Blackwell Handbook of Social Psychology: Interpersonal Processes
Edited by Garth J. O. Fletcher, Margaret S. Clark

Chapter Sixteen

An Evolutionary-Psychological Approach to Self-esteem: Multiple Domains and Multiple Functions

Lee A. Kirkpatrick and Bruce J. Ellis

Evolutionary Perspectives on Self-evaluation and Self-esteem

Perhaps more ink has been devoted to the issue of *self-esteem* – loosely, the degree to which we evaluate ourselves positively or negatively – than to any other single topic in psychology. Self-esteem has been defined in a variety of ways and been analyzed into any number of constellations of dimensions, types, and subtypes. It has been recurrently implicated in phenomena of considerable psychological and social importance, from prejudice, aggression, and criminality to mood disorders, eating disorders, and other serious mental health problems. Much research focuses on perceived abilities and competence, while other research focuses on interpersonal relations, physical attractiveness, or perceived control over outcomes. Some scholars focus on defense and maintenance of self-esteem; others on its enhancement. Virtually every major psychological theory touches on the issue in some way, and the need to maintain and enhance self-esteem is widely assumed to be a fundamental human motive (Leary & Downs, 1995).

What is sorely needed is a deeper, overarching theoretical framework to bring order to this fragmented literature, to organize future research, and to provide a solid basis for applications of this knowledge in the real world. In this chapter we endeavor to show that the emerging paradigm of evolutionary psychology (Buss, 1995, 1999; Symons, 1987; Tooby & Cosmides, 1992) offers a powerful metatheoretical framework for doing so. We do not aspire, in this brief chapter, to develop a comprehensive theory of self-esteem. Our

We wish to thank David Buss, Michael Kernis, and Mark Leary for their very helpful comments on an earlier version of this chapter.

more modest goal is merely to illustrate some ways in which an evolutionary-psychological perspective is valuable in illuminating a variety of issues surrounding the topics of self-evaluation and self-esteem.

Our point of departure is sociometer theory, as developed by Leary and his colleagues (Leary & Baumeister, 2000; Leary & Downs, 1995; Leary, Tambor, Terdal, and Downs, 1995), which we review briefly in the next section. We then introduce two general sets of issues raised by an evolutionary-psychological perspective – adaptive function and domain-specificity – and suggest some extensions and refinements of sociometer theory in light of these issues. In the final major section of the chapter, we address a sampling of prominent topics and problems in the social-psychological literature on self-esteem, and suggest some ways in which our framework may provide some unique insights, and a basis for generating testable hypotheses for empirical research, concerning these topics.

Sociometer Theory and Evolutionary Psychology

We believe that sociometer theory represents a significant advance over previous theories about the nature and origins of self-esteem. Leary and colleagues offer several important arguments that illustrate the application and utility of evolutionary-psychological thinking to social-psychological topics, and provide a general conceptualization of self-esteem that differs fundamentally from previous conceptualizations and provides a strong foundation upon which we will build in this chapter.

Leary et al. (1995) begin by noting that while theorists have long taken for granted the importance of self-esteem, and many researchers have investigated numerous causes and consequences of low and high self-esteem, few have asked the fundamental questions: (1) What exactly *is* self-esteem?, and (2) what is its *function*? (for a notable exception see Greenberg, Solomon, & Pyszczynski, 1986; Solomon, Greenberg, & Pyszczynski, 1991.) Their answer is that self-esteem is not a free-floating goal state that people are motivated to enhance and protect. Rather, it is an internal index or gauge – a "sociometer" – designed to monitor our success with respect to other adaptive goals. Leary et al. offer as an analogy the fuel gauge in an automobile, which is designed to alert the driver to refill the tank when the fuel level becomes dangerously low.

Leary et al. (1995) argue persuasively that the domain monitored by the sociometer is that of interpersonal relationships. Consistent with many other theorists such as Cooley (1902) and Rosenberg (1979), they suggest that self-esteem reflects in large part people's perceptions of how others feel about them. More specifically, they argue that the sociometer is designed to monitor one's level of *social inclusion* or *acceptance* versus *social exclusion* or *rejection*. They argue further that this sociometer represents an adaptation designed by natural selection for this purpose. A crucial adaptive problem faced by our ancestors, they maintain, was to be accepted by others as part of "the group," as rejection by the group would pose a significant threat to survival and a loss of the many well-documented benefits of group living. The sociometer is thus designed to alert one when one's level of social inclusion is dangerously low, so as to motivate corrective action to restore inclusion/acceptance to a favorable level.

We cannot overemphasize the degree to which this perspective represents a radical (and long overdue) shift from the prevailing framework underlying much past and current research on self-esteem. As summarized by Harter (1993, p. 87), "It is commonly asserted in the literature that the self-concept is a theory, a cognitive construction, and that its architecture – by evolutionary design – is extremely functional. . . . One such widely touted function is to maintain high self-esteem." From an evolutionary perspective, however, the idea that a self-system has been crafted by natural selection with the function of "maintaining high self-esteem" is dubious. It is not clear why having high self-esteem per se would have been adaptive – in the evolutionary currency of inclusive fitness – for our ancestors. Simply feeling good, for example, does not directly translate into viable offspring.[1] Moreover, there are costs to be considered as well: the effects of high self-esteem on interpersonal functioning and mental health are by no means uniformly positive (Baumeister, Smart, & Boden, 1996; Colvin, Block, & Funder, 1995; Tennen & Affleck, 1995). If perpetually high self-esteem per se were in fact universally adaptive, natural selection would have designed us simply to have it.

Another consequence of the prevailing conceptualization is that it entails the supposition that *low* self-esteem reflects some kind of maladaptation or malfunction. Harter (1993, p. 88), for example, is led to ask: "Given this functional scenario, why should the system falter, leading certain individuals to experience . . . low self-esteem?" The subtitle of the book in which her chapter appears, "The puzzle of low self-esteem," clearly illustrates this underlying assumption. From an evolutionary point of view, however, low self-esteem is no more a puzzle than is high self-esteem, and it surely does not necessarily reflect malfunctioning of an adaptive system. If you take a swig of spoiled milk and experience an unpleasant taste, has your evolved taste system malfunctioned? If you later enjoy a delicious culinary feast in a fine restaurant, is the system now working better? In both cases the system is functioning exactly as it was designed, alerting you as to which foods to avoid and which to ingest with gusto. In ancestral environments, individuals who were capable of such discriminations and differential affect died of fewer diseases and had healthier offspring; those who could not did not become our ancestors. We are not designed to enjoy the taste of all foods, or there would be no point in having a capacity to discriminate flavors.

According to Leary and colleagues, self-esteem works in a similar (though more complex) way: It is designed to monitor something about our success and failure in solving one or more adaptive problems (cf. avoiding disease-laden foods and seeking nutritious, healthful ones). The evolutionary approach then leads directly to the next questions: What adaptive problem(s) are these?, and how do self-evaluations and self-esteem help us to solve them?

Multiple Domains of Self-esteem[2]

A central premise of evolutionary psychology is that the brain/mind comprises numerous, domain-specific mechanisms (much as the remainder of the body comprises numerous, functionally distinct organs) representing evolved solutions to recurrent adaptive problems in ancestral human environments. Stated simply, qualitatively different adaptive problems require qualitatively different solutions: The brain/mind cannot be designed entirely as a

general problem-solving device "because there is no such thing as a general problem," just as there are no all-purpose kitchen devices that perform all possible food-processing tasks (Symons, 1992, p. 142; also see Tooby & Cosmides, 1992, for a detailed discussion). Numerous domain-specific mechanisms are required to solve the diverse adaptive problems faced by our ancestors, from procuring food to finding suitable habitats, negotiating status hierarchies, and avoiding predators.

Likewise, interpersonal relationships of various types differ qualitatively with respect to the particular adaptive problems they pose and the solutions required to negotiate them successfully (Daly, Salmon, & Wilson, 1997). Attachment and caregiving systems guide parent–infant interactions but not sibling interactions; mechanisms of reciprocity and cheater-detection underlie social exchange relationships but not nepotistic relationships; mechanisms of sexual attraction guide mateships but not friendships. To paraphrase Symons, there can be no such thing as an all-purpose set of decision rules for guiding behavior in social relationships because there is no such thing as an all-purpose social relationship.

We therefore suggest that natural selection is likely to have fashioned numerous psychological mechanisms for monitoring functioning in distinct types of relationships. A general social-inclusion gauge alone seems unlikely to provide sufficiently detailed information about the nature of the adaptive problem to be solved, or to be very useful in guiding appropriate behavior to solve that problem. For example, a sociometer that monitors levels of inclusion and exclusion from professional work coalitions may be useful in guiding job search strategies, but not very useful in deciding whether to challenge or submit to competitors in agonistic encounters. Similarly, a sociometer that monitors levels of acceptance and rejection from romantic partners may be useful for guiding one's mate-selection strategy but not for guiding one's job-search strategy.

To return to Leary's dashboard analogy, a global sociometer designed to monitor success across all kinds of social relationships seems akin to a single, all-purpose gauge designed to monitor the engine's overall functioning. Cars do not (typically) possess such an all-purpose gauge, however; instead, they come equipped with a fuel gauge for monitoring levels of gasoline, a tachometer for monitoring engine speed in rpm, a thermometer for monitoring engine temperature, and so on. This is the case for at least two reasons. First, it is not clear how one would design an all-purpose gauge. What part of the car would it hook up to as a source of input? The only way to design such a gauge would be to first construct more specific mechanisms to tap into particular aspects of the car's functioning (engine temperature, fuel level, etc.), and then send output from these mechanisms to the global gauge. Second, and perhaps more important, a global automotive-functioning gauge would not be very useful, as it would offer little guidance for determining what needs to be done to fix the problem.[3]

Of course, the idea that global self-esteem might be carved into more specific "domains" is not new; indeed, self-esteem research has for some time evinced an increasing focus on domain-specificity (Harter, Waters, & Whitesell, 1998). Previous researchers have proposed various numbers of types or dimensions of self-esteem, such as competence or achievement, virtue or morality, power or control, and love-worthiness or acceptance by others (e.g., Coopersmith, 1967; Epstein, 1973). In most cases, multidimensionality has been inferred from factor-analytic results (Harter et al., 1998). An evolutionary perspective, in contrast to this descriptive approach, offers a strong theoretical basis for distinguishing

types or dimensions of self-esteem in terms of the ways in which they operate to help solve different kinds of adaptive problems. By "carving nature at its joints," this approach is more likely to distinguish types or domains of self-esteem that correspond to real, functional differences in the operation of these mechanisms, thereby offering a more powerful heuristic for guiding empirical research.

Social inclusion

We concur with Leary et al. (1995) and numerous other self-esteem theorists with respect to the assumption that self-esteem is (largely) social in origin and reflects (largely) affect-laden perceptions of how others feel about us.[4] From an evolutionary perspective, however, we expect that several functionally distinct kinds of relationships are important for different reasons, and that domain-specific sociometers might therefore be associated with each. We will not attempt to resolve the question of exactly how many such sociometers there might be, but merely illustrate a few major categories of interpersonal relationships and the kinds of sociometers that might be associated with them.

A crucial problem of social life concerns acceptance in various forms of coalitions and alliances. This includes *macro-level* groups (i.e., one's tribe, village, community, or nation) as well as *micro-level* groups within the larger population. As suggested by Leary et al. (1995), it has always been important for humans to be "socially included" within the local population in order to obtain various benefits of group living, such as access to local resources and defense against outgroups. Self-esteem in this domain, we hypothesize, should be related to feelings of belongingness (Baumeister & Leary, 1995) and a sense of being an accepted member of one's local community or nation. It might also be correlated with such constructs as nationalism or patriotism (Schatz, Staub, & Lavine, 1998).

Within local populations, humans, like chimpanzees (Wrangham & Peterson, 1996), routinely form smaller coalitions and alliances. Inclusion in these micro-level groups affords a variety of benefits, including mutual social support, physical protection, access to external resources (e.g., food, shelter, territory), access to mating opportunities, and coalitional support in negotiating status and dominance hierarchies. Self-esteem in this domain should be reflected in feelings of being loved and/or valued by family, friends, and colleagues, and should be correlated empirically with such constructs as perceived social support, social integration, and (absence of) loneliness.

An evolutionary perspective on group affiliation highlights several types of micro-level groups that should be especially relevant to self-esteem:

Instrumental coalitions. A special type of group relationship involves instrumental coalitions, which we define as a group of two or more individuals who coordinate their efforts to achieve shared, valued objectives. Participation in instrumental coalitions involves interdependence and subordination of individual interests to shared goals that cannot be achieved alone. Over the course of human evolutionary history, intergroup aggression and hunting of large game animals involved formation of instrumental coalitions. These coalitional activities were crucial both for obtaining animal protein and for obtaining greater sexual access to women (as a recurrent resource that flowed to the victors of war; Chagnon,

1992; Manson & Wrangham, 1991). Because group-level hunting and warfare are engaged in predominantly (and in most cases exclusively) by men in all human societies (Manson & Wrangham, 1991; Murdock & Provost, 1973), and because of the historical importance of these coalitional activities to male reproductive success, selection can be expected to have shaped men's affiliative psychologies to especially value participation in these kinds of groups. (See especially Tiger's, 1969, book-length treatise on the emotional satisfaction and self-validation achieved by men through participation with other men in instrumental coalitions.) Hence, we hypothesize that perceived inclusion in instrumental coalitions (such as competitive sports teams, secret societies, and gangs) will be an important facet of self-esteem, and that it should on average be more central to men's than to women's overall feelings of self-worth.

Mating relationships. From an evolutionary perspective, no interpersonal relationships are more important than mating relationships. Attracting and retaining mates is a sine qua non of successful reproduction. It follows, therefore, that specialized sociometers should be designed to assess one's success in the "mating game." We expect that separate sociometers monitor success in short-term mating (i.e., success in achieving short-term sexual access to a variety of partners) and long-term mating (i.e., success in forming committed relationships with reliable and nurturant mates). According to sexual strategies theory (Buss & Schmitt, 1993), both short- and long-term mating strategies are components of both women's and men's evolved psychologies, but women and men differ (on average) in the relative weightings they place on short- and long-term strategies.

Because men (much more than women) can increase the number of offspring produced through short-term matings (see Trivers, 1972), selection can be expected to have shaped men's (more than women's) sexual psychology to value short-term matings; hence, we hypothesize that inclusion in short-term sexual relationships will be a more central aspect of male than female self-esteem. Conversely, because women's reproduction is limited more than men's by access to economic and nutritional resources (Clutton-Brock, 1988; Mulder, 1987), and because women in hunting-and-gathering societies depend on men to underwrite their reproduction by providing a substantial amount of the calories consumed by women and their children (Kaplan & Lancaster, 1999), selection can be expected to have shaped women's (more than men's) sexual psychology to value long-term relationships with reliable and investing mates. Hence, we hypothesize that inclusion in long-term mating relationships will be a more central aspect of female than male self-esteem. Consistent with this theorizing, Lalumiere, Seto, and Quinsey (1995) report that number of sexual partners since puberty and in the past year were negatively correlated with self-esteem among women, but positively correlated with self-esteem among men.

Family relationships. Kin-based relationships are of great importance to humans and many other species, though they unfortunately have received scant attention from social psychologists (Daly et al., 1997). Whereas investment in relationships with non-kin is largely based on social exchange (i.e., mutual cooperation and reciprocity), investment in kin-based relationships is often nepotistic. That is, individuals often invest in genetic relatives (even in the absence of reciprocity) because they have a biological interest in their well-being. As specified by inclusive fitness theory (Hamilton, 1964), genes for such *altruistic*

behavior can spread through a population as long as (1) they cause an organism to help close relatives to reproduce, and (2) the cost to the organism's own reproduction is offset by the reproductive benefit to those relatives (discounted by the probability that the relatives who receive the benefit have inherited the same genes from a common ancestor). Inclusive fitness theory gives deeper meaning to the expression "blood runs thicker than water" and leads one to expect that close kin are the individuals from whom one can most expect reliable support and assistance (see Buss, 1999, and Daly & Wilson, 1988, for reviews of empirical findings).

Further, inclusive fitness theory predicts that, all else being equal, individuals will allocate investment toward genetic relatives who are most able to convert that investment into current and future reproduction. This implies that investment will preferentially be directed toward younger relatives over older ones. Thus, for example, people tend to leave much more of their estates to offspring than to siblings (Smith, Kish, & Crawford, 1987), even though the average genetic relatedness is the same across these two types of relationships. These considerations lead us to hypothesize that people have specialized psychological mechanisms for monitoring inclusion in kin-based alliances, and that the functioning of these mechanisms will show predictable patterns of developmental change across the lifespan. For example, perceived levels of inclusion and support from parents should become less central to self-esteem as individuals mature from childhood to adolescence to adulthood, making the transition from being primarily receivers to primarily givers of familial investment.

Between-group competition

Feeling "included" within social groups of various types is only one source of self-esteem related to group membership, however. Many of the most important benefits of social inclusion relate to actual or potential competition *between* groups. From an evolutionary perspective, the value of being included by other people is therefore inextricably linked to the relative quality and strength of one's own group vis-à-vis other groups. We therefore expand the definition of "sociometer" to encompass both perceived levels of social inclusion (i.e., how much gas is in the tank) and the quality or social value of the people or groups who are including or excluding us (i.e., the octane of the gas).[5]

A principal adaptive function of inclusion within one's local population concerns defense against outgroups. Ongoing inter-village warfare and raiding is common between many hunter-gatherer groups (Ember, 1978; Manson & Wrangham, 1991), and of course our newspapers are filled today with reports of inter- and intra-national warfare, ethnic cleansing, and so on. High self-esteem should therefore be associated with beliefs not only about inclusion in a collective, but also the perceived quality and strength of that collective relative to competing groups. Luhtanen and Crocker (1992) have developed a measure of *collective* self-esteem designed to assess this construct, which they interpret to be the most crucial aspect of self-esteem in social identity theory (Tajfel, 1982; Tajfel & Turner, 1986). Consistent with this, we take great pride in the accomplishments of our country in the Olympic Games, in warfare, and in other international affairs.

Similarly, coalitions and alliances within populations are frequently competitive with

one another, and the adaptive value of belonging to them is therefore yoked to their relative strength and quality. Some groups control important resources and confer many benefits on those who belong while other groups do not (e.g., compare being a member of the Notre Dame football team versus belonging to most other football teams). The purpose of instrumental coalitions is often to defeat competing coalitions in a zero-sum game for scarce resources (as in politics, business, and gang wars). Sociometers for monitoring the relative strength of one's coalitions and alliances would have been selected for because inclusion in larger and stronger groups afforded benefits to the individual which translated into survival and reproduction. We take pride in the accomplishments of our school basketball team, our political party, our fraternity or sorority, or the Society for Personality and Social Psychology, because our coalitions' strength is to some extent our own.

Mating relationships are also alliances, of which the principal evolutionary function is successful childrearing (Daly et al., 1997; Kirkpatrick, 1998). Within local populations, married couples are often highly competitive, intent on maintaining the best lawn or Christmas lighting on the block or otherwise "keeping up with the Joneses." Bring groups of parents together in a room and they will often spend much of the time boasting about their respective children's accomplishments in a conversational can-you-top-this game. Bumper stickers proudly announce "My child is an honor roll student at X School," one implication of which is that your child probably is not. Thus, people draw self-esteem not only from having a spouse and a satisfying marital or dating relationship, but also from the accomplishments and quality of their partnership relative to others'.

Finally, the quality and strength of one's kin-based alliances and extended family provide an important source of self-esteem. One takes great pride in being a Capulet or a Montague, a Hatfield or a McCoy, a Rockefeller or a Kennedy. Family ties and nepotism play crucial roles in politics and competition for power and prestige. Royalty, which is invariably defined along family lines, presents a clear example of strong kin-based coalitions that have succeeded at the expense of other family lines, and belonging to a royal family is undoubtedly an important source of self-esteem for those who do. Kin-based coalitions are frequently in direct competition with one another, often violently. (See Daly & Wilson, 1988, for discussion.)

Within-group competition

In addition to tracking the relative strength of one's own group vis-à-vis other groups, self-esteem should also track one's own individual position *within* various groups. As discussed in the next section, knowing where one stands relative to the competition is extremely valuable for guiding behavior in a variety of ways. Indeed, the optimal choice among alternative paths to reproductive success often differs considerably depending on one's standing relative to others. Consequently, we propose that another distinct set of sociometers is designed to assess one's local standing with respect to competition within the kinds of groups discussed above.[6]

Within local populations, interindividual competition within most social species is ongoing with respect to several overlapping dimensions. Numerous researchers have pro-

posed that the self-esteem system in humans is related to dominance hierarchies, suggesting that self-esteem reflects an assessment of one's status, rank, or prestige relative to (mainly intrasexual) local competitors (Barkow, 1989; Gilbert, Price, & Allan, 1995). Whether based on physical size and strength, genetic lineage, quality of territory, or other factors, species ranging from crawfish (Barinaga, 1996) to chimpanzees (de Waal, 1982) display some form of dominance ranking that determines access to resources and/or mates. Human status hierarchies are clearly much more complex than, say, chickens' pecking orders, but there can be little doubt that status-striving is a universal human motive (e.g., Buss, 1999; Daly & Wilson, 1988; Symons, 1979). As discussed in the next section, self-assessments of dominance or status function to guide individuals to either challenge or submit in conflictual situations.

Other researchers have focused specifically on the adaptive problem of attracting mates, and suggested that self-esteem might reflect self-evaluations of the degree to which one is valued as a mate by members of the other sex (e.g., Dawkins, 1982; Kenrick, Groth, Trost, & Sadalla, 1993; Wright, 1994). Self-perceived *mate value* is determined by social feedback concerning one's attractiveness to the opposite sex, such as previous history of success and failure in mating, in combination with appraisals of the extant competition (Gutierres, Kenrick, & Partch, 1999). Other indicators might include feedback with respect to intrasexual competition concerning one's abilities, intelligence, and other characteristics indicative of potential mate quality. As discussed in the next section, self-assessments of mate value are important for guiding choices of mates and of mating strategies.

Within-group competition also takes place within otherwise cooperative coalitions and alliances. For example, same-sex friends or members of a group may vie for the same award, the same starting position on a baseball team, the same job opening, or the same potential mate. Likewise, dating and marital partners may compete over issues of investment and power within their relationship. Similarly, different family members often compete for access to familial resources of power and wealth (consider the ugly legal disputes that sometimes emerge over the distribution of a deceased family member's estate). And, of course, sibling rivalry over parental investment is well known in a variety of literatures, including countless ethological examples with respect to nonhuman species. As discussed in the next section, choosing the right strategies for negotiating and investing in relationships with other group members, from mates to kin to instrumental coalition partners, is contingent on self-evaluations of relative status within the group.

Global vs. specific, trait vs. state

Most previous researchers who have emphasized the domain-specificity of self-esteem have still retained the construct (and measures) of global self-worth or self-esteem, typically regarding it as a higher-order construct in a hierarchical model under which specific self-evaluations are nested (e.g., Harter et al., 1998). Our view is not inconsistent with this conceptualization, except insofar as it provides a theoretical basis for identifying the specific domains and the conditions under which each is most relevant. We suspect, however, that it is the domain-specific sociometers that generally are more functionally important in terms of guiding behavior and personality development.

However global self-esteem is sliced, its dimensions or components are invariably intercorrelated empirically. If, as we have argued, self-esteem comprises numerous domain-specific sociometers, why should this be the case? In fact, our perspective suggests several reasons to expect sociometers to be intercorrelated. First, certain characteristics are valued in the context of many different relationship domains. A man of large stature and physical strength, for example, is potentially valuable both as a mate (i.e., with respect to providing protection to mates and offspring) and as a coalitional partner (e.g., as part of a hunting or war party). Similarly, psychological traits such as kindness and loyalty are highly valued in both friends and mates. To the extent that one evinces such characteristics, then, he or she is likely to be socially accepted across a variety of relationship contexts, and consequently to experience high self-esteem across these domains.

Second, high status or inclusion in certain kinds of relationships often confers benefits with respect to other forms of status or inclusion. High status within the local population, for example, renders one desirable to others as a potential coalition partner or mate. Conversely, ties to a strong coalition (the benefits of which are resources available for social exchange) enhance one's value as a potential mate or friend. In this way success in one domain can lead to success in another, one consequence of which is that self-esteem in those respective domains will be intercorrelated. Moreover, to the extent that such interrelations among characteristics and domains were regular features of ancestral environments, it seems plausible that sociometers may themselves be interconnected within our psychological architecture. For example, to the extent that high status attained through intrasexual or inter-group competition was regularly predictive of enhanced mate value and mating opportunities – a widespread phenomenon throughout the animal world – it seems possible that (especially for men) a status sociometer might be designed to send output directly to a mate-value sociometer.

Although much of our discussion up to this point has focused implicitly on *state* self-esteem, we suggest that *trait* self-esteem is similarly domain-specific. Leary and Baumeister (2000) propose that state self-esteem reflects an (affect-laden) appraisal of one's current level of social inclusion, whereas trait self-esteem reflects an appraisal of one's *potential* or likely future level of inclusion. In other words, state self-esteem gauges current *acceptance*, whereas trait self-esteem gauges *acceptability*. We suggest that this same distinction might be applied within each of the separate self-esteem domains we propose, as will become evident in the next section.

Multiple Functions of Self-esteem

Implicit in the view that the brain/mind comprises a number of domain-specific sociometers is the assumption that these sociometers do a number of different things: sociometers evolved because they are (or were, to our distant ancestors) useful in many ways for solving adaptive problems. The fuel-gauge analogy, as well as the word "socio*meter*" itself, is somewhat misleading on this point, because gauges and meters do nothing more than display measurements.[7] Perhaps a better analogy is an engine-temperature sensor that not only sends output to a dashboard gauge, but also automatically activates an auxiliary cooling fan

when a critical temperature is attained. Similarly, many older cars contained a small reserve gas tank that came online when the primary tank was detected as empty.

In this view, the dashboard gauges can be thought of as affective outputs of different sociometers. We propose that in addition to indicating the presence of specific types of problems in this way, sociometers have a second (and perhaps more important) function: to activate strategies for solving these problems. Just as temperature and fuel-level sensors function to activate different mechanical systems (e.g., cooling fans or reserve fuel tanks), we propose that different sociometers function to activate different psychological systems and processes, both at a broad level (in terms of guiding personality development) and at a more specific level (in terms of guiding day-to-day decision making and behavioral strategies). In this section we outline several of these proposed functions.

Guiding personality development

One of the basic assumptions of an evolutionary psychological perspective is that individuals have evolved to be able to function competently in a variety of different environments. According to conditional adaptation models (e.g., Belsky, Steinberg, & Draper, 1991; Mealey, 1995), what enables this flexibility and adaptation is that, as part of the inherited architecture of the brain, humans possess a repertoire of alternative developmental paths. Which strategy is "chosen" depends both on genotype and on exposure to evolutionarily relevant environmental cues during childhood.

Attachment theorists, for example, emphasize the role of early family relationships and support in the development of subsequent personality. In attachment theory, children's perceptions of inclusion and exclusion by relevant caregivers are conceptualized as their *internal working models* of attachment (Bowlby, 1969/1982). In Belsky et al.'s (1991) theory of the development of reproductive strategies, contextual stressors in early childhood are hypothesized to foster more negative and coercive (or less positive and harmonious) family relationships, which in turn are hypothesized to provoke earlier pubertal and sexual development. A key element of the theory is that the child's perception of support by family members – his or her family sociometer – influences subsequent development of differential reproductive strategies. Consistent with this, Ellis, McFadyen-Ketchum, Dodge, Pettit, and Bates (1999) found that greater warmth and positivity in the parent–child relationship, as observed in the summer prior to kindergarten, predicted later pubertal timing in daughters in the seventh grade (see also Graber, Brooks-Gunn, & Warren, 1995).

Alternative courses of personality development may also derive (in part) from self-assessment of competitive abilities (cf. Tooby & Cosmides's, 1990, discussion of "reactive heritability"). For example, many theorists have suggested that low self-esteem is a contributing factor to delinquency and criminality (e.g., Kaplan, 1980; Rosenberg, Schooler, & Schoenbach, 1989). Mealey (1995) specifically cites a perceived inability to compete for resources and mates according to conventional, socially sanctioned means as a primary causal factor in secondary sociopathy. Similarly, individual differences in self-perceived mate value may influence the development of reproductive strategies (e.g., Gangestad & Simpson, 2000; Kenrick et al., 1993). For example, men (but not women) who perceive themselves as relatively low in mate value have been found to pursue a more monogamous

mating strategy, including later age of first sexual intercourse, fewer sexual partners, lower frequency of sexual intercourse, and reception of fewer sexual invitations from the opposite sex (Lalumiere et al., 1995). In sum, variations in self-perceived competitive abilities may function to channel individuals toward different life strategies that adaptively mesh with their competitive abilities.

Directly addressing a deficiency

In addition to influencing the development of personality dispositions such as sociopathy and sociosexual orientation, variations in self-esteem should also influence more immediate decision-making and behavioral choices. Leary et al. (1995) discuss only one way in which a warning message from the sociometer might be used to organize or guide behavior: consistent with the fuel-gauge analogy, they suggest that the function of an "E" reading is to alert one to the need to refill the gas tank. That is, the sociometer indicates that one has a deficiency of something (in this case, social inclusion), and the behavioral response is to redouble efforts to obtain that something. For example, a sociometer sensitive to cues that one's current mating relationship is in jeopardy should activate a number of behavioral responses for defending the relationship (or replacing it).

Although a sociometer may sometimes be useful for guiding behavior in this way, simply refilling the tank often is not an available or adaptive strategy. If people have learned from repeated rejections that members of the opposite sex do not find them attractive, then simply increasing efforts to make oneself more attractive are likely to be ineffective. Persistent attempts by a subordinate to be "socially included" by a powerful, dominant competitor could well lead to physical injury or death. Moreover, if self-esteem invariably worked this way, we should expect people with low self-esteem to work harder and persevere longer at tasks than those with high self-esteem; however, precisely the opposite pattern has been demonstrated in empirical research (e.g., Perez, 1973; Shrauger & Sorman, 1977). It is likely, therefore, that sociometers guide decision-making and behavior in other ways as well.

Guiding adaptive relationship choices

All individuals have a limited amount of investment – time, energy, resources – to budget toward various activities. Because natural selection favors individuals who make propitious decisions relative to the alternatives available to them in budgeting investment, selection should act against individuals who either (1) invest too heavily in social relationships that are substantially lower in value than they can command on the social marketplace (and thus fail to get a fair return on the value they bring to the relationships), or (2) waste investment pursuing social relationships that are higher in value than what they can realistically obtain in the social marketplace. Accordingly, we hypothesize that an important function of self-esteem is to guide individuals to approach social relationships that are of the highest quality possible, yet defensible given one's own social value (Hoop & Ellis, 1990).

For example, if a job candidate for an academic position is continually rejected by first-tier institutions, the accompanying decrement in professional self-esteem should guide the

candidate to recalibrate his or her job search downward toward second- or third-tier institutions. Conversely, a plethora of job interviews and offers from lower tier institutions should boost professional self-esteem, leading the candidate to redirect his or her job search upward. Through gauging the response to his or her job applications, the candidate discovers his or her niche of acceptance and rejection on the job market. We propose that the candidate's feelings of professional self-esteem reflect his or her internal, subjective perception of this niche. These feelings function to guide job search effort toward institutions with which the candidate is well matched. Variation across candidates in feelings of professional self-esteem should make the job search process faster, more efficient, and ultimately more successful by adaptively guiding candidates toward positions that are of relatively high quality within the individual's range of affordability.

Similar self-evaluative processes should also guide approach behavior toward other types of social relationships, such as friendships and mateships (see Kenrick et al., 1993). In the mating domain, self-assessed mate value (relative to the perceived competition) provides important information for guiding partner preferences. One of us (L.K.) finds Helen Hunt particularly desirable as a potential mate, but prudently avoids wasting very much time or effort in trying to win her affections. Conversely, people (as well as close kin and friends concerned about their welfare) are clearly sensitive to the issue of choosing mates of lower value than that permitted by their own "market value." Along these lines, much evidence suggests that people typically wind up mating with partners who are similar to themselves, both in overall attractiveness (Feingold, 1988) and on a wide array of specific characteristics (Buss, 1985). Although a variety of explanations for this effect are available (see Kalick & Hamilton, 1986), several studies point explicitly to the effect of self-evaluations on mate preferences. For example, a classic study by Berscheid, Dion, Walster, and Walster (1971) showed that men's and women's minimal standards for attractiveness of a date were related to their own level of attractiveness. Similarly, Kenrick et al. (1993) and Regan (1998) showed that, at least for women, self-appraisals on mate value and other socially desirable characteristics were predictive of minimal standards acceptable in a potential mate.

Calibrating investment within ongoing relationships

Although processes of self-evaluation should generally guide individuals toward social partners with whom they are reasonably well-matched, people nonetheless sometimes become involved in "mismatched" relationships. As mentioned above, heavy investment in a social relationship that is substantially lower in value than an individual can command on the social marketplace should be selected against; however, relatively low-investment strategies in mismatched relationships may have been favored by natural selection. Consider, for example, a woman who can choose between two husbands, A and B. Her friends consider Husband A to be a "good catch" for her: he is healthy, strong, professionally successful, well-liked, and respected by his peers. Husband B, by contrast, is physically weak, has a floundering career, few friends, and is submissive to others. Even though the woman's friends think that "she could do better" than Husband B, marrying Husband A is not necessarily the best choice. In order to maintain her relationships with Husband A, she may have to devote most of her time, energy, and resources to the marriage. This heavy

investment in one domain restricts the amount of investment she can allocate to other domains, such as development of a professional career, pursuit of additional mateships, and maintenance of friendships. In contrast, in order to maintain her relationship with Husband B, she may have to devote relatively little of her time, energy, and resources to the marriage (while monopolizing most of Husband B's investment in return). Meanwhile, she is able to channel most of her investment into other domains. This suggests that mating downward in mate value could be an evolutionarily stable strategy in certain contexts.

Given these kinds of dynamics, natural selection can be expected to have designed psychological mechanisms to evaluate (1) one's own value in social relationships, (2) the value of relationship partners, and (3) the difference between these two evaluations. We hypothesize that these assessments of relative value function to calibrate not only one's own level of investment in ongoing relationships, but also the level of investment expected from partners. Individuals who perceive themselves to be higher in value than their relationship partners can be expected to invest less and expect more in return.

For example, differential levels of parental investment by mate value have been documented in both birds and humans. Burley (1986) showed that after being experimentally manipulated to be more attractive to females, male zebra finches reduced their levels of parental care (and achieved increased success in extra-pair matings) while their mates increased their parental care. Among the Aka pygmies of central Africa, men who hold positions of high status in the tribe (*kombeti*) only hold their infants for an average of 30 minutes per day, whereas men who lack positions of status hold their infants for an average of 70 minutes per day (Hewlett, 1991). *Kombeti*, who are highly desired as husbands, appear to calibrate levels of parental investment downward and then channel extra investment into additional matings (they are usually polygynous, with two or more wives). In contrast, lower-status men with fewer resources, who are fortunate to even have one wife, appear to calibrate levels of parental investment upward (compensating for their weaker position by investing more time in caring for and protecting their children).

Negotiating dominance/status hierarchies

A parallel line of reasoning applies to behavioral choices regarding agonistic or competitive relationships. In most species, very few intrasexual conflicts are resolved by actual fighting; instead, mismatches are typically avoided because competitors are able to quickly gauge who would likely win a fight, and the expected loser defers to the expected winner. Thus, self-assessments of fighting ability or status – in the animal literature, *resource-holding potential*, or *RHP* – lead individuals to back down from agonistic encounters in which they are likely to lose (so as not to risk injury and waste energy) and to initiate such encounters when they are likely to win (so as to take advantage of available resources and opportunities; Gilbert et al., 1995; Parker, 1974). Wenegrat (1984) has argued that RHP may be one element of human self-esteem.

Chimpanzees, along with many other primate and non-primate species including humans, have elaborate, differentiated behavioral patterns for interacting with other individuals of higher versus lower status than themselves (de Waal, 1982). High-status competitors are treated with deference and respect; one behaves in dominant ways toward

those below and in submissive ways toward those above (e.g., Maclay & Knipe, 1972). Although now-discredited group-selectionist theories interpreted such behaviors as designed for maintaining the social order for the good of the group or the species (e.g., Wynne-Edwards, 1986), a more defensible interpretation is that different alternative strategies are more adaptive depending on one's status within the local hierarchy. For those near the bottom an adaptive strategy is to bide one's time and hope for a change in the competitive landscape, showing deference and using strategies such as ingratiation to remain in favor with more powerful individuals (Dawkins, 1989; Wrangham & Peterson, 1996).

The ability to accurately gauge one's status within the local hierarchy, and hence the potential adaptive utility of the various behavioral strategies, is crucial for guiding appropriate dominant and submissive behavior. Low RHP, for example, leads weaker, smaller organisms to avoid directly challenging dominant competitors (and likely suffering serious injury or death in the attempt). Price, Sloman, Gardner, Gilbert, and Rhode (1994) conceptualize depression as a yielding mechanism that functions to inhibit aggressive behavior toward rivals and superiors when one's status is low.

Social psychologists have found that people adopt different *self-presentational strategies* as a function of differential self-esteem (Baumeister, Tice, & Hutton, 1989; Wolfe, Lennox, & Cutler, 1986). Those with high self-esteem (reflecting high self-perceived status) can afford to adopt riskier *acquisitive* or *enhancing* strategies in which they call attention to their strengths and abilities and portray themselves as confident and optimistic. In contrast, those with low self-esteem (reflecting low self-perceived status) tend to adopt a more self-protective self-presentational strategy in which they seek to deflect attention from themselves and approach tasks without raising others' expectations about their likelihood of success. Other researchers have shown that men possessing traits that facilitate intrasexual competitive success adopt different strategies than those who do not when competing for a date (e.g., engaging in direct comparison with and derogation of competitors; Simpson, Gangestad, Christensen, & Leck, 1999).

Summary

An evolutionary perspective on self-esteem focuses attention on the adaptive, functional value of self-evaluations – on the ways in which these evaluations are useful (or, more precisely, were useful to our ancestors) in solving adaptive problems. Because different types of interpersonal relationships differ qualitatively with respect to the particular adaptive problems they pose, a number of different sociometers serving a variety of functions – from guiding personality development to initiating submission to dominant competitors – are needed to negotiate these relationships successfully.

Implications for Some Issues in the Self-esteem Literature

We believe that an evolutionary perspective on self-esteem, and particularly the ideas of domain-specificity and adaptive functionality, offer a useful framework for reconceptualizing

(and for generating empirically testable hypotheses about) a variety of major issues in the self-esteem literature. In this section we offer some illustrative examples with respect to a small sample of such issues.

Stability and contingency of self-esteem

Recent work by Kernis and his colleagues (Greenier, Kernis, & Waschull, 1995; Kernis, Cornell, Sun, Berry, & Harlow, 1993) suggests that the degree of stability in self-esteem over time, in addition to the average level of self-esteem, is an important individual-difference variable. Although level and stability are not statistically independent (i.e., stability is positively correlated with level), stability has a number of unique correlates. The two general issues on which we have focused in this paper – multiplicity of domains and multiplicity of adaptive functions – each lead to a hypothesis concerning the nature of individual differences in the stability of self-esteem.

The first possibility is that individual differences in the stability of self-esteem reflect the fact that the activity of any given sociometer varies across time. Once one has established satisfactory levels of inclusion in social groups, for example, the corresponding sociometer may go off-line until circumstances change and it is needed again (Leary & Baumeister, in press). Similarly, a mate-value sociometer should be active when one is on the "mating market," but turn off after one commits to a stable pair-bond relationship (Frank 1988; Kirkpatrick, 1998). We would therefore hypothesize that self-esteem is more stable among people currently involved in satisfying, ongoing relationships than among those who are not. We would also generally expect people in novel social environments (e.g., college freshmen) to display relatively unstable self-esteem until they have determined their position in local status and dominance hierarchies, and have established new friendships and coalitions. This perspective also helps to explain why self-esteem tends to be highly unstable during adolescence (Harter et al., 1998), a period during which we would expect many sociometers to be more or less chronically active.

The second possibility is that stable versus unstable self-esteem reflects activation of two or more distinct sociometers in different domains. A given sociometer should produce variable output to the extent that feedback about successes and failures is itself variable; such variability might be expected to differ naturally between domains. In competition with respect to status or mate value, for example, success can vary considerably across time: one might be congratulated by one's boss one day but castigated the next, or have a date invitation rejected one day but accepted the next. Inclusion in friendships and coalitions, in contrast, typically does not vary as much from day to day. This perspective could explain why Kernis et al. (1993, Study 2) unexpectedly found that people with relatively unstable (global) self-esteem were more likely than those with stable self-esteem to identify competence and physical attractiveness – but not social acceptance – as important determinants of their self-worth. People whose status-competition sociometers are highly active may be prone to less stable self-esteem, whereas those whose self-esteem hinges more upon social acceptance may evince more stable self-esteem.

Other constructs in the self-esteem literature may also be subject to similar reinterpretations. For example, although it is typically conceptualized in terms of exagger-

ated or unstable high self-esteem, *narcissism* "may be less a matter of having a firm conviction about one's overall goodness . . . than a matter of being emotionally invested in one's superiority" (Bushman & Baumeister, 1998, p. 220). That is, narcissism might reflect a disproportionately high level of activity of competition-related sociometers (e.g., status and dominance) relative to social-inclusion sociometers. This interpretation is consistent with other observations about narcissists, such as their high levels of hostility and aggressiveness (e.g., Bushman & Baumeister, 1998).

Social comparison and BIRGing

Another closely related issue concerns the degree to which social comparison processes are involved in the determination and maintenance of self-esteem. Since Festinger's (1954) seminal work, an enormous body of research has examined the role of social comparison in social psychological processes (e.g., Suls & Wills, 1991), including self-esteem.

Our view suggests that some sociometers are more inherently social-comparative than others. Mate value and status are by definition competitive, reflecting relative success in a zero-sum game, but inclusion in friendships or coalitions is ordinarily less so. Thus, our view provides a perspective for distinguishing among domains of self-esteem with respect to the degree to which social comparison processes are involved. In addition, it suggests that individual differences in the degree to which people are actively engaged in social comparison thinking are a function of which sociometers (domains) are currently active.

Whereas competitive domains are inherently social-comparative, the construct of *basking in reflected glory* ("BIRGing"; Cialdini et al., 1976; Tesser, Millar, & Moore, 1988) seems more clearly related to cooperative relationships such as friendships and coalitions. An individual's accomplishments indirectly benefit his or her friends and associates; a person's success is his or her partners' success, leading us to take pride in the accomplishments of our family members and coalition partners. In contrast, competitors for mating opportunities are unlikely to BIRG; in zero-sum contests, one person's success is another's failure. We think that theories such as Tesser's model of self-evaluation maintenance (Tesser, 1988; Beach & Tesser, 1995) could be extended and clarified by differentiating qualitatively different kinds of relationships and evaluations in the context of multiple, functionally distinct sociometers.

Self-enhancement

If, as we have argued, sociometers are designed to monitor our current standing with respect to particular domains in the service of guiding us toward adaptive strategic choices, one might expect them to be designed to do so as accurately as possible. However, a vast body of literature suggests that most of us have modestly inflated views of ourselves (e.g., more of us believe that we are above average than is mathematically possible) and display a variety of related "positive illusions" (Taylor & Brown, 1988). Why should a well-designed (from an evolutionary perspective) sociometer evince such a pervasive self-enhancement bias?

We believe that there may well be an inherent positive bias in the calibration of some, if not all, sociometers. As summarized by Alcock (1995; also see Haselton & Buss, 2000), our evolved psychology is designed to be adaptive, not necessarily truthful. Adaptations for information processing are biased to the extent that some kinds of errors are consistently more costly (in inclusive fitness terms) than others. A rabbit is better served by mistaking a harmless rustling of leaves caused by the wind for a predator than the other way around; ancestral rabbits that were accurate rather than paranoid did not become rabbit ancestors. Krebs and Denton (1997) suggest that many familiar social cognitive biases, from positive illusions to ingroup and outgroup biases, reflect adaptive design of these cognitive systems rather than malfunctions. Leary, Haupt, Strausser, and Chokel (1998) suggest that the self-esteem sociometer might indeed be calibrated with a built-in positive bias in this manner – "much like a fuel gauge that indicates that the gas tank is fuller than it really is" (p. 1290).

Although the adaptive advantages of accuracy were one selection pressure that shaped the evolution of sociometers, we suspect that there was another, conflicting pressure as well. Because one's value in interpersonal domains is primarily a function of how one is evaluated by others, one way to raise one's value on that dimension is by deceiving others about one's true value. The effectiveness of impression management strategies is limited by others' well-tuned abilities to detect deception in self-presentation; it is difficult to convince others of our worth if we are not so convinced ourselves. (See Zahavi & Zahavi, 1997, for a discussion of other reasons why dishonest signaling systems in general are unlikely to evolve.) Positive illusions may therefore represent a form of *self*-deception designed to enhance the effectiveness of an ongoing attempt to "induce others to overvalue us" (Krebs & Denton, 1997).

An interesting alternative perspective, offered by Leary and Baumeister (in press), likens self-esteem-enhancement to drug abuse. High self-esteem feels good by virtue of its design and, consequently, we seek out ways to experience that affective high. Much as "a drug such as cocaine may create a euphoric feeling without one's having to actually experience events that normally bring pleasure . . . [C]ognitively inflating one's self-image is a way of fooling the natural sociometer mechanism into thinking that one is a valued relational partner" (p. 24). We would add that one might alternatively fool other sociometers into thinking that one has high status, or is a desirable mate, and so forth.

According to Leary and Downs (1995, p. 129), "most behaviors that have been attributed to the need to maintain self-esteem may be parsimoniously explained in terms of the motive to avoid social exclusion." We concur, but add that many such behaviors might be explained in terms of other self-esteem domains and functions. From our perspective, self-enhancement processes represent just one aspect – and, in some sense, only a peripheral aspect – of the adaptive design of sociometers more generally.

Self-verification and depressive realism

Based on the traditional assumption that seeking high self-esteem is a fundamental motive, one might expect that self-enhancing biases would be particularly evident among people with the lowest levels of social inclusion, status, and other forms of social success; after all, it is they who presumably need it the most. We are inclined to hypothesize exactly the

opposite. If sociometers are designed to motivate and organize alternative behavioral strategies as a function of status, mate value, or social inclusion, then individuals who are failing are those for whom a positive bias would be *least* adaptive. If one's social-inclusion sociometer sounds an alarm, particularly in light of its (default) positive bias, it suggests that something is seriously wrong. Fooling oneself into believing otherwise could have disastrous consequences.

Instead, the alert should motivate efforts to reappraise one's situation as accurately as possible, in order to determine if major behavioral changes or alternative strategies are called for. This analysis is consistent with research by Swann (1987) and others demonstrating that persons with low self-appraisals prefer self-verifying (consistency-enhancing) rather than self-enhancing feedback from others. Moreover, whereas self-enhancement processes may occur automatically and effortlessly, self-verification (or consistency) processes are cognitively effortful (Swann, Hixon, Stein-Seroussi, & Gilbert, 1990). Our hypothesis is that sociometers are calibrated by default to be (modestly) upwardly biased, for reasons discussed above, but that additional cognitive processes designed to deactivate these biases and to generate accurate self-appraisals are activated by low readings.

This view is also consistent with much research indicating that depressed people are "sadder but wiser," in that their views of themselves and their worlds are not biased by positive illusions and are in fact more accurate (e.g., Alloy & Abramson, 1979). Although the proximal consequences and correlates of depression appear dysfunctional in many modern circumstances, it is possible that depression involves activation of a behavioral strategy for taking time out to reassess one's situation and/or to wait for better times. If one has repeatedly experienced failure in the competition for mates, for example, an adaptive strategy would be to suspend competitive efforts temporarily and wait for a change in the competitive landscape (e.g., due to competitors weakening, dying, or moving away). The capacity to experience learned helplessness may be an adaptation designed to enable individuals to determine when they are truly helpless – that is, when continuation of one's current behavioral strategy is unlikely to lead to success with respect to a particular domain. Although it is certainly possible that at least some forms of depression are truly maladaptive, and represent some kind of malfunctioning of an otherwise adaptive system, our perspective suggests that it might be fruitful to reexamine depression in terms of a behavioral strategy activated by low self-esteem in one or more domains.

Cross-cultural differences in self-esteem processes

A common misunderstanding about evolutionary psychology is that the posited existence of species-universal psychological mechanisms seems inconsistent with the observation of cross-cultural variability in behavior. A simple illustration shows why this is not true. Human skin is designed with a callus-producing mechanism that responds to friction by toughening the skin. Although this adaptation is shared by people in all cultures, enormous variability can be observed both between people and between cultures depending on experience and environmental variability: calluses on the feet are common in cultures where people walk barefoot, but not where they typically wear shoes (Buss, 1995).

Several researchers have suggested that the emphasis on achievement, task performance,

and other social-comparative dimensions as a primary basis for self-esteem is unique to modern Western cultures – specifically, *individualistic* (versus *collectivist*) cultures (Markus & Kitayama, 1991; Triandis, Bontempo, Villareal, Asai, & Lucca, 1988). In collectivist cultures, it is argued, self-esteem is more closely related to matters concerning one's acceptance within the group or society rather than to interindividual competition. Our perspective suggests a way to conceptualize this difference in terms of the particular sociometers that are regularly activated within the local environment (cf. the callus analogy). In environments in which success depends on integration within the local group, or strong coalitional relationships, coalition-related sociometers are likely to be regularly or chronically activated, whereas a sociometer designed to monitor status and rank might remain quiescent; the reverse is true in cultures in which success in most domains depends on competition rather than cooperation.

Another view is suggested by Leary and Baumeister (2000), who suggest that contemporary Westerners' (especially Americans') obsession with self-esteem may be a consequence of the relative (and evolutionarily novel) instability of social relationships in modern society. When people move away from their families, change jobs, and get divorced at high rates, they repeatedly find themselves in new contexts in which they must reassess or rebuild their relative standing and interpersonal relationships.

Implications for intervention

In recent years, the idea that low self-esteem lies at the heart of a variety of personal and societal problems has become popular among legislators and the general public, and has led to interventions designed to boost the self-esteem of schoolchildren as a prevention strategy (e.g., California Task Force to Promote Self-esteem and Personal and Social Responsibility, 1990). The perspective on self-esteem we have outlined in this chapter suggests at least two ways in which such a strategy could be severely misguided.

Our view (like Leary's) of self-esteem as a functional, dynamic system that monitors one's degree of success in particular domains, rather than as an end in itself, suggests that manipulating self-esteem is like treating symptoms without treating their underlying cause. Interventions designed to manipulate self-esteem directly are akin to counseling drivers to feel better about the fact that their car is overheating, rather than stopping and adding water to the radiator. (See Leary, 1999, for a general discussion of implications of the sociometer model for clinical and counseling psychology.)

Second, our view (unlike Leary's) further suggests that interventions are likely to fail unless they are directed toward the relevant domain of self-esteem. For example, individuals who feel a lack of coalitional inclusion may remain unaffected by attempts to manipulate their feelings of (or actual) accomplishment and competence – and vice versa. Adding water to the radiator will not be very helpful if the gas tank is empty. Our perspective suggests that intervention strategies must first identify the domain of self-esteem in which an individual is at risk, determine the conditions that are leading to negative self-evaluations within this domain, and then target intervention strategies accordingly. Again, however, effective interventions are likely to be those that work toward fixing the underlying causes of the problems, not the gauges that simply monitor them.

Conclusion

Sociometer theory represents a significant advance in self-esteem research, and opens the door to a dynamic view of self-esteem processes based on evolutionary psychology. As Leary and colleagues have argued, self-esteem reflects the operation of adaptation(s) designed to monitor success and failure in negotiating interpersonal relations. We have offered an extension of the model, based on evolutionary psychology, and attempted to illustrate just a few of the ways in which a functional, domain-specific view of sociometers might inform research on long-standing issues in the self-esteem literature.

With respect to the structure of self-esteem, an evolutionary approach offers a way of potentially "carving nature at its joints." That is, it should be possible to identify components or dimensions of self-esteem that parallel the actual design of our species-general cognitive architecture, rather than simply reflecting the conscious self-reflections of contemporary Western college students. We believe this approach offers a promising basis for constructing better self-esteem measures and for generating hypotheses about the antecedents and consequences of varying levels of self-esteem within specific domains.

From an evolutionary perspective, function is inextricably tied to structure. Following Leary et al. (1995), an evolutionary approach shifts attention away from the problem of enhancing, maintaining, and restoring self-esteem per se, and toward the interpersonal relationships and problems that sociometers are designed to monitor. It shifts attention away from the gauges in the dashboard of the car and toward the engine, transmission, and auxiliary components that actually determine automotive functioning. Such an approach is not only theoretically rich and inherently interesting, but has clear implications for practice and intervention.

We wish to emphasize once again that this chapter is intended as no more than a general framework for guiding research and generating testable hypotheses. Future research may well show that there are many more (or at least different) sociometers than we have suggested here. We have no doubt that many more adaptive functions of such sociometers remain to be identified, and that many other current issues in the self-esteem literature can be usefully reexamined from this perspective. We are equally confident that a functional, evolutionary approach has enormous heuristic value for guiding and generating exciting new research on self-esteem in social psychology and the many other disciplines within which the construct of self-esteem plays an important role.

Notes

1. Even though happy people may on average live slightly longer or suffer fewer medical problems, such effects typically are not evident until well beyond the primary reproductive years.
2. We acknowledge that many researchers might prefer to use a term such as *self-evaluation* rather than *self-esteem* in referring to distinct domains. However, we prefer to follow Leary and Baumeister (in press) in defining self-esteem in terms of affectively laden appraisals of one's own value.
3. Actually, many modern automobiles do in fact come equipped with a kind of general warning

light, labeled simply "engine" or something equally cryptic, which is activated by an on-board computer that internally monitors a variety of specific aspects of engine functioning. The reason for this design, we presume, is that the kinds of engine problems that would activate it are those that drivers would be unable to repair without a mechanic. Although the computer monitors many domains of engine functioning, in this case they all have just one functional solution for the average driver: Bring the car to a mechanic – i.e., someone with the experience and knowledge required to solve the problem. Human infants are designed in a similar manner: they respond to all kinds of discomfort and cues of potential danger with attachment behaviors intended to increase proximity to a primary caregiver (Bowlby, 1969/1982). Adults, however, have much more differentiated strategic and behavioral repertoires, and we suspect that their brains/minds are designed to implement a diverse collection of adaptive strategies for dealing with different problems.

4. Another major source of self-esteem recognized by most theorists involves self-perceived competence and abilities or self-efficacy (Bandura, 1977) – self-evaluations that are not inherently social in nature. Given space limitations, we have chosen to focus our discussion only on interpersonal relationships. We hope it will be evident, however, that the theoretical approach adopted in this chapter could be applied to self-evaluations of skills and competencies in a similar manner. To some extent this analysis would resemble that of Harter (1993), in which the importance of self-perceived competencies derives in large part from their anticipated impact on the evaluations of important others – with different competencies linked to different classes of relationships.
5. We thank Mark Leary for suggesting the analogy of octane versus fuel level. We also note that Leary's own preference is to reserve the term "sociometer" for the latter (personal communication, July 1999). We think, however, that *socio-meter* aptly describes many of the other facets of self-esteem discussed in this paper as well.
6. Leary and Baumeister (2000) argue instead that the role of dominance in self-esteem is in the service of social inclusion; that is, status "is sometimes a criterion for inclusion" and "has implications for one's relational value" (p. 19). We address the interrelatedness of sociometers later in the chapter, but simply note here that status/dominance and inclusion/acceptance are often quite independent. For example, it may be "lonely at the top" because intense status-striving can undermine social inclusion.
7. We thank Don Forsyth for bringing this point to our attention.

References

Alcock, J. E. (1995). The belief engine. *Skeptical Inquirer, 19*(3), 14–18.

Alloy, L. B., & Abramson, L. Y. (1979). Judgment of contingency in depressed and nondepressed students: Sadder but wiser? *Journal of Experimental Psychology, 108*, 441–485.

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review, 84*, 191–215.

Barinaga, M. (1996). Social status sculpts activity of crayfish neurons. *Science, 171*, 290–291.

Barkow, J. H. (1989). *Darwin, sex, and status: Biological approaches to mind and culture*. Toronto: University of Toronto Press.

Baumeister, R. F., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin, 117*, 497–529.

Baumeister, R. F., Smart, L., & Boden, J. M. (1996). Relation of threatened egotism to violence and aggression: The dark side of self-esteem. *Psychological Review, 103*, 5–33.

Baumeister, R. F., Tice, D. M., & Hutton, D. G. (1989). Self-presentational motivations and personality differences in self-esteem. *Journal of Personality, 57*, 547–579.

Beach, S. R. H., & Tesser, A. (1995). Self-esteem and the extended self-evaluation maintenance model: The self in social context. In M. H. Kernis (Ed.), *Efficacy, agency, and self-esteem* (pp. 145–170). New York: Plenum.

Belsky, J., Steinberg, L., & Draper, P. (1991). Childhood experience, interpersonal development, and reproductive strategies: An evolutionary theory of socialization. *Child Development, 62*, 647–670.

Berscheid, E., Dion, K., Walster, E., & Walster, G. W. (1971). Physical attractiveness and dating choice: A test of the matching hypothesis. *Journal of Experimental Social Psychology, 1*, 173–189.

Bowlby, J. (1969/1982). *Attachment and loss: Vol. 1. Attachment*. New York: Basic Books. (Original work published 1969)

Burley, N. (1986). Sexual selection for aesthetic traits in species with biparental care. *American Naturalist, 127*, 415–445.

Bushman, B. J., & Baumeister, R. F. (1998). Threatened egotism, narcissism, self-esteem, and direct and displaced aggression: Does self-love or self-hate lead to violence? *Journal of Personality and Social Psychology, 75*, 219–229.

Buss, D. M. (1985). Human mate selection. *American Scientist, 73*, 47–51.

Buss, D. M. (1995). Evolutionary psychology: A new paradigm for psychological science. *Psychological Inquiry, 6*, 1–30.

Buss, D. M. (1999). *Evolutionary psychology: The new science of the mind*. Boston: Allyn & Bacon.

Buss, D. M., & Schmitt, D. P. (1993). Sexual strategies theory: An evolutionary perspective on human mating. *Psychological Review, 100*, 204–232.

California Task Force to Promote Self-esteem and Personal and Social Responsibility (1990). *Toward a state of self-esteem*. Sacramento: California State Department of Education.

Chagnon, N. A. (1992). *Yanomamo: The last days of Eden*. San Diego, CA: Harcourt Brace Jovanovich.

Cialdini, R. B., Borden, R. J., Thorne, A., Walker, M. R., Freeman, S., & Sloan, L. R. (1976). Basking in reflected glory: Three (football) field studies. *Journal of Personality and Social Psychology, 34*, 366–375.

Clutton-Brock, T. H. (Ed.) (1988). *Reproductive success: Studies of selection and adaptation in contrasting breeding systems*. Chicago: University of Chicago Press.

Colvin, C. R., Block, J., & Funder, D. C., (1995). Overly positive self-evaluations and personality: Negative implications for mental health. *Journal of Personality and Social Psychology, 68*, 1152–1162.

Cooley, C. H. (1902). *Human nature and the social order*. New York: Scribner's.

Coopersmith, S. (1967). *The antecedents of self-esteem*. San Francisco: W. H. Freeman.

Daly, M., Salmon, C., & Wilson, M. (1997). Kinship: The conceptual hole in psychological studies of social cognition and close relationships. In J. A. Simpson & D. T. Kenrick (Eds.), *Evolutionary social psychology* (pp. 265–296). Mahwah, NJ: Erlbaum.

Daly, M., & Wilson, M. (1988). *Homicide*. New York: Aldine de Gruyter.

Dawkins, R. (1982). *The extended phenotype*. San Francisco: W. H. Freeman.

Dawkins, R. (1989). *The selfish gene* (new ed.). Oxford: Oxford University Press.

de Waal, F. (1982). *Chimpanzee politics: Power and sex among apes*. Baltimore: Johns Hopkins University Press.

Ellis, B. J., McFadyen-Ketchum, S., Dodge, K. A., Pettit, G. S., & Bates, J. E. (1999). Quality of early family relationships and individual differences in the timing of pubertal maturation in girls: A longitudinal test of an evolutionary model. *Journal of Personality and Social Psychology, 77*, 387–401.

Ember, C. R. (1978). Myths about hunter-gatherers. *Ethnology, 27*, 239–448.

Epstein, S. (1973). The self-concept revisited: Or a theory of a theory. *American Psychologist, 28*, 404–416.

Feingold, A. (1988). Matching for attractiveness in romantic partners and same-sex friends: A meta-analysis and theoretical critique. *Psychological Bulletin, 104*, 226–235.

Festinger, L. (1954). A theory of social-comparison processes. *Human Relations, 7*, 117–140.

Frank, R. H. (1988). *Passions within reason: The strategic role of the emotions*. New York: Norton.
Gangestad, S. W., & Simpson, J. A. (2000). The evolution of human mating: trade-offs and strategic pluralism. *Behavioral and Brain Sciences*, *23*, 573.
Gilbert, P., Price, J., & Allan, S. (1995). Social comparison, social attractiveness, and evolution: How might they be related? *New Ideas in Psychology, 13*, 149–165.
Graber, J. A., Brooks-Gunn, J., & Warren, M. P. (1995). The antecedents of menarcheal age: Heredity, family environment, and stressful life events. *Child Development, 66*, 346–359.
Greenberg, J., Solomon, S., & Pyszczynski, T. (1986). The causes and consequences of a need for self-esteem: A terror management theory. In R. F. Baumeister (Ed.), *Public self and private self* (pp. 189–212). New York: Springer-Verlag.
Greenier, K. D., Kernis, M. H., & Waschull, S. B. (1995). Not all high (or low) self-esteem people are the same: Theory and research on stability of self-esteem. In M. H. Kernis (Ed.), *Efficacy, agency, and self-esteem* (pp. 51–71). New York: Plenum.
Gutierres, S. E., Kenrick, D. T., & Partch, J. J. (1999). Beauty, dominance, and the mating game: Contrast effects in self-assessment reflect gender differences in mate selection. *Personal and Social Psychology Bulletin*, *25*, 1126–1134.
Hamilton, W. D. (1964). The evolution of social behavior. *Journal of Theoretical Biology, 7*, 1–52.
Harter, S. (1993). Causes and consequences of low self-esteem in children and adolescents. In R. F. Baumeister (Ed.), *Self-esteem: The puzzle of low self-regard* (pp. 87–116). New York: Plenum.
Harter, S., Waters, P., & Whitesell, N. R. (1998). Relational self-worth: Differences in perceived worth as a person across interpersonal contexts among adolescents. *Child Development, 69*, 756–766.
Haselton, M. G., & Buss, D. M. (2000). Biases in cross-sex mindreading: Errors in design or errors by design? *Journal of Personality and Social Psychology, 78*, 81–91.
Hewlett, B. S. (1991). *Intimate fathers: The nature and context of Aka pygmy paternal infant care*. Ann Arbor: University of Michigan Press.
Hoop, D. K., & Ellis, B. J. (1990). *An evolutionary approach to cognitive concepts in personality*. Unpublished manuscript, University of Michigan.
Kalick, S. M., & Hamilton, T. E. (1986). The matching hypothesis reexamined. *Journal of Personality and Social Psychology, 51*, 673–682.
Kaplan, H. B. (1980). *Deviant behavior in defense of self*. New York: Academic Press.
Kaplan, H. S., & Lancaster, J. B. (1999, April). The evolution of human life course and male parental investment. In J. B. Lancaster (Chair), *Evolutionary and cross-cultural perspectives on male parental investment*. Symposium conducted at the biennial meeting of the Society for Research in Child Development, Albuquerque, NM.
Kenrick, D. T., Groth, G. E., Trost, M. R., & Sadalla, E. K. (1993). Integrating evolutionary and social exchange perspectives on relationships: Effects of gender, self-appraisal, and involvement level on mate selection criteria. *Journal of Personality and Social Psychology, 64*, 951–969.
Kernis, M. H., Cornell, D. P., Sun, C., Berry, A., & Harlow, T. (1993). There's more to self-esteem than whether it is high or low: The importance of stability of self-esteem. *Journal of Personality and Social Psychology, 65*, 1190–1204.
Kirkpatrick, L. A. (1998). Evolution, pair-bonding, and reproductive strategies: A reconceptualization of adult attachment. In J. A. Simpson & W. S. Rholes (Eds.), *Attachment theory and close relationships* (pp. 353–393). New York: Guilford Press.
Krebs, D. L., & Denton, K. (1997). Social illusions and self-deception: The evolution of biases in person perception. In J. A. Simpson & D. T. Kenrick (Eds.), *Evolutionary social psychology* (pp. 21–47). Mahwah, NJ: Erlbaum.
Lalumiere, M. L., Seto, M. C., & Quinsey, V. L. (1995). *Self-perceived mating success and the mating choices of human males and females*. Unpublished manuscript, Queen's University at Kingston, Ontario, Canada.
Leary, M. R. (1999). The social and psychological importance of self-esteem. In R. M. Kowalski & M. R. Leary (Eds.), *The social psychology of emotional and behavioral problems* (pp. 197–221). Washington, DC: APA Books.

Leary, M. R., & Baumeister, R. F. (2000). The nature and function of self-esteem: Sociometer theory. In M. Zanna (Ed.), *Advances in experimental social psychology* (*Vol. 32*, pp. 1–62). San Diego, CA: Academic Press.

Leary, M. R., & Downs, D. L. (1995). Interpersonal functions of the self-esteem motive: The self-esteem system as a sociometer. In M. H. Kernis (Ed.), *Efficacy, agency, and self-esteem* (pp. 123–144). New York: Plenum.

Leary, M. R., Haupt, A. L., Strausser, K. S., & Chokel, J. T. (1998). Calibrating the sociometer: The relationship between interpersonal appraisals and state self-esteem. *Journal of Personality and Social Psychology, 74*, 1290–1299.

Leary, M. R., Tambor, E. S., Terdal, S. K., & Downs, D. L. (1995). Self-esteem as an interpersonal monitor: The sociometer hypothesis. *Journal of Personality and Social Psychology, 68*, 518–530.

Luhtanen, R., & Crocker, J. (1992). A collective self-esteem scale: Self-evaluation of one's social identity. *Personality and Social Psychology Bulletin, 18*, 302–318.

Maclay, G., & Knipe, H. (1972). *The dominant man*. New York: Delta.

Manson, J. H., & Wrangham, R. W. (1991). Intergroup aggression in chimpanzees and humans. *Current Anthropology, 32*, 369–390.

Markus, H. R., & Kitayama, S. (1991). Culture and the self: Implications for cognition, emotion, and motivation. *Psychological Review, 98*, 224–253.

Mealey, L. (1995). The sociobiology of sociopathy: An integrated evolutionary model. *Behavioral and Brain Sciences, 18*, 523–599.

Mulder, M. B. (1987). Resources and reproductive success in women with an example from the Kipsigis of Kenya. *Journal of Zoology, London, 213*, 489–505.

Murdock, G. P., & Provost, C. (1973). Factors in the division of labor by sex: A cross-cultural analysis. *Ethnology, 12*, 203–235.

Parker, G. A. (1974). Assessment strategy and the evolution of fighting behavior. *Journal of Theoretical Biology, 47*, 223–243.

Perez, R. C. (1973). The effect of experimentally-induced failure, self-esteem, and sex on cognitive differentiation. *Journal of Abnormal Psychology, 81*, 74–79.

Price, J. S., Sloman, R., Gardner, R., Gilbert, P., & Rhode, P. (1994). The social competition hypothesis of depression. *British Journal of Psychiatry, 164*, 309–315.

Regan, P. C. (1998). Minimum mate selection standards as a function of perceived mate value, relationship context, and gender. *Journal of Psychology & Human Sexuality, 10*, 53–73.

Rosenberg, M. (1979). *Conceiving the self*. New York: Basic Books.

Rosenberg, M., Schooler, C., & Schoenbach, C. (1989). Self-esteem and adolescent problems: Modeling reciprocal effects. *American Sociological Review, 54*, 1004–1018.

Schatz, R. T., Staub, E., & Lavine, H. (1999). On the varieties of national attachment: Blind versus constructive patriotism. *Political Psychology*, *20*, 151–174.

Shrauger, J. S., & Sorman, P. B. (1977). Self-evaluations, initial success and failure, and improvement as determinants of persistence. *Journal of Consulting and Clinical Psychology, 45*, 784–795.

Simpson, J. A., Gangestad, S. W., Christensen, P. N., & Leck, K. (1999). Fluctuating asymmetry, sociosexuality, and intrasexual competitive tactics. *Journal of Personality and Social Psychology, 76*, 159–172.

Smith, M. S., Kish, B. J., & Crawford, C. B. (1987). Inheritance of wealth as human kin investment. *Ethology and Sociobiology, 8*, 171–182.

Solomon, S., Greenberg, J., & Pyszczynski, T. (1991). A terror management theory of social behavior: On the psychological functions of self-esteem and cultural worldviews. In M. P. Zanna (Ed.), *Advances in Experimental Social Psychology* (Vol. 24, pp. 93–159). San Diego: Academic Press.

Suls, J., & Wills, T. A. (Eds.). (1991). *Social comparison: Contemporary theory and research*. Hillsdale, NJ: Erlbaum.

Swann, W. B., Hixon, J. G., Stein-Seroussi, A., & Gilbert, D. T. (1990). The fleeting gleam of praise: Cognitive processes underlying behavioral reactions to self-relevant feedback. *Journal of Personality and Social Psychology, 59*, 17–26.

Swann, W. B. (1987). Identity negotiation: Where two roads meet. *Journal of Personality and Social Psychology, 53*, 1038–1051.

Symons, D. (1979). *The evolution of human sexuality*. New York: Oxford University Press.
Symons, D. (1987). If we're all Darwinians, what's the fuss about? In C. Crawford, D. Krebs, & M. Smith (Eds.), *Sociobiology and psychology* (pp. 121–145). Hillsdale, NJ: Erlbaum.
Symons, D. (1992). On the use and misuse of Darwinism in the study of human behavior. In J. H. Barkow, L. Cosmides, & J. Tooby (Eds.), *The adapted mind* (pp. 137–159). New York: Oxford University Press.
Tajfel, H. (1982). Social psychology of intergroup relations. *Annual Review of Psychology, 33*, 1–39.
Tajfel, H., & Turner, J. C. (1986). The social identity theory of intergroup behavior. In S. Worchel & W. Austin (Eds.), *Psychology of intergroup relations* (2nd ed., pp. 7–24). Chicago: Nelson-Hall.
Taylor, S. E., & Brown, J. D. (1988). Illusion and well-being: A social psychological perspective on mental health. *Psychological Bulletin, 103*, 193–210.
Tennen, H., & Affleck, G. (1995). The puzzles of self-esteem: A clinical perspective. In M. H. Kernis (Ed.), *Efficacy, agency, and self-esteem* (pp. 241–262). New York: Plenum.
Tesser, A. (1988). Toward a self-evaluation maintenance model of social behavior. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 21, pp. 181–227). New York: Academic Press.181–227.
Tesser, A., Millar, M., & Moore, J. (1988). Some affective consequences of social comparison and reflection processes: The pain and pleasure of being close. *Journal of Social and Personality Psychology, 54*, 49–61.
Tiger, L. (1969). *Men in groups*. New York: Random House.
Tooby, J., & Cosmides, L. (1990). On the universality of human nature and the uniqueness of the individual: The role of genetics and adaptation. *Journal of Personality, 58*, 17–67.
Tooby, J., & Cosmides, L. (1992). The psychological foundations of culture. In J. H. Barkow, L. Cosmides, & J. Tooby (Eds.), *The adapted mind* (pp. 19–136). New York: Oxford University Press.
Triandis, H. C., Bontempo, R., Villareal, M. J., Asai, M., & Lucca, N. (1988). Individualism and collectivism: Cross-cultural perspectives on self-ingroup relations. *Journal of Personality and Social Psychology, 54*, 323–338.
Trivers, R. L. (1972). Parental investment and sexual selection. In R. B. Campbell (Ed.), *Sexual selection and the descent of man: 1871–1971* (pp. 136–179). Chicago: Aldine.
Wenegrat, B. (1984). *Sociobiology and mental disorder: A new view*. Menlo Park, CA: Addison-Wesley.
Wolfe, R. N., Lennox, R. D., & Cutler, B. L. (1986). Getting along and getting ahead: Empirical support for a theory of protective and acquisitive self-presentation. *Journal of Personality and Social Psychology, 50*, 356–361.
Wrangham, R., & Peterson, D. (1996). *Demonic males: Apes and the origins of human violence*. Boston: Houghton Mifflin.
Wright, R. (1994). *The moral animal: The new science of evolutionary psychology*. New York: Pantheon.
Wynne-Edwards, V. C. (1986). *Evolution through group selection*. Oxford: Blackwell Scientific.
Zahavi, A., & Zahavi, A. (1997). *The handicap principle*. New York: Oxford University Press.