1992). The value of a cultural variant depends on the environment; for example, kayak building is a useful skill among the Inuit who fish and hunt seals for sustenance but not among executives in a contemporary metropolis who pay for their food to be prepared for them. Therefore, people living in different environments adopt different attitudes, values, beliefs, practices, and knowledge. The key component of transmitted culture—and what meaningfully differentiates it from evoked culture (reviewed below)—is the way in which these variants are acquired and shared. According to theories of transmitted culture, patterns of within-group similarity and between-group differences emerge because people who share the same environment socially share information with each other that allows them to adapt effectively to that environment. For example, prior generations of kayak builders among the Inuit have already accumulated considerable information about effective

boat construction, and subsequent generations can acquire this information through transmitted culture in a fraction of the time that it would take to learn the skill through trial and error (Richerson & Boyd, 2005). Furthermore, when individuals make improvements to the existing cultural repertoire of kayak-building techniques, these improvements can then be shared throughout the group and transmitted to subsequent generations. This logic of cultural accumulation applies beyond hunting and gathering cultures: In the West, business executives receive accumulated knowledge from colleagues and MBA programs and use this information to build better companies and acquire wealth and status.

Transmitted culture exists and persists in humans because of mental adaptations honed by natural selection; it is part of *Homo sapiens*' evolved legacy (Baumeister, 2005). The mental underpinnings of transmitted culture are best characterized not as a single adaptation but rather as a collection of adaptations. For example, humans imitate one another, impart useful information, exert pressure to conform, work and learn collaboratively, tell stories and gossip, and observe the successes and setbacks of other individuals in their social groups. These processes are known to psychologists by the terms *social comparison* (Festinger, 1954), *informational influence* (Sherif, 1936), *normative influence* (Asch, 1956), *cooperative intentional action* (Tomasello, Kruger, & Ratner, 1993), *rumor transmission* (Fine, Campion-Vincent, & Heath, 2005), and *observational learning* (Bandura, 1977), respectively. This collection of social adaptations allows beliefs, practices, artifacts, and skills to be passed between individuals and between generations over time.

When social scientists referred to “culture” in decades past (e.g., Geertz, 1973), there was often an implicit assumption that any between-group differences and within-group similarities emerged through this transmitted process (Norenzayan, 2006). But until recently, studies isolating the effects of cultural history and cultural transmission on behavior were unfortunately rare (but see Edgerton, 1971; Salamon, 1985), and models of culture did not meaningfully separate the transmission process from the hypothesized end product of the transmission process (e.g., group differences). For this reason and others, Tooby and Cosmides (1992) chided the standard social science model of culture for its lack of sophistication and suggested that social scientists have overestimated the pervasiveness and utility of the transmitted culture concept. These objections represented part of the intellectual foundation that

supported the ascendance of evolutionary psychology throughout the 1990s.

One recent treatment of transmitted culture addresses these concerns by offering a more precise description of the transmission process. Richerson and Boyd (2005) applied Darwinian ideas to transmitted culture to highlight how cultural evolution is and is not like genetic evolution (see also Blackmore, 1999; Dawkins, 1976; Sperber, 1996). These scholars described a set of mental and population-level processes that can explain how cultural variants become more or less prevalent over time. For example, *natural selection* operates on cultural variants in a manner similar to the way that it operates on genes; cultural variants influence behavior, and if those behaviors increase the likelihood that other individuals will adopt the cultural variant, then the variant will increase in frequency in the population. To illustrate, one cultural variant might be the belief that casual sex is inappropriate, and if people who subscribe to this belief also marginalize or banish individuals who endorse casual sex, future generations will also eschew casual sex because they only rarely encounter the alternative variant. In this sense, cultural variants compete with each other by generating behaviors that increase or decrease their frequency in a population, much like genes.

Nevertheless, cultural evolution is dissimilar from genetic evolution in several respects. For example, the human mind is equipped with an assortment of decision-making abilities and biases that make it more likely that some cultural variants will outcompete others for space in the minds of *Homo sapiens*.¹ Richerson and Boyd (2005) identified four such *decision-making forces* that cause some cultural variants to be favored over others. First, people have a tendency to adopt some variants because the *content* of the variant has particular costs and benefits that make it superior or inferior to others. For example, condom use prevents sexually transmitted diseases, and if people judge the appeal of this variant to be stronger than alternative variants (e.g., “those diseases are not worth the pleasure of unprotected sex”), then the variant will spread in the population (Mullen et al., 2002). Second, people will tend to adopt variants based on their *frequency*; for example, people will often adopt common variants not only because they are more likely to encounter such a variant (i.e., natural selection) but also because people have a strong tendency to conform to the majority viewpoint (Asch, 1956). Third, people *model* prestigious, prominent, or successful others; the variants espoused by prestigious individuals are more likely

to be adopted because those variants may indeed be responsible for the success of the prestigious individuals (Henrich & Gil-White, 2001). Fourth, cultural variants can be directly modified by their owners, a phenomenon called *guided variation*. For example, people may rely on guided variation when they work to improve their relationship initiation strategies, such as by editing a joke or pickup line that previously fell flat. Modifications arising from guided variation tend to be beneficial—like nonrandom mutations that improve reproductive success on average—and occur either during the learning process or through subsequent trial-and-error invention. The guided variation process is the key mechanism by which cultural variants accumulate improvements over time. In short, the Richerson and Boyd (2005) account of transmitted culture highlights how culture emerges at the intersection of population-level processes and specific human mental decision-making abilities and biases; culture is not simply poured from the heads of parents into the heads of children.

The Evoked Culture Meta-theoretical Perspective

In their critique of the standard social science model of culture, Tooby and Cosmides (1992) offered the concept of evoked culture as an alternative explanation for the emergence of within-group similarities and between-group differences (see also Confer et al., 2010; Gangestad et al., 2006). Tooby and Cosmides (1992) suggested that *Homo sapiens*' mental architecture is largely domain specific, which means that humans possess a variety of mental features that were designed by natural selection to address specific adaptive problems. Furthermore, because humans faced a consistent set of environmental conditions in our evolutionary past (e.g., war vs. peace, famine vs. abundance), the strategies for managing these conditions should be built into the domain-specific human mind (see also Chapter 2). Different environmental inputs should activate or “evoke” different strategies; therefore, one source of cultural differences is that humans' domain-specific mental architecture was designed by natural selection to perform particular adaptive behaviors given particular environmental cues. According to this model, cultural transmission is not necessary to explain within-group similarities and between-group differences.

To explain the concept of evoked culture, Tooby and Cosmides (1992) offered the analogy of a jukebox equipped with a device that assesses its current

location and the surrounding environmental conditions. The jukebox is designed to play particular songs depending on these conditions: One song might be programmed to play in an arid desert, whereas a different song would play in a resource-rich savannah. Tooby and Cosmides (1992) suggest that such a mechanism could produce a pattern of group differences that are indistinguishable from what would emerge from a transmitted mechanism. Although they offered the jukebox thought experiment as an “unrealistically extreme case” (p. 117) that required no transmission whatsoever, this analogy has proved to be a useful illustration of how cultural differences could emerge without social transmission, prompting researchers to more precisely define and study the cultural transmission process (Richerson & Boyd, 2005).

For scholars to document examples of evoked culture, two elements are critical. The first is that the evoked mental mechanism should be *domain specific*. Transmitted cultural perspectives typically do not include a domain-specific component, instead positing mechanisms that can function similarly across domains. For example, people should transmit information about kayak building and corporate takeovers using similar observational learning mechanisms, and people should emulate high-status kayak builders and high-status businesspeople using similar social comparison mechanisms. In contrast to the transmitted cultural perspective, the Tooby and Cosmides (1992) evoked cultural perspective suggests that environmental differences evoke strategies and behaviors that are specific to particular domains (e.g., romantic relationships, cooperative hunting, social exchange). In fact, several demonstrations of domain specificity have suggested that children learn about the world with considerable help from preconceived domain-specific beliefs about the properties of language (Chomsky, 1965), physical objects (Spelke, Breinlinger, Macomber, & Jacobson, 1992), and biological kinds (Medin & Atran, 2004).

The same domain-specificity logic could potentially describe how adults behave in the domains of attraction and close relationships. For example, consider the finding noted above that sociosexuality scores tend to be lower (i.e., people prefer monogamous partnerships) when environments are resource poor (Schmitt et al., 2005). One evoked cultural explanation for this finding is that stressful environments evoke a preference for monogamous pair-bonded relationships, which in turn promote paternal investment and offspring survival. This

explanation is domain specific in proposing that the adaptive problem confronted by ancestral humans is specific to reproductive relationships. But alternative explanations for the environmental resources–sociosexuality association could imply less domain-specific mechanisms: Perhaps people in inhospitable or dangerous environments prefer to have a handful of close, trustworthy partnerships (romantic or otherwise) rather than an extended network of casual relationships, or perhaps people in inhospitable environments exhibit higher levels of anxiety and caution in both interpersonal and noninterpersonal contexts (cf. Schaller & Murray, 2008). By ruling out such alternative possibilities with discriminant validity evidence, evoked cultural perspectives can garner support for the idea that cultural differences are linked to humans’ domain-specific mental architecture.

The second element is that the domain-specific module should be activated by an *evolutionarily relevant environment*. That is, for a cultural difference to plausibly derive from an evoked mechanism, ancestral humans should have encountered both the adaptive problem and the environment with sufficient regularity that the contingency would have evolved. Some environments seem to be better candidates for such evolved contingencies than others. For example, regions inhabited by foraging groups in the SCCS vary in pathogen stress (e.g., Marlowe, 2003). In environments with high pathogen stress, genes that successfully resisted pathogens would have been especially desirable for offspring, and consistent with this logic, a system of polygynous marriage that favors men with such genes is more likely to emerge in areas where pathogens are prevalent (Ember et al., 2007). Thus, both high- and low-pathogen-stress environments are likely to have been present during the evolution of the hominid lineage and are thus promising candidates for evoked culture. Alternatively, consider a different cross-cultural finding: Parents are more likely to hold the incorrect belief that exposing infants to classical music will enhance infants’ intelligence in regions where childhood education is poor (Bangerter & Heath, 2004). Although our hominid ancestors might have encountered environments that varied in the availability of resources (a control factor in this study), they were probably unlikely to encounter environments that varied in the quality of early childhood education (assessed in this study by standardized test scores and per-pupil funding). Thus, this particular cultural difference would not be a strong candidate for an example of

evoked culture. A debatable, middle-ground possibility would be the dimension of independence versus interdependence (Markus & Kitayama, 1991), which has achieved considerable success in explaining cross-cultural differences (Heine, 2010). If differences on this dimension are driven by systems of analytic versus holistic thought that arose with modern (i.e., 10,000-year-old) agricultural practices (Nisbett, Peng, Choi, & Norenzayan, 2001), then this dimension is not a strong candidate for evoked culture. Yet this dimension might also be linked to pathogen prevalence (Fincher, Thornhill, Murray, & Schaller, 2008), which would make it a candidate for evoked cultural differences.

In the process of matching a domain-specific adaptive problem to an evolutionarily relevant environment, it is important for scholars also to consider the timing of evolutionary events within the hominid lineage (Eastwick, 2009). After all, an evoked cultural mechanism can only evolve after both the evolutionarily relevant environment and the adaptive problem have been encountered. For example, pair bonding and associated paternal investment became a species-typical reproductive strategy within the genus *Homo* approximately 2 million years ago. Therefore, any evoked mechanism involving the extent of paternal provisioning (e.g., Marlowe, 2003) would have evolved at this point or later in human evolution. On the other hand, transmitted culture evolved considerably later in the *Homo* lineage, perhaps as means of accommodating highly variable environments associated with late Pleistocene temperature fluctuations (Richerson & Boyd, 2005). The timing of evolutionary events is important because the order in which adaptations evolve in an organism can have implications for how those adaptations intersect with each other (Eastwick, 2009). Specifically, later-evolved adaptations often exhibit the capacity to mute or refocus the function of previously evolved adaptations; for example, activated adaptations for pair bonding may alter testosterone levels in men (e.g., Gray, Kahlenberg, Barrett, Lipson, & Ellison, 2002) and ovulatory shifts in women (e.g., Eastwick & Finkel, 2012). Evolutionary hypotheses about culture are sure to be informed by both adaptive considerations (i.e., function) and the specific time course of hominid evolutionary events (i.e., phylogeny).

New Directions in Research on Culture and Attraction

In reviewing the literature above, I noted several specific topic areas with low-hanging fruit for future

research to examine: When do arranged versus love marriages achieve better or worse relational outcomes? What causes people's sociosexuality orientations to change over time? Why do sexual scripts and the relevance of the principles of relationship initiation (e.g., similarity, reciprocity) differ across cultures? Do women's preferences for men's bodies differ depending on the features of the environment? In addition, future research would generally do well to complement multiple-culture studies, which are pleasantly prevalent in the attraction literature (e.g., Buss, 1989; Marlowe, 2003; Schmitt et al., 2005), with studies of individual change over time (Patrick & Lee, 2010).

Nevertheless, the most glaring need for future research lies at the intersection of transmitted and evoked culture. As meta-theories, both perspectives have inspired a great deal of research, and there is nothing wrong *prima facie* with a field that boasts two (or more) useful theories. In addition, the theories are not mutually exclusive and can work in conjunction to predict and explain behavior (Schaller, 2006). However, the two theories do imply different, and at times incompatible, psychological mechanisms: Theories of transmitted culture emphasize the role of social learning and social influence in producing cultural differences and accumulated culture over time, whereas evoked culture perspectives suggest that cultural differences emerge at the intersection of domain-specific adaptations and environments that correspond to humans' evolutionary past. Only rarely, however, does cross-cultural research specifically investigate either possible mechanism.

Unfortunately, this lack of emphasis on mechanism means that when one meta-theoretical perspective successfully predicts the emergence of a cross-cultural difference, it is all too easy to construct an alternative explanation using the other meta-theoretical perspective *post hoc*. For example, consider the finding documented by Gangestad et al. (2006) that people tend to emphasize good health in a romantic partner to the extent that pathogens are prevalent in the environment. The authors favored an evoked cultural explanation for these findings: Signs of good health could indicate a genetic ability to resist parasites and would therefore have been more valuable in ancestral environments where parasites were prevalent. But transmitted mechanisms are also plausible. For one, mate preferences for traits often do not have fixed meanings (Eastwick, Finkel, & Eagly, 2011); "bad health" might have a more insidious socially

shared meaning in an environment where common diseases are contagious and leave visible markings than an environment where common diseases merely require a trip to the student health center. Even if participants across cultures shared the same definition of “good health,” a cross-cultural difference could emerge if the severity of local pathogens alters people’s calculations of the relative costs and benefits (i.e., the *content* decision-making force) of the trait “good health” in a partner (Eagly & Wood, 2006). Of course, evoked explanations offer plausible alternative explanations for transmitted explanations in many domains as well, with Pedersen’s (1991) reinterpretation of Guttentag and Secord’s (1983) sex ratio perspective serving as one prominent example.

The Psychological Model of Transmitted and Evoked Cultural Change

Evoked and transmitted cultural perspectives have generated new predictions and fostered new research questions. But without more precise demonstrations of psychological mechanism, alternative explanations like those reviewed above will surely abound, and psychologists generally value cumulative empirical demonstrations that favor one explanation for a phenomenon over others. With an eye toward this goal, Figure 8.1 presents a possible integrative model of transmitted and evoked culture that highlights the mental mechanisms relevant to these cultural phenomena. This model, called the Psychological Model of Transmitted and Evoked Cultural Change, describes the internal, *psychological* process by

which an individual adopts or rejects a novel cultural variant. Yet the model primarily draws from concepts offered by transmitted and evoked culture, which heretofore have inspired mainly population-level analyses.

The model includes four steps, and the dashed arrows connecting the four steps represent the passage of time; the time between steps could in principle range from seconds to years. Step 1 represents a starting point where individuals possess and/or endorse a particular cultural variant “A” (e.g., “Good health is not important in an ideal romantic partner”). However, in some cases, the process of adopting a new cultural variant can begin in the absence of an original variant “A” (e.g., a child who does not yet have a concept of an ideal romantic partner). In Step 2, the individual either (a) invents a new cultural variant “B” (Step 2a) or (b) encounters a new cultural variant “B” that already exists in the population (Step 2b). For example, the new variant could be the concept that good health is important in an ideal romantic partner. In Step 3, the individual evaluates the new cultural variant “B” using three of Richerson and Boyd’s (2005) four decision-making forces (see above), perhaps considering the costs and benefits of the variant, its frequency in the population, or its tendency to be exhibited by certain models (e.g., powerful others, successful others, oneself). Step 4 is the outcome of this decision-making process in which the individual will either adopt or reject the new variant, although this decision does not have to be a binary “yes” or “no” and can be conceptualized as either a continuum or a conditional decision (e.g., good

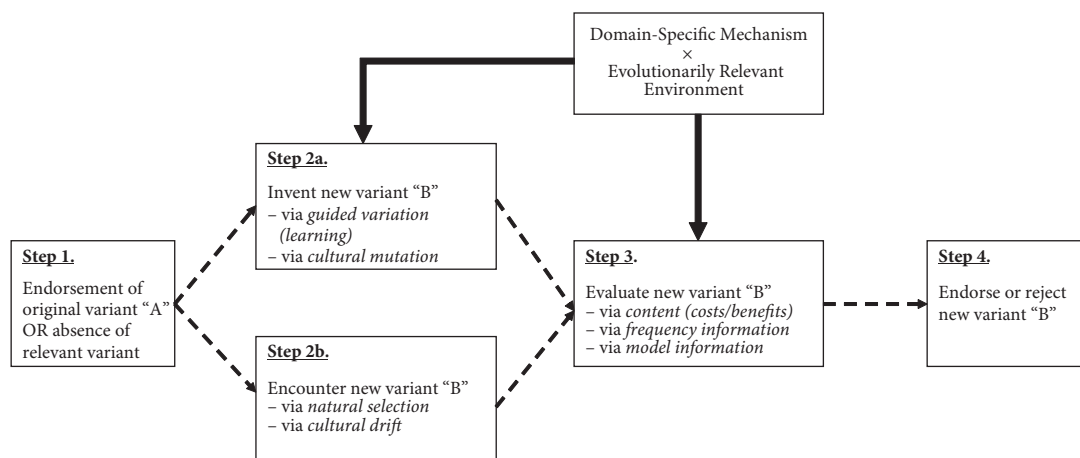


Figure 8.1 Psychological Model of Transmitted and Evoked Cultural Change.

health in a partner is valuable in a long-term but not a short-term mate).

Step 2 is divided into two independent components to emphasize the difference between the internal mental processes that are involved in generating a new cultural variant (Step 2a) and the population-level processes that make it more or less likely that someone will encounter a pre-existing cultural variant (Step 2b). In Step 2a, the individual may intentionally invent a new cultural variant using guided variation, which is essentially a trial-and-error learning process whereby one individual mentally or physically manipulates a cultural variant in an attempt to improve it in some way (e.g., editing a punch line to make it funnier). In other cases, an individual may accidentally misremember or alter a cultural variant (e.g., unintentionally remembering a different punch line), a phenomenon known as *cultural mutation* (Richerson & Boyd, 2005). In short, guided variation is a nonrandom mental process that produces beneficial improvements to cultural variants, whereas mutation is a random mental process. In Step 2b, the individual may instead encounter a new variant from another person in the population. As mentioned above, variants become more prevalent in the population when they compete successfully with other variants (i.e., natural selection), and sometimes in small populations, variants will be lost because of random processes (i.e., cultural drift). The likelihood that an individual encounters a new variant in Step 2b is determined by population-level, not mental, factors; of course, the subsequent evaluation of this variant (i.e., Step 3) is indeed a mental process.

The model also highlights how evoked cultural mechanisms intersect with transmitted cultural mechanisms. Evoked culture, as reviewed above, can emerge when a domain-specific mechanism is activated in an evolutionarily relevant environment (represented by the Domain-Specific Mechanism \times Evolutionarily Relevant Environment interaction in Figure 8.1). The solid arrows in Figure 8.1 depict the two routes by which evoked cultural mechanisms could operate. The first route is that evoked cultural mechanisms could bias the invention of new variants in Step 2a. That is, people might be more likely to invent the cultural variant that good health is desirable in a partner in pathogen-prevalent environments where such a preference was adaptive in humans' evolutionary past. Evoked cultural mechanisms might make this invention process

more likely by biasing the learning process under the relevant circumstances. The second route is that evoked cultural mechanisms could bias the evaluation of a variant once it has been encountered or invented. That is, the decision-making forces in Step 3 could operate differently in particular evolutionarily relevant environments: Perhaps people's disgust responses become overactive with respect to mating partners in pathogen-prevalent environments, which in turn colors perceptions of the costs and benefits of such partners. As reviewed above, demonstrating an evoked cultural mechanism in either case would also require evidence of domain specificity. For example, the pathogen-prevalent environment should produce a wariness of or disgust response to unhealthy mating partners in particular, not unhealthy individuals in general. Finally, there is no evoked cultural mechanism intersecting with Step 2b because Step 2b is a population-level process—people are more or less likely to encounter variants depending on their prevalence in the population—and evoked cultural mechanisms are internal mental processes.

Concluding Comments

The Psychological Model of Transmitted and Evoked Culture is an initial attempt to incorporate concepts from both the transmitted and evoked cultural perspectives into a psychological process model. In general, mechanistic demonstrations of cultural adoption and change—revealing *how* cultural variants become more prevalent in some environments instead of others—is the key conceptual future direction for studies of cultural influences on attraction. After all, cultural change in the domain of attraction and relationship initiation happens frequently: Consider how the popularity of dating websites and other modern innovations (e.g., speed-dating, social networking sites) has changed the landscape of adult dating practices in just a decade (Finkel, Eastwick, Karney, Reis, & Sprecher, 2012). Even these modern inventions already reveal evidence of accumulated cultural innovation: In a fusion of traditional religious and contemporary Western approaches to relationship initiation, speed-dating events for Muslims in New York City have been altered to provide a role for parents (Ellick, 2011). As people are exposed to different cultural variants regarding attraction and relationship initiation, those variants may be adopted, rejected, and ultimately improved upon as they are passed between minds and ultimately across generations. The attraction process

is constantly evolving as a result of cultural forces, making the intersection of attraction and culture a vibrant topic for psychological study.

Notes

1. These additional forces are akin to meiotic drive, a process whereby genes are disproportionately allocated among gametes because their content influences the meiosis process. Meiotic drive is not, strictly speaking, natural selection because it causes some genes to increase in frequency beyond what would be expected given their effects on the reproductive success of the organism alone (Richerson & Boyd, 2005).

References

- Alexander, R. D. (1979). *Darwinism and human affairs*. Seattle: University of Washington Press.
- Anderson, J. L., Crawford, C. B., Nadeau, J., & Lindberg, T. (1992). Was the Duchess of Windsor right? A cross-cultural review of the socioecology of ideals of female body shape. *Ethology and Sociobiology*, *13*, 197–227.
- Anderson, L. A., & Whiston, S. C. (2005). Sexual assault education programs: A meta analytic examination of their effectiveness. *Psychology of Women Quarterly*, *29*, 374–388.
- Asch, S. E. (1956). Studies of independence and conformity: A minority of one against a unanimous majority. *Psychological Monographs*, *70*, no. 416.
- Bandura, A. (1977). *Social learning theory*. New York: General Learning Press.
- Bangerter, A., & Heath, C. (2004). The Mozart effect: Tracking the evolution of a scientific legend. *British Journal of Social Psychology*, *43*, 605–623.
- Barber, N. (1998). Secular changes in standards of bodily attractiveness in women: Tests of a reproductive model. *International Journal of Eating Disorders*, *23*, 449–454.
- Barber, N. (2008). Explaining cross-national differences in polygyny intensity. *Cross-Cultural Research*, *42*, 103–117.
- Bartoli, A. M., & Clark, M. D. (2006). The dating game: Similarities and differences in dating scripts among college students. *Sexuality & Culture*, *10*, 54–80.
- Battaglia, D. M., Richard, F. D., Datteri, D. L., & Lord, C. G. (1998). Breaking up is (relatively) easy to do: A script for the dissolution of close relationships. *Journal of Social and Personal Relationships*, *15*, 829–845.
- Baumeister, R. F. (2005). *The cultural animal: Human nature, meaning, and social life*. Oxford: Oxford University Press.
- Beckerman, S., Lizarralde, R., Ballew, C., Schroeder, S., Fingelton, C., Garrison, A., et al. (1998). The Bari partible paternity project: Preliminary results. *Current Anthropology*, *39*, 164–167.
- 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., & Reis, H. T. (1998). Attraction and close relationships. In D. T. Gilbert, S. T. Fiske, & G. Lindzey (Eds.), *The handbook of social psychology* (4th ed., Vol. 2, pp. 193–281). New York: McGraw-Hill.
- Billy, J. O. G., & Udry, J. R. (1985). Patterns of adolescent friendship and effects on sexual behavior. *Social Psychology Quarterly*, *48*, 27–41.
- Blackmore, S. J. (1999). *The meme machine*. Oxford: Oxford University Press.
- 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: Norton.
- Brown, P. J., & Konner, M. (1987). An anthropological perspective on obesity. *Annals of the New York Academy of Sciences*, *499*, 29–46.
- 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., Abbott, M., Angleitner, A., Asherian, A., Biaggio, A., Blanco-Villasenor, A., et al. (1990). International preferences in selecting mates: A study of 37 cultures. *Journal of Cross-Cultural Psychology*, *21*, 5–47.
- Buss, D. M., Shackelford, T. K., Kirkpatrick, L. A., & Larsen, R. J. (2001). A half century of mate preferences: The cultural evolution of values. *Journal of Marriage and Family*, *63*, 491–503.
- Byrne, D., & Clore, G. L. (1970). A reinforcement model of evaluative responses. *Personality: An International Journal*, *1*, 103–128.
- Carroll, M. H., & Clark, M. D. (2006). Men's acquaintance rape scripts: A comparison between a regional university and a military academy. *Sex Roles*, *55*, 469–480.
- Chomsky, N. (1965). *Aspects of the theory of syntax*. Cambridge, MA: MIT Press.
- Collins, R. L., Elliott, M. N., Berry, S. H., Kanouse, D. E., Kunkel, D., Hunter, S. B., et al. (2004). Watching sex on television predicts adolescent initiation of sexual behavior. *Pediatrics*, *114*, 280–289.
- Confer, J. C., Easton, J. A., Fleischman, D. S., Goetz, C. D., Lewis, D. M. G., Perilloux, C., et al. (2010). Evolutionary psychology: Controversies, questions, prospects, and limitations. *American Psychologist*, *65*, 110–126.
- Cunningham, M. R., Roberts, A. R., Barbee, A. P., Druen, P. B., & Wu, C. H. (1995). "Their ideas of beauty are, on the whole, the same as ours": Consistency and variability in the cross-cultural perception of female physical attractiveness. *Journal of Personality and Social Psychology*, *68*, 261–279.
- Dawkins, R. (1976). *The selfish gene*. Oxford: Oxford University Press.
- De Munck, V. C. (1996). Love and marriage in a Sri Lankan Muslim community: Toward a reevaluation of Dravidian marriage practices. *American Ethnologist*, *23*, 698–716.
- Demir, A., & Fisiloglu, H. (1999). Loneliness and marital adjustment of Turkish couples. *Journal of Psychology: Interdisciplinary and Applied*, *133*, 230–240.
- Eagly, A. H., & Wood, W. (1999). The origins of sex differences in human behavior: Evolved dispositions versus social roles. *American Psychologist*, *54*, 408–423.
- Eagly, A. H., & Wood, W. (2006). Three ways that data can misinform: Inappropriate partialling, small samples, and anyway, they're not playing our song. *Psychological Inquiry*, *17*, 131–137.
- Eagly, A. H., Wood, W., & Diekmann, A. B. (2000). Social role theory of sex differences and similarities: A current appraisal. In T. Eckes & H. M. Trautner (Eds.), *The developmental social psychology of gender* (pp. 123–174). Mahwah, NJ: Erlbaum.
- 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., & Finkel, E. J. (2012). The evolutionary armistice: Attachment bonds moderate the function of ovulatory cycle effects. *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 process of initiating and maintaining romantic relationships? *Journal of Personality and Social Psychology*, *101*, 557–570.
- 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.
- Eastwick, P. W., Richeson, J. A., Son, D., & Finkel, E. J. (2009). Is love colorblind? Political orientation and interracial romantic desire. *Personality and Social Psychology Bulletin*, *35*, 1258–1268.
- Edgerton, R. B. (1971). *The individual in cultural adaptation: A study of four East African peoples*. Berkeley, CA: University of California Press.
- Eibl-Eibesfeldt, I. (1989). *Human ethology*. Hawthorne, NY: Aldine de Gruyter.
- Ellick, A. B. (2011, February 11). Speed-dating, Muslim style. *The New York Times*, p. MB1.
- Ember, M., Ember, C. R., & Low, B. S. (2007). Comparing explanations of polygyny. *Cross-Cultural Research*, *41*, 428–440.
- Festinger, L. (1954). A theory of social comparison processes. *Human Relations*, *7*, 117–140.
- Fincher, C. L., Thornhill, R., Murray, D. R., & Schaller, M. (2008). Pathogen prevalence predicts human cross-cultural variability in individualism/collectivism. *Proceedings of the Royal Society B: Biological Sciences*, *275*, 1279–1285.
- Fine, G. A., Campion-Vincent, V., & Heath, C. (2005). *Rumor mills: The social impact of rumor and legend*. New Brunswick, NJ: Aldine de Gruyter.
- Finkel, E. J., Eastwick, P. E., Karney, B. R., Reis, H. T., & Sprecher, S. (2012). Online dating: A critical analysis from the perspective of psychological science. *Psychological Science and the Public Interest*, *13*, 3–66.
- Fisher, H. E. (1989). Evolution of human serial pair bonding. *American Journal of Physical Anthropology*, *73*, 331–354.
- Fisher, W. A., & Byrne, D. (1978). Sex differences in response to erotica? Love versus lust. *Journal of Personality and Social Psychology*, *36*, 117–125.
- Ford, K., & Norris, A. E. (1993). Urban Hispanic adolescents and young adults: Relationship of acculturation to sexual behavior. *Journal of Sex Research*, *30*, 316–323.
- Franzoi, S. L., & Herzog, M. E. (1987). Judging physical attractiveness. *Personality and Social Psychology Bulletin*, *13*, 19–33.
- Frederick, D. A., & Haselton, M. G. (2007). Why is muscularity sexy? Tests of the fitness indicator hypothesis. *Personality and Social Psychology Bulletin*, *33*, 1167–1183.
- Friedman, M., Rholes, W. S., Simpson, J. A., Bond, M., Diaz-Loving, R., & Chan, C. (2010). Attachment avoidance and the cultural fit hypothesis: A cross-cultural investigation. *Personal Relationships*, *17*, 107–126.
- Furnham, A., Moutafi, J., & Baguma, P. (2002). A cross-cultural study on the role of weight and waist-to-hip ratio on female attractiveness. *Personality and Individual Differences*, *32*, 729–745.
- Gagnon, J. H., & Simon, W. (1973). *Sexual conduct*. Chicago: Aldine.
- Gagnon, J. H., & Simon, W. (1987). The sexual scripting of oral genital contacts. *Archives of Sexual Behavior*, *16*, 1–25.
- Gagnon, J. H., & Simon, W. (2005). *Sexual conduct: The social sources of human sexuality*. Chicago: Aldine.
- Gangestad, S. W., & Buss, D. M. (1993). Pathogen prevalence and human mate preferences. *Ethology & Sociobiology*, *14*, 89–96.
- Gangestad, S. W., Haselton, M. G., & Buss, D. M. (2006). Evolutionary foundations of cultural variation: Evoked culture and mate preferences. *Psychological Inquiry*, *17*, 75–95.
- Gangestad, S. W., & Simpson, J. A. (2000). The evolution of human mating: Trade-offs and strategic pluralism. *Behavioral and Brain Sciences*, *23*, 573–644.
- Geer, J. H., & Broussard, D. B. (1990). Scaling heterosexual behavior and arousal: Consistency and sex differences. *Journal of Personality and Social Psychology*, *58*, 664–671.
- Geertz, C. (1973). *The interpretation of cultures*. New York: Basic Books.
- Goode, W. J. (1959). The theoretical importance of love. *American Sociological Review*, *24*, 38–47.
- Grammer, K., & Thornhill, R. (1994). Human (Homo sapiens) facial attractiveness and sexual selection: The role of symmetry and averageness. *Journal of Comparative Psychology*, *108*, 233–242.
- Gray, P. B., Kahlenberg, S. M., Barrett, E. S., Lipson, S. F., & Ellison, P. T. (2002). Marriage and fatherhood are associated with lower testosterone in males. *Evolution and Human Behavior*, *23*, 193–201.
- Gupta, U., & Singh, P. (1982). An exploratory study of love and liking and type of marriages. *Indian Journal of Applied Psychology*, *19*, 92–97.
- Guttentag, M., & Secord, P. F. (1983). *Too many women? The sex ratio question*. Beverly Hills, CA: Sage.
- Hatfield, E., & Rapson, R. L. (2006). Passionate love, sexual desire, and mate selection: Cross-cultural and historical perspectives. In P. Noller & J. Feeney (Eds.), *Close relationships: Functions, forms and processes* (pp. 227–243). London: Psychology Press.
- Hazan, C., & Diamond, L. M. (2000). The place of attachment in human mating. *Review of General Psychology*, *4*, 186–204.
- Hazan, C., & Shaver, P. (1987). Romantic love conceptualized as an attachment process. *Journal of Personality & Social Psychology*, *52*, 511–524.
- Hebl, M. R., & Heatherton, T. F. (1998). The stigma of obesity in women: The difference is black and white. *Personality and Social Psychology Bulletin*, *24*, 417–426.
- Heine, S. J. (2010). Cultural psychology. In S. T. Fiske, D. T. Gilbert & G. Lindzey (Eds.), *Handbook of social psychology* (Vol. 2, pp. 1423–1464). Hoboken, NJ: Wiley.
- Heine, S. J., Foster, J. A. B., & Spina, R. (2009). Do birds of a feather universally flock together? Cultural variation in the similarity attraction effect. *Asian Journal of Social Psychology*, *12*, 247–258.
- Heine, S. J., Kitayama, S., Lehman, D. R., Takata, T., Ide, E., Leung, C., et al. (2001). Divergent consequences of success and failure in Japan and North America: An investigation of self-improving motivations and malleable selves. *Journal of Personality and Social Psychology*, *81*, 599–615.
- Heine, S. J., Lehman, D. R., Markus, H. R., & Kitayama, S. (1999). Is there a universal need for positive self-regard? *Psychological Review*, *106*, 766–794.

- Heine, S. J., & Renshaw, K. (2002). Interjudge agreement, self-enhancement, and liking: Cross-cultural divergences. *Personality and Social Psychology Bulletin*, 28, 578–587.
- Henrich, J., & Gil-White, F. J. (2001). The evolution of prestige: Freely conferred deference as a mechanism for enhancing the benefits of cultural transmission. *Evolution and Human Behavior*, 22, 165–196.
- Henrich, J., & McElreath, R. (2003). The evolution of cultural evolution. *Evolutionary Anthropology*, 12, 123–135.
- Hussey, J. M., Hallfors, D. D., Waller, M. W., Iritani, B. J., Halpern, C. T., & Bauer, D. J. (2007). Sexual behavior and drug use among Asian and Latino adolescents: Association with immigrant status. *Journal of Immigrant and Minority Health*, 9, 85–94.
- Jaccard, J., Blanton, H., & Dodge, T. (2005). Peer influences on risk behavior: An analysis of the effects of a close friend. *Developmental Psychology*, 41, 135–147.
- Jankowiak, W. (1995). *Romantic passion: A universal experience?* New York: Columbia University Press.
- Jankowiak, W., & Fischer, E. (1992). A cross-cultural perspective on romantic love. *Ethnology*, 31, 149–155.
- Jin, G. Z., & Xu, L. C. (2006). Matchmaking means and marriage quality: The role of information in marriage markets. *Unpublished Working Paper*.
- Kasser, T., & Sharma, Y. S. (1999). Reproductive freedom, educational equality, and females' preference for resource-acquisition characteristics in mates. *Psychological Science*, 10, 374–377.
- 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., 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.
- Kenrick, D. T., Li, N. P., & Butner, J. (2003). Dynamical evolutionary psychology: Individual decision rules and emergent social norms. *Psychological Review*, 110, 3–28.
- Kephart, W. M. (1967). Some correlates of romantic love. *Journal of Marriage and Family*, 29, 470–474.
- Kinsey, A. C., Pomeroy, W. B., & Martin, C. E. (1948). *Sexual behavior in the human male*. Philadelphia: Saunders.
- Kinsey, A. C., Pomeroy, W. B., Martin, C. E., & Gebhard, P. (1953). *Sexual behavior in the human female*. Philadelphia: Saunders.
- Knauff, B. M. (1991). Violence and sociality in human evolution. *Current Anthropology*, 32, 391–409.
- Kruger, D. J., & Schlemmer, E. (2009). Male scarcity is differentially related to male marital likelihood across the life course. *Evolutionary Psychology*, 7, 280–287.
- Kumar, P., & Dhyani, J. (1996). Marital adjustment: A study of some related factors. *Indian Journal of Clinical Psychology*, 23, 112–116.
- 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.
- Laumann, E. O., Gagnon, J., Michael, R., & Michaels, S. (1994). *The social organization of sexuality: Sexual practices in the United States*. Chicago: University of Chicago Press.
- Levine, R., Sato, S., Hashimoto, T., & Verma, J. (1995). Love and marriage in eleven cultures. *Journal of Cross-Cultural Psychology*, 26, 554–571.
- Little, A. C., Apicella, C. L., & Marlowe, F. W. (2007). Preferences for symmetry in human faces in two cultures: Data from the UK and the Hadza, an isolated group of hunter-gatherers. *Proceedings of the Royal Society B: Biological Sciences*, 274, 3113–3117.
- Low, B. S. (1988). Measures of polygyny in humans. *Current Anthropology*, 29, 189–194.
- Low, B. S. (1990). Marriage systems and pathogen stress in human societies. *American Zoologist*, 30, 325–340.
- MacDonald, K. (1995). The establishment and maintenance of socially imposed monogamy in Western Europe. *Politics and the Life Sciences*, 14, 3–23.
- Mahoney, E. R. (1980). Religiosity and sexual behavior among heterosexual college students. *Journal of Sex Research*, 16, 97–113.
- Markus, H. R., & Kitayama, S. (1991). Culture and the self: Implications for cognition, emotion, and motivation. *Psychological Review*, 98, 224–253.
- Marlowe, F. W. (2000). Paternal investment and the human mating system. *Behavioural Processes*, 51, 45–61.
- Marlowe, F. W. (2003). The mating system of foragers in the standard cross-cultural sample. *Cross-Cultural Research*, 37, 282–306.
- Marlowe, F. W., & Wetsman, A. (2001). Preferred waist-to-hip ratio and ecology. *Personality and Individual Differences*, 30, 481–489.
- Maticka-Tyndale, E., Herold, E. S., & Mewhinney, D. (1998). Casual sex on spring break: Intentions and behaviors of Canadian students. *Journal of Sex Research*, 35, 254–264.
- Mead, G. H. (1934). *Mind, self, and society*. Chicago: University of Chicago Press.
- Medin, D. L., & Atran, S. (2004). The native mind: Biological categorization and reasoning in development and across cultures. *Psychological Review*, 111, 960–983.
- Miller, R. S., & Perlman, D. (2009). *Intimate relationships* (5th ed.). New York: McGraw-Hill.
- 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.
- Mullen, P. D., Ramírez, G., Strouse, D., Hedges, L. V., & Sogolow, E. (2002). Meta-analysis of the effects of behavioral HIV prevention interventions on the sexual risk behavior of sexually experienced adolescents in controlled studies in the United States. *Journal of Acquired Immune Deficiency Syndromes*, 30, S94–S105.
- Murdock, G. P. (1967). *Ethnographic atlas*. Pittsburgh, PA: University of Pittsburgh Press.
- Murdock, G. P., & White, D. (1969). Standard cross-cultural sample. *Ethnology*, 8, 329–369.
- Nisbett, R. E. (2003). *The geography of thought: How Asians and Westerners think differently—and why*. New York: Free Press.
- Nisbett, R. E., Peng, K., Choi, I., & Norenzayan, A. (2001). Culture and systems of thought: Holistic versus analytic cognition. *Psychological Review*, 108, 291–310.
- Norenzayan, A. (2006). Evolution and transmitted culture. *Psychological Inquiry*, 17, 123–128.
- Norenzayan, A., & Heine, S. J. (2005). Psychological universals: What are they and how can we know? *Psychological Bulletin*, 131, 763–784.
- Norton, M. I., Frost, J. H., & Arieli, D. (2007). Less is more: The lure of ambiguity, or why familiarity breeds contempt. *Journal of Personality and Social Psychology*, 92, 97–105.

- Orians, G. H. (1969). On the evolution of mating systems in birds and mammals. *American Naturalist*, *103*, 589–603.
- Patrick, M. E., & Lee, C. M. (2010). Sexual motivations and engagement in sexual behavior during the transition to college. *Archives of Sexual Behavior*, *39*, 674–681.
- Patrick, M. E., Maggs, J. L., & Abar, C. C. (2007). Reasons to have sex, personal goals, and sexual behavior during the transition to college. *Journal of Sex Research*, *44*, 240–249.
- Pedersen, F. A. (1991). Secular trends in human sex ratios. *Human Nature*, *2*, 271–291.
- Penke, L., & Asendorpf, J. B. (2008). Beyond global sociosexual orientations: A more differentiated look at sociosexuality and its effects on courtship and romantic relationships. *Journal of Personality and Social Psychology*, *95*, 1113–1135.
- Pettijohn, T. F., & Jungeberg, B. J. (2004). Playboy playmate curves: Changes in facial and body feature preferences across social and economic conditions. *Personality and Social Psychology Bulletin*, *30*, 1186–1197.
- Richerson, P. J., & Boyd, R. (2005). *Not by genes alone: How culture transformed human evolution*. Chicago: University of Chicago Press.
- Rose, S., & Frieze, I. H. (1993). Young singles' contemporary dating scripts. *Sex Roles*, *28*, 499–509.
- Rosenblatt, P. C. (1974). Cross-cultural perspective on attraction. In T. L. Huston (Ed.), *Foundations of interpersonal attraction* (pp. 79–95). New York: Academic Press.
- Rosenblatt, P. C., & Cozby, P. C. (1972). Courtship patterns associated with freedom of choice of spouse. *Journal of Marriage and Family*, *34*, 689–695.
- Rowatt, W. C., & Schmitt, D. P. (2003). Associations between religious orientation and varieties of sexual experience. *Journal for the Scientific Study of Religion*, *42*, 455–465.
- Salamon, S. (1985). Ethnic communities and the structure of agriculture. *Rural Sociology*, *50*, 323–340.
- Schaller, M. (2006). Parasites, behavioral defenses, and the social psychological mechanisms through which cultures are evoked. *Psychological Inquiry*, *17*, 96–137.
- Schaller, M., & Murray, D. R. (2008). Pathogens, personality, and culture: Disease prevalence predicts worldwide variability in sociosexuality, extraversion, and openness to experience. *Journal of Personality and Social Psychology*, *95*, 212–221.
- Schmitt, D. P. (2008). Evolutionary perspectives on romantic attachment and culture. *Cross-Cultural Research*, *42*, 220–247.
- Schmitt, D. P., Alcalay, L., Allensworth, M., Allik, J., Ault, L., Austers, I., et al. (2003). Are men universally more dismissing than women? Gender differences in romantic attachment across 62 cultural regions. *Personal Relationships*, *10*, 307–331.
- Schmitt, D. P., Alcalay, L., Allensworth, M., Allik, J., Ault, L., Austers, I., et al. (2004a). Patterns and universals of adult romantic attachment across 62 cultural regions: Are models of self and of other pancultural constructs? *Journal of Cross-Cultural Psychology*, *35*, 367–402.
- Schmitt, D. P., Alcalay, L., Allensworth, M., Allik, J., Ault, L., Austers, I., et al. (2004b). Patterns and universals of mate poaching across 53 nations: The effects of sex, culture, and personality on romantically attracting another person's partner. *Journal of Personality and Social Psychology*, *86*, 560–584.
- 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.
- Seto, M. C., Maric, A., & Barbaree, H. E. (2001). The role of pornography in the etiology of sexual aggression. *Aggression and Violent Behavior*, *6*, 35–53.
- Shaver, P. R., Wu, S., & Schwartz, J. C. (1991). Cross-cultural similarities and differences in emotion and its representation: A prototype approach. In M. S. Clark (Ed.), *Review of personality and social psychology* (Vol. 13, pp. 175–212). Newbury Park, CA: Sage.
- Sherif, M. (1936). *The social psychology of norms*. New York: Harper Collins.
- Silva, M. (2002). The effectiveness of school-based sex education programs in the promotion of abstinent behavior: A meta-analysis. *Health Education Research*, *17*, 471.
- Simon, W., & Gagnon, J. H. (1986). Sexual scripts: Permanence and change. *Archives of Sexual Behavior*, *15*, 97–120.
- Simpson, J. A., Campbell, B., & Berscheid, E. (1986). The association between romantic love and marriage: Kephart (1967) twice revisited. *Personality and Social Psychology Bulletin*, *12*, 363–372.
- Simpson, J. A., & Gangestad, S. W. (1991). Individual differences in sociosexuality: Evidence for convergent and discriminant validity. *Journal of Personality and Social Psychology*, *60*, 870–883.
- Singh, D. (1993a). Adaptive significance of female physical attractiveness: Role of waist-to-hip ratio. *Journal of Personality and Social Psychology*, *65*, 293–307.
- Singh, D. (1993b). Body shape and women's attractiveness. *Human Nature*, *4*, 297–321.
- Singh, D., & Luis, S. (1995). Ethnic and gender consensus for the effect of waist-to-hip ratio on judgment of women's attractiveness. *Human Nature*, *6*, 51–65.
- Spelke, E. S., Breinlinger, K., Macomber, J., & Jacobson, K. (1992). Origins of knowledge. *Psychological Review*, *99*, 605–632.
- Sperber, D. (1996). *Explaining culture: A naturalistic approach*. Oxford: Wiley-Blackwell.
- Tomasello, M., Kruger, A. C., & Ratner, H. H. (1993). Cultural learning. *Behavioral and Brain Sciences*, *16*, 495–495.
- 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.
- Tovée, M. J., Swami, V., Furnham, A., & Mangalparsad, R. (2006). Changing perceptions of attractiveness as observers are exposed to a different culture. *Evolution and Human Behavior*, *27*, 443–456.
- Treas, J. (2002). How cohorts, education, and ideology shaped a new sexual revolution on American attitudes toward nonmarital sex, 1972–1998. *Sociological Perspectives*, *45*, 267–283.
- Triandis, H. C. (1989). The self and social behavior in differing cultural contexts. *Psychological Review*, *96*, 506–520.
- Van IJzendoorn, M. H., & Sagi-Schwartz, A. (2008). Cross-cultural patterns of attachment: Universal and contextual dimensions. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (2nd ed., pp. 880–905). New York: Guilford Press.
- Widmer, E. D., Treas, J., & Newcomb, R. (1998). Attitudes toward nonmarital sex in 24 countries. *Journal of Sex Research*, *35*, 349–358.
- Wiederman, M. W. (2005). The gendered nature of sexual scripts. *Family Journal*, *13*, 496–502.

- 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.
- Xiaohe, X., & Whyte, M. K. (1990). Love matches and arranged marriages: A Chinese replication. *Journal of Marriage and the Family*, *52*, 709–722.
- Yelsma, P., & Athappilly, K. (1988). Marital satisfaction and communication practices: Comparisons among Indian and American couples. *Journal of Comparative Family Studies*, *19*, 37–54.
- You, H. S., & Malley-Morrison, K. (2000). Young adult attachment styles and intimate relationships with close friends: A cross-cultural study of Koreans and Caucasian Americans. *Journal of Cross-Cultural Psychology*, *31*, 528–534.
- Yu, D. W., & Shepard, G. H. (1998). Is beauty in the eye of the beholder? *Nature*, *396*, 321–322.