The Evolution of Self-Esteem

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Evolutionary psychology seeks to synthesize fundamental principles of evolutionary biology with modern psychological theories, leading to testable hypotheses about the design of the human mind. This synthesis has proved useful in guiding the discovery of previously unknown phenomena, generating new predictions not produced by prior psychological models, and providing cogent theories about entire domains of functioning such as mating, parenting, kinship, cooperation, and aggression (Buss, 2004; Cosmides & Tooby, 2004; Pinker, 2002). Self-esteem—a domain of exceptional importance—has recently come under the theoretical lens of evolutionary psychology (Barkow, 1989; Kirkpatrick & Ellis, 2001, this volume; Kirkpatrick, Waugh, Valencia, & Webster, 2002; Leary & Downs, 1995).

Evolutionary reasoning about psychological aspects of the self began when Barkow hypothesized that the self-concept is a composite of internal representations of individual characteristics that affect reproductive fitness (Barkow, 1989). Attributes expected to influence individuals' self-concepts are many, such as health, physical prowess, prestige, status, attractiveness, alliances, and resources, all of which have been integral to solving adaptive problems throughout human evolutionary history. Evolutionarily informed work on the self continued when Leary and Downs (1995)

proposed a *sociometer* theory of self-esteem. The sociometer theory depicts self-esteem as an internal gauge designed to monitor individuals' successes in interpersonal relationships, particularly the degree to which they are being included or excluded from social groups, and to motivate corrective actions when one's level of social inclusion gets dangerously low. Kirkpatrick & Ellis (2001), in an important conceptual elaboration, extend the sociometer theory by proposing that what is currently referred to as "self-esteem" is actually a collection of sociometers or self-esteems, each designed to monitor inclusion and motivate behavior in functionally distinct social domains such as mating, coalitional relationships, and prestige hierarchies (Kirkpatrick & Ellis, 2001, this volume; Kirkpatrick et al., 2002).

Each of the multiple self-esteem mechanisms is hypothesized to have been designed by natural selection to monitor information about the self that corresponds to solving a specific and recurrent adaptive problem faced by our evolutionary ancestors. The information so gained is hypothesized to activate psychological and behavioral processes designed to calibrate the information acquired through such monitoring and use it to solve specific adaptive problems (Kirkpatrick et al., 2002). These proposed functions of self-esteem are similar to resource holding potential (RHP) assessment, the hypothesized mechanism by which non-human animals gauge their competitive ability relative to their peers in order to facilitate optimal competitive behavior (for comparisons of self-esteem and RHP see Barkow, 1989; Gilbert et al., 1995; Wenegrat, 1984).

This essay, building on the work of these previous authors, offers two proposals for the eventual goal of developing a comprehensive evolutionary psychological model of self-esteem. The first involves clearly separating the distinct psychological mechanisms

hypothesized to be involved in self-esteem experiences based on their function. That is, we propose that self-esteem is not a unitary construct, but rather a collection of internal representations, monitoring mechanisms, updating mechanisms, evaluative mechanisms, motivational mechanisms, and mechanisms designed to generate behavioral output. Although the theory of self-esteem developed by other evolutionary psychologists divided self-esteem into four separate components (see Kirkpatrick & Ellis, 2001), the present distinctions imply far greater detailed design of the psychological machinery than suggested by previous models. The second suggestion centers on one way to clarify which components of self-esteem are domain-specific and which operate across a range of domains —a potentially contentious issue in the field of evolutionary psychology.

Six Psychological Components of Self-Esteem

Throughout human evolutionary history, individuals have competed against one another for access to resources that others were simultaneously seeking to acquire. Choosing the range of behaviors that will lead to an adaptive problem's successful solution has depended simultaneously on the predicted abilities of oneself and the anticipated behaviors of relevant others. Striving for a particular socially-mediated outcome without gauging both one's own abilities <u>and</u> the comparative abilities of relevant competitors could lead to futile attempts, wasted effort, banishment, or death. The problem of keeping track of one's own abilities has thus been an important selection pressure that has shaped human psychology. One hypothesized cognitive solution to this reliably occurring selection pressure is the ability to <u>maintain internal representations</u> of one's own talents and abilities. Keeping track of these values allows one to keep make prudent behavioral decisions in light of this information. Furthermore, it provides a

referent by which to compare oneself to relevant others in social and socially-competitive situations.

For instance, an individual would refer to the internal representation of their desirability to members of the opposite sex to make an informed decision about whether it would be best to compete with his or her peers for access to a potential love interest or whether to look for love elsewhere. Although we concur with Barkow, Leary, and Kirkpatrick and Ellis that the social aspects of these internal representations will be most important, we note that some important internal representations will be either non-social or not necessarily social (e.g., ability to start a fire to cook meat; finding one's way home after being lost in the woods). Thus, the first psychological component of self-esteem is the ability to maintain a cognitive map of one's traits and abilities to solve specific adaptive problems.

Second, as Leary and Downs (1995) and Kirkpatrick and Ellis (2001) have likewise proposed, mechanisms designed to monitor one's performance, and especially one's standing with respect to relevant others are also components of self-esteem. The ability to receive input from the environment about how one's own performance in a specific adaptive domain compares to one's peers provides a means by which to become informed of changes in the self or changes in one's relevant competition. For instance, individuals looking for a romantic partner can monitor how their own desirability and the desirability of their same-sexed competition changes over time or based on cues they receive from the social environment. Like Kirkpatrick and Ellis (2001), we expect these monitoring mechanisms to be functionally domain-specific. That is, we expect that

performance will be monitored in as many domains as there are adaptive problems to solve.

One's abilities to solve specific adaptive problems can change dramatically from year to year, month to month, day to day, or even moment to moment. An individual's abilities may change due to success or failure in a hunt, the birth of death of a child, an increase in age, acquisition of experience, health, sickness, alliance formation, coalitional weakening, kinship ascension, and other factors. The problem of incorporating this important contextual information into the self-concept to influence behavioral decisions has thus been an important selection pressure that has shaped human psychology. Humans are proposed to have evolved psychological mechanisms designed to update the self-concept, based on new information about the self. These updating mechanisms, of course, rely on information provided by the monitoring mechanisms. But they are distinct, in that informational output from the monitoring can result in: (a) no change in internal representations, (b) an increase in perception of one's abilities or attributes relative to others, or (c) a decrease in perception of one's abilities or attributes. Thus, the output of monitoring mechanisms provides input into updating mechanisms, which in turn result in changes in internal representations. For instance, if a woman looking for a romantic partner receives information via her monitoring mechanisms that she is becoming increasingly more attractive than her peers, we expect the updating mechanisms will update her internal representation of her desirability to potential mates.

We hypothesize that it is ultimately such changes in self-perceived abilities to solve specific adaptive problems that cause the affective shifts that demarcate self-esteem experiences. It is thus that we propose that the fourth component of self-esteem is

composed of cognitive adaptations designed to evaluate the internal representations. When this affective evaluation is applied to stable internal representations, we can refer to it as trait self-esteem. When it is applied to the updates or changes in internal representations, we can refer to it as state self-esteem. We note that some theorists reserve the concept of "self-esteem" to refer to this affective evaluation, relegating the non-affective components to the concept of "self-concept."

None of these four proposed psychological mechanisms could have evolved, however, unless they produced behavior that affected the reproductive fitness of the bearers of these mechanisms over the period during which they evolved and are maintained. Therefore, a fifth component of this system must serve a motivational function. We propose that the affective component of self-esteem has been designed to motivate individuals to choose behavioral options that are most appropriate given the newly updated state of their internal representation. The loss of self-esteem that accompanies the rejection of a mating overture, for example, could motivate social derogation of the rejecter to preserve reputation, increase one's own efforts to improve one's mate value, or change the quality of the mates toward which one makes future overtures (Buss, 2003). Just as the emotion of jealousy can motivate behaviors ranging from vigilance to violence (Buss & Shackelford, 1997), we expect that the behavioral output motivated by changes in self-esteem will be highly varied as well.

A complete description of the cognitive architecture of self-esteem requires a sixth component—the specific behavioral output. Since we hypothesize that self-esteem sends a signal to the self that there has been a change in one's ability to solve a specific adaptive problem, the best behavioral solution to that adaptive problem is expected to

change. Just as a professional athlete changes his game in the face of an injury, individuals suffering a loss of self-esteem are similarly expected to adjust their behaviors to make the most of the situation they are in and prevent their competition from exploiting their weakness. Although extraordinarily challenging for theorists, we suggest that a comprehensive evolutionary theory of self-esteem will eventually include each of these six components.

On the Generality of Self-Esteem across Domains and Sexes

From an evolutionary perspective, the single-function sociometer theory of self-esteem advanced by Leary and Downs (1995), although superior to its predecessors, is too narrow in scope of the relevant adaptive problems it was designed to solve and not detailed enough in posited cognitive architecture. Different adaptive problems require different adaptive solutions. What leads to value as a mate differs, to some extent, from what leads to value as a coalition member. For instance, although cues to fertility may be critical for mate value, they are irrelevant to one's value in a warfare coalition. Conversely, willingness to risk one's life in battle may contribute to value in a warfare coalition, but detract from one's value as a parent. Our theory of self-esteem maintains that individuals' psychologies have been designed to monitor success within each of a number of specific adaptive domains, not merely the domain of social inclusion or exclusion.

Furthermore, we expect that many design features of the six components of self-esteem will be sharply sex-differentiated. Since we have hypothesized that self-esteem has been designed to track and update adaptive problem solving ability, we expect that self-esteem experiences will reflect the type and salience of the adaptive problems that

the sexes have faced differently over evolutionary time. For instance, since resource acquisition potential is a more important part of men's than women's mate value (Buss, 1989), resources acquisition is a more salient adaptive problem for men than it is for women. We thus expect that any changes on dimensions relating to resource acquisition and defense will affect men's self-esteem more than women's self-esteem. Physical attractiveness is a more important component of women's than men's mate value, so achieving and maintaining a certain level of physical attractiveness is a more salient adaptive problem for women than it is for men. We expect that changes on this dimension will affect women's more than men's self-esteem (Buss, 1989). Indeed, it has been demonstrated that body image plays a significant role in an individual's self-esteem, but more so for females than males (Hamida, Mineka, & Bailey, 1998).

Sex differences in the qualities that lead to value as a mate, ally, kin member, and coalition member should lead to corresponding sex differences in self-esteem. Thus, the argument for domain-specificity articulated by Kirkpatrick and Ellis (2001) can be extended fully to sex-linked functional specificity.

Nonetheless, we believe that the arguments for specificity can be carried too far, and may overlook a critical fact—that some attributes contribute to the successful solution of problems across adaptive domains. One example is health. Good health enhances one's value as a mate, as an ally, as a coalition member, and as a kin member, as well as making oneself a more formidable status competitor. Therefore, becoming ill should cause a decrease in self-esteem across these domains, and a return to robust health should cause an increase in self-esteem across these domains. Social status, to take another example, is an attribute that is important in the mating domain as well as in the

domains of same-sex dyadic alliances, coalitions, and kinships. Where self-assessed traits will be relevant to multiple adaptive domains, invoking entirely separate self-assessment mechanisms for each domain of self-esteem both lacks parsimony and entails postulating the existence of costly redundant cognitive and neural architecture.

These conceptual clarifications offer a principled means to generate predictions about the causes and consequences of self-esteem, and the causes and consequences of changes in self-esteem. It also offers one solution to the positive manifold found in correlations of self-esteem across different domains. To the extent that the same attributes contribute to one's value to social others across domains, rises in self-esteem in one domain (e.g., one's evaluation of oneself as a desirable mate) should correlate positively with elevations in self-esteem in other domains (e.g., one's evaluation of oneself as a desirable coalition member). To the extent that the attributes that contribute to social value differ across domains, we predict that self-esteem will show specificity. Thus, the "global" self-esteem often found as a result of modest positive correlations across facets may reflect the fact that some of the same attributes contribute to esteem on multiple facets. This formulation provides a principled way to predict where generality will be found and where specificity will be found.

The same meta-theoretical reasoning can be applied to predictions about sex difference and sex-similarities in self-esteem effects. To the degree that the same attributes contribute to social value for men and women (e.g., health), then increments or decrements on those attributes should show the same effects on self-esteem for men and women equally. To the degree that different attributes contribute to social value for men and women, then increments and decrements on those attributes should show sex-linked

effects on self-esteem. This formulation provides a principled framework for predicting where sex differences will be found and where they will be absent.

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