FACIAL ATTRACTIVENESS

Evolutionary, Cognitive, and Social Perspectives

Edited by

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Using evolutionary, cognitive, and social psychology, this volume examines the issues raised by the question, "What makes some faces more attractive than others?" The authors challenge the views that beauty is simply in the "eye of the beholder," that it is idiosyncratic, and that it is nothing more than an artifact of culture. They argue instead that there are a variety of biological, social, motivational, and developmental issues involved in facial attractiveness. By exploring attractiveness and preference from these various perspectives, this collection offers profound and unique insight on how and why we are attracted to certain facial types, and how that attraction can influence our social interaction.

Some of the ideas presented in *Facial Attractiveness* are surprising, others controversial, and others even paradoxical. Combined, however, they offer a new perspective on age-old questions of attraction, beauty, and preference. Each author challenges standard assumptions about beauty, and encourages the reader to explore new trends in evolutionary, social, and cognitive psychology in search of a more coherent answer to the questions of what makes a face attractive and why.

CHAPTER 6

Charismatic Faces: Social Status Cues Put Face Appeal in Context

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Human communication depends upon the face as a platform for the production of speech and expression. But faces speak even when silent and motionless. Large eyes communicate submissiveness, warmth, and trust (e.g., Keating, 1985a; Zebrowitz & Montepare, 1992). Prominent, square jaws convey dominance and strength (e.g., Cunningham, Barbee, & Pike, 1990; Keating, Mazur, & Segall, 1981). By influencing social judgments like these, physiognomy helps guide decisions about whom to approach, help, mate, follow, fight, and avoid. What cognitive foundations do faces rely on for their charismatic and influential ways?

In humans and other mammals, aspects of facial growth are imbued with social status information. Mature facial traits signal dominance, threat, and power. Immature facial features convey submissiveness, appeasement, and receptivity. The premise of this chapter is that elements of facial morphology evolved as social status displays patterned after developmental changes in facial structure (Guthrie, 1970; Keating, 1985b; Lorenz, 1943). Status messages from the face activate cognitive biases in perceivers that combine to attract or repel social interaction.

Faces are "attractive" in that they draw us into relationships. But the appeal of a face is partly determined by what we seek in it. Thus, facial images of attractive starlets differ from those of attractive mothers. What is appealing about a face can shift, based on social context and role expectations. For in-

stance, facial cues conveying dominance may be attractive in a political leader but not in a sales clerk. The appeal of status cues may also differ depending upon whether the leader or clerk is a man or a woman. In this chapter, attractiveness is conceptualized not as an absolute standard applicable to every face, but as a cognition influenced by social context. The critical messages that faces deliver are social in nature, and the fit between social status messages and social expectations or context is responsible for cognitions about facial attractiveness.

OVERVIEW

This chapter begins by developing the conceptual significance of social status cues for context-dependent face appeal, first by briefly comparing the status cues approach to alternative theoretical perspectives (introduced below), and then by developing arguments for the social status signals interpretation of attractiveness. Embedded in these deliberations are research questions that become the focus of empirical inquiry in the second half of the chapter. The research explores the influence of status cues on facial attractiveness in different social contexts. Included are studies of facial types that are attractive because they inspire caregiving, invite heterosexual relationships, or entice a following.

Alternative Approaches

There are many ways to think about facial attractiveness and, throughout this chapter, I mention some alternatives to the social status cues perspective. Included in the array of proposals advanced by researchers to explain facial attractiveness are:

Averageness Is Attractive

Mathematically averaged facial configurations are most attractive because averageness or prototypicality is pleasing in and of itself, has the advantage of looking relatively familiar, and may reflect physical and genetic adaptability, which is ideal in a mate (e.g., Langlois & Roggman, 1990; Rhodes, Sumich, & Byatt, 1999; Rubenstein, Kalakanis, & Langlois, 1999).

Symmetry Is Attractive

Symmetrical faces are most attractive, because symmetry is linked to pathogen resistance, health, good genes, and, ultimately, reproductive potential (e.g., Gangestad, Thornhill, & Yeo, 1994; Thornhill & Gangestad, 1993).

Cues For Hormonal Status Determine Attractiveness

Sexually dimorphic features like facial shape, which are believed to be influenced by hormone levels at puberty, express relative degrees of masculinity and femininity, and predict judgments of heterosexual attractiveness (Perrett et al.,

1998) in concert with the hormonal status of perceivers (Penton-Voak et al., 1999).

Affordances Influence Judgments of Attractiveness

Consistent with the ecological approach to perception (McArthur & Baron, 1983), facial structures express affordances (opportunities for certain types of interactions). Sensitivity toward these signals is adaptive but can overgeneralize. Affordances proffered by babyish facial cues, for example, overgeneralize when displayed by adults and influence cognitions about face appeal (Berry & McArthur, 1986; Montepare & Zebrowitz, 1998; Zebrowitz & Collins, 1997).

Multiple Fitness Messages Determine Attractiveness

Facial attractiveness incorporates messages along multiple biological and cognitive dimensions, including those reflecting biological fitness, social traits, and aspects associated with self-presentation (Cunningham, 1986; Cunningham, Barbee, & Pike, 1990; Cunningham, Roberts, Wu, Barbee, & Druen, 1995).

These approaches share several foundations with each other and with the social status cues perspective. Each links facial cues to underlying, biological substrates such as hormones and the eruption of secondary sex characteristics, morphological adaptation, immune system functioning, or other ontogenetic factors. Each considers biological fitness and implications for mate selection. Most are grounded in cross-species models and incorporate predictions of cultural universality in facial attractiveness.

The proposals diverge in the importance placed on the face's ability to convey messages about biological fitness versus social traits. Propositions advancing structural symmetry and cues for hormonal status emphasize the way attractive faces directly convey good-faith messages about biological fitness. In contrast, the social status cues, affordances, and multiple fitness propositions emphasize the way attractive faces advertize desirable social traits, honestly or otherwise. Some approaches focus relatively sharply on facial attractiveness in the context of mate preferences (i.e., the symmetry, hormonal cues, and multiple fitness perspectives). Others readily lend themselves to considering facial attractiveness within different social realms (i.e., the status cues and affordances perspectives). The averageness and symmetry perspectives each project a different, universal, context-free standard for facial attractiveness, whereas the status cues, affordances, and multiple fitness approaches entertain more complex, context-dependent notions of relationships between facial cues and face appeal.

ATTRACTIVENESS IN CONTEXT

In what sense are faces "attractive?" Faces are attractive, appealing, or "charismatic" in that they have the power to draw people into a relationship,

whether it be as mates, lovers, friends, caregivers, fans, or followers. The relationship sought and the expectations surrounding it influence perceptions of attractiveness. As Feingold (1992) asserted, cognitions about physical attractiveness exist not in isolation but as part of a constellation of valued social traits. A similar appreciation of context on judgments of attractiveness can be found in the affordances approach (e.g., Zebrowitz & Collins, 1997).

In this chapter, "context" comprises a host of social expectancies manifested in status relationships and social roles. We examine in particular how status cues relate to facial attractiveness when perceivers' expectancies are driven by cognitions about helping and forming heterosexual attachments, and by gender and leadership roles.

As every casting director knows, what audiences seek or expect in a character should be reflected in the social messages projected by an actor's physiognomy. Tom Hanks would not make an appealing James Bond despite his versatility as an actor. Can you picture Goldie Hawn in the role of Queen Elizabeth or Joan of Arc? In each case, social messages from the face are at variance with what we expect the character to portray. These Hollywood examples conspire to make a point: an attractive physiognomy in one context may be unattractive in another.

THE SOCIAL STATUS CUES APPROACH TO FACIAL ATTRACTIVENESS

It is not by mistake that humans use static facial appearance to draw inferences about each other's abilities and traits. The arrangement of features in the front of the face evolved partly by communicating just such information (Gregory, 1929/1965; Guthrie, 1970). The visibility of human facial structures, their metamorphosis over the lifespan, and the effectiveness with which they signal social status information is consistent with the idea that facial morphology helps regulate human social attraction.

Ontogeny, Phylogeny, and Status Messages from the Face

A tapestry of shapes, sizes, and spatial arrangements of features characterize faces at different stages of development. Prepubescent morphological traits (or "pedomorphic" characteristics) include proportionately large eyes, a large, protruding forehead, a small chin, pudgy lips, and thin, arched brows (Alley, 1988; Eibl-Eibesfeldt, 1975; Lorenz, 1943; Mark, Shaw, & Pittenger, 1988). After puberty, brows thicken and apparent eye size diminishes (Enlow, 1982; Gray, 1948; Guthrie, 1970). Vascular changes thin the lips and jaws square with the advent of adult dentition (Gray, 1948; Guthrie, 1970). Pedomorphic and mature facial appearances help perceivers gauge responses appropriately during social interactions with individuals of different ages (Berry & McArthur, 1986; Keating, 1985b; Zebrowitz & Collins, 1997). We can judge

from faces who requires our protection and who does not, and who is a potential threat and who is not.

Thus, the importance of ontogenetic cues from the face lies in the social status messages they convey. In animal and human social groups, maturity generally corresponds with dominance, whereas immaturity is associated with submissiveness. Dominance is age-graded, with older individuals typically wielding more social power than younger ones (Van Den Berghe & Barash, 1977; Wilson, 1975). Age and dominance share a curvilinear rather than a linear relationship, with individuals at each end of the age continuum diminished in status (Guthrie, 1970). Theorists working from the affordances (ethological) perspective account for the curvilinear relationship between status and age by differentiating between cues that signal physical maturity and those that signal senescence (Montepare & Zebrowitz, 1998). The status cues perspective identifies dominance and submissiveness as the important signaling dimensions underlying both maturity and senescence. This emphasis on signaling social status as opposed to "age-related physical qualities" (Montepare & Zebrowitz, 1998, p. 95) helps distinguish the status cues perspective from the affordances approach.

From the status cues perspective, maturity and age set the stage for physiognomic status messages but are not the same as those messages. Natural selection transformed cues that relay information about development into social status signals. These signals can be displayed or mimicked by any face. Thus, status cues evolved a ritualized signaling system of their own, which operates somewhat independently of maturity and age cues. In other words, status cues can produce submissive-looking adults and dominant-looking children. An adult face may mimic pedomorphic (youthful) traits and look unusually submissive, or display exaggerated maturity cues and appear particularly dominant (Guthrie, 1970). Similarly, a child's face may display exaggerated pedomorphy and look unusually submissive or project enhanced maturity and appear unusually dominant (Zebrowitz & Montepare, 1992). The status messages are consistent across age groups. From the perceiver's point of view, enhanced maturity cues invoke dominance-related attributions such as power and threat, while enhanced immaturity cues convey submissiveness, warmth, and social receptivity (Keating, 1985b).

Research confirms that, when displayed by adults, mature and immature facial aspects generate attributions consistent with the social status messages that underlie them. Pedomorphic-looking facial traits transmit qualities associated with submissiveness, including warmth, weakness, femininity, and honesty (e.g., Berry & McArthur, 1986; Keating, 1985b; Montepare & Zebrowitz, 1998; Perrett et al., 1998; Zebrowitz & Montepare, 1992). Mature-looking facial characteristics relay attributions associated with dominance, such as strength, cunning, masculinity, and sexual potency (e.g., Cunningham, Barbee, & Pike, 1990; Keating, 1985b; Penton-Voak et al., 1999; Zebrowitz, Montepare, & Lee, 1993). Researchers differ in the signaling dimensions they

presume are central to these facial messages. For instance, some view sexually dimorphic facial aspects (like shape) as conveyors of critical messages about the relative masculinity and femininity of facial appearances (Penton-Voak & Perrett, 2000; Penton-Voak et al., 1999; Perrett et al., 1998). However, messages of masculinity/femininity and social status overlap (Williams & Best, 1994). Signaling masculinity may essentially convey dominance, while signaling femininity may fundamentally transmit submissiveness. Thus, the emphasis on signs of sexual dimorphism intersects with the idea that social status themes underlie the cognitive biases triggered when adult faces are perceived.

Early Sensitivity to Status-Related Facial Traits

Perceptual biases that guide the processing of status-related facial information are evident early in life. Twenty-week-old infants tend to gaze longer at immature than mature adult female faces (Kramer, Zebrowitz, San Giovanni, & Sherak, 1995). The gazes of young infants are also drawn to "attractive" adult female faces (Langlois et al., 1987; Rubenstein, Kalakanis, & Langlois, 1999), due perhaps to the immature physiognomic qualities often exhibited by pretty women worldwide (Cunningham, 1986; Jones, 1995).[1] Though the data are not entirely consistent, they suggest that infants may be biologically prepared to prefer pedomorphic-looking facial characteristics over mature-looking ones (Montepare & Zebrowitz, 1998).[2] Are babies naturally drawn to pedomorphic facial appearances? Or do they avoid mature facial appearances that seem threatening?

There is evidence indicating that infants and young children do perceive mature faces as threatening. Stranger anxiety, a behavioral tendency that appears to have genetic underpinnings (Plomin & Rowe, 1979) and a maturational trigger at around 7 months of age (Kagan, 1976), occurs in response to adults' but not to children's faces (Bigelow, MacLean, Wood, & Smith, 1990; Brooks & Lewis, 1976). Perceptions of facial maturity are fine-tuned. Infants and children not only discriminate adult from juvenile faces, they also differentiate the degree to which faces exhibit mature and immature-looking traits (Gross, 1997; Montepare & Zebrowitz-McArthur, 1989). Preschoolers associate adults who have relatively mature physiognomies with social dominance. Consistent with cross-cultural findings for adult perceivers (Keating et al., 1981), 4-year-old U.S. children selected adult faces with large jaws and receded hairlines as people who "tell others what to do" (Keating & Bai, 1986).

Thus, biased reactions to mature and immature faces are important enough to be expressed early in life. These biases may reflect a biologically based, perceptual guidance system for social responding akin to the mechanisms Bowlby (1969) proposed to explain the onset of infant attachment. Early tendencies to approach pedomorphic stimuli and avoid mature stimuli may be reinforced by growing up in societies with age-graded, male dominance hierarchies.

Benefits of Displaying and Perceiving Facial Status Cues

What are the proximate and ultimate benefits of displaying and interpreting facial status cues? By displaying pedomorphic characteristics, young organisms elicit care and stem aggressive responses (Lorenz, 1943; McCabe, 1988). The protective value of such facial cues is very real: McCabe (1984) discovered that children who were abused had a less pedomorphic shape to their faces compared to nonabused children. A lack of pedomorphic facial cues may contribute to a child's risk for abuse (McCabe, 1988).

Advantages are also bestowed on perceivers who are drawn to babyfaces. Early ethologists concluded that the appeal of a baby's face evolved by inspiring successful parenting (Eibl-Eibesfeldt, 1975; Lorenz, 1943). Parents captured by the faces of their infants became devoted caregivers whose genes benefited in the long run. Genetic influences underlying this cognitive bias were favored by natural selection and retained. Thus, infantile characteristics strike us as cute and garner our help.

The ability to detect maturity and dominance is also beneficial to individuals throughout development. As they become mobile, infant wariness in response to unfamiliar mature faces keeps them at a distance from adult strangers who could pose a threat (Bigelow et al., 1990; Brooks & Lewis, 1976). Later in life, individuals benefit by using status cues to assess other's dominance and power (Keating, 1985b). Assessments enable individuals to avoid confrontations they are likely to lose and to selectively establish coalitions with those who appear to have just "the right stuff."

The display of facial maturity is associated with social benefits. Facial maturity and dominant appearances have been linked to social influence and status in juvenile and adult males (Berry & Landry, 1997; Cherulnik, Turns, & Wilderman, 1990; Mazur & Keating, 1984; Mueller & Mazur, 1997). In male children, however, mature facial characteristics correspond with social costs as well as benefits (Montepare & Zebrowitz, 1998), and patterns for mature-faced girls and women are hard to decipher (Berry & Landry, 1997).

The advantages—and costs—associated with displaying facial maturity and immaturity relate to social contexts and expectancies, issues we take up later in the chapter. The fact that outcomes from signaling a particular status may be positive or negative suggests that the signal in only the high or low status direction may be less attractive than the signal in both directions.

Facial Cues: Truth or Dare?

The social status cues perspective draws from the cross-species literature in anticipating that human individuals benefit both from sending and receiving status messages. Physiognomic signaling systems are viewed along with other nonverbal channels as a means by which individuals *manipulate* (rather than communicate with) each other (Dawkins & Krebs, 1976; Keating, 1994).

Successful manipulation may entail deceptive as well as honest signaling. Either way, physiognomy functions in combination with other nonverbal channels to attract or deter interactions and relationships.

From the social status cues perspective, the important "truth" about physiognomy may be that its signal value exists by design; it *functions* to help regulate social interchange (Guthrie, 1970). Physiognomy is not simply an *effect* or secondary consequence of other biological requirements or events like puberty. A square jaw is, in part, designed to signal dominance on a man or woman. Immature-looking facial structures are meant to convey submissiveness.

Others describe physiognomic cues more as effects than functions. From the affordances approach, for example, the stimulus value of adult babyfaceness derives from a process of overgeneralization, whereby babyish attributes are erroneously overdetected in adult faces (Berry & McArthur, 1986; Montepare & Zebrowitz, 1998). Detecting babyfaceness in adults is described as a consequence of heightened sensitivity to infantile cues and a perceptual error (Montepare & Zebrowitz, 1998). In contrast, the premise of the social status cues perspective is that facial elements evolved similar signal value whether displayed (or mimicked) by juveniles or adults. Big eyes express submissiveness/receptivity for all faces and not by mistake. Sensitivity to morphological status cues exists because it *functions* to regulate social interchange as it does for other species (Keating, 1985b). Also similar to the signaling systems of other species, the effectiveness of human physiognomic cues does not depend on complete veracity in their message.

Some theorists view faces as honest brokers of traits associated with reproductive value and potency (e.g., Mueller & Mazur, 1997; Penton-Voak et al., 1999; Perrett et al., 1998; Thornhill & Gangestad, 1993). After all, hormone levels and genetic factors underlie the development of secondary sex characteristics that relate to the immaturity and maturity of facial appearances. It may be that square jaws and high cheekbones accurately index pubescent androgen levels associated with reproductive functioning (Cunningham, 1986; Penton-Voak et al., 1999; Thornhill & Gangestad, 1993). But from a social status cues perspective, such displays need not be faithful messengers of underlying biological substrates or traits. Potentially, one need only fool most of the people much of the time for deceptive strategies to confer a communicative advantage (Otte, 1974). Deceptive signals will be constrained, however, by the extent to which such bluffs can be called into question, and by the cost of being detected (Dawkins & Krebs, 1976; Johnstone & Grafen, 1993).[3] To the degree that facial status cues present opportunities for immediate, independent corroboration, they are likely to be "honest" signals of underlying traits.

Like any good con artist, the face probably lies about what it can get away with but honestly conveys what can be immediately and independently verified. This possibility was tested by asking college undergraduates to judge different types of traits from facial portraits of other, unfamiliar undergraduates. Height was chosen as an easily verifiable trait because impressions about

height from the face can be immediately corroborated by viewing the body. Height had another advantage. Unlike other traits, it is resistant to a self-fulfilling prophecy: being treated like a tall person is not likely to make you grow. We compared the accuracy of height judgments made from facial images (controlled for size) to judgments of traits that were less immediately verifiable. When perceivers' impressions were matched with actual data, we found the anticipated difference. Height was accurately cued by faces, whereas traits with the potential to remain at least initially cloaked (i.e., wealth, academic success, athletic involvement) showed no reliable relationship to judgments made from facial morphology.[4]

The accuracy with which faces broadcast underlying traits is a crucial issue for those who regard attractiveness as the packaging of health (e.g., Gangestad & Buss, 1993; Grammar & Thornhill, 1994; Thornhill & Gangestad, 1993). According to the "symmetry" view, pathogens disrupt growth asymmetrically throughout development. Lack of resistance to pathogens is thus stamped into asymmetric face and body forms. Symmetry, therefore, is a faithful, phenotypic expression for pathogen resistance, good health, and good genes. Health histories reflected in facial morphology are seen through the human lens as "beautiful" or not because they signal reproductive value.

Underlying the symmetry/attractiveness connection is the more general premise that these facial cues do not lie. Some evidence corroborates the integrity of facial signals. There are significant correlations between trait ratings of people based on facial photographs and standardized measures of their personality (e.g., Berry & Finch Wero, 1993). Sneaky-looking undergraduates are more willing to volunteer for tasks requiring deception than honest-looking undergraduates (Bond, Berry, & Omar, 1994). Attractive people are routinely judged as both more popular and more socially skillful than others and, when measurements are taken, they are (Feingold, 1992).

Are these instances of the faces' ability to honestly reflect underlying traits or consequences of the faces' ability to propagate self-fulfilling prophecies? Snyder, Tanke, and Berscheid (1977) demonstrated that faces are capable of creating powerful self-fulfilling prophecies; believing that someone is attractive (based on a fictitious, facial photograph) can make that someone behave in a more attractive, engaging way. Other social traits that researchers have linked to facial appearance are also vulnerable to self-fulfilling prophecies (e.g., Langlois & Downs, 1979; Mazur, Mazur, & Keating, 1984) or to a reaction against such prophecies (e.g. Zebrowitz, Andreoletti, Collins, Lee, & Blumenthal, 1998).

Even a connection between health and attractiveness may reflect a self-fulfilling bias. Attractive people typically have more friends and social support (Feingold, 1992). Social support has a demonstrated health advantage: people with strong support networks are healthier, probably due to reduced stress. Thus, if attractive people have better health, they may owe it to a little help from their friends; resistance to disease may be the result of social support

and its accompanying reduction of stress rather than to genetically influenced health histories reflected in facial symmetry and attractiveness. In fact, from an evolutionary point of view, it would behoove the selfish gene to disguise any signs of underlying bad health and reproduce early before the onset of disease symptoms—just as individuals with Huntington's Chorea apparently do (Barash, 1979).

Although some reports have coupled good health with facial appearances linked to attractiveness, other studies find no honest relationship between such measurements. Shackelford and Larson (1997) reported that people with fewer facial asymmetries suffered fewer psychological and physical symptoms over a two-month period of time. However, facial asymmetry was, at best, only tenuously related to qualities of attractiveness. Reis, Wheeler, Kernis, Spiegel, and Nelzlek (1985) failed to uncover a relationship between judgments of physical attractiveness and actual health. Kalick and his colleagues examined the lifespan health records of 164 men and 169 women and found that attractive people were no healthier than unattractive people; they just looked healthier (Kalick, Zebrowitz, Langlois, & Johnson, 1998). The appearance of good health is apparently no guarantee that a person is, in fact, healthy.

In sum, facial signals do not necessarily deserve your trust. Consistent with the evolution of communicative systems across species, human facial messages should involve deceptive signaling for some traits and honesty for others. The integrity of facial cues is partly dependent upon the cost and likelihood of getting trapped in a lie. Faces should honestly signal easily verifiable traits such as height, weight, gender, and *gross* differences in age. Faces should disguise signs of long-term health problems. Despite stereotypes linking facial attractiveness to family income (Kalick, 1988), faces are likely to be unreliable reflections of traits like wealth that can be initially cloaked and permit cheating. Faces accurately cue some traits due to self-fulfilling prophecies.

Social Status Cues and Attractiveness

Whether honest or not, facial status cues influence adult facial attractiveness. The status messages inherent in immature and mature appearances can make faces look either appealing or unappealing. Which status messages (or which combination of status messages) make faces look attractive depends upon whether social contexts and expectancies favor displays of dominance or submissiveness.

Neoteny and Attractiveness

In the right contexts, the submissiveness and receptivity conveyed by pedomorphic facial traits can be very appealing when mimicked by adults. Neoteny, defined as the mimicry of pedomorphic characteristics, generates bias and often favoritism in the treatment of adults who display such traits on their faces. Montepare and Zebrowitz (1998) reviewed instances of positive

bias toward baby-faced adults. They reported that in laboratory simulations of employment decisions, baby-faced job applicants were preferred over mature-faced applicants for jobs requiring interpersonal warmth and sensitivity. Moreover, baby-faced women (but not men) were disproportionately found in jobs requiring these social skills (e.g., nurse, teacher). In small claims courts, the more baby-faced the defendant who proclaimed innocence, the less likely it was that a judge would find the defendant guilty. Judges apparently fell victim to attributional biases linking babyfaceness with honesty and warmth (Montepare & Zebrowitz, 1998). In contexts valuing attributes like these, having a babyface is associated with increased social appeal and positive outcomes.

These examples imply that immature-looking facial traits on adult faces trigger attributions related to submissiveness (e.g., approachability, helplessness, dependence) that engender the same type of sympathy a child receives. *In the context of helping, therefore, adults with neotenous faces should attract disproportionate numbers of people to come to their aid.* A test of this hypothesis appears later in the chapter.

Maturity and Attractiveness

Mature facial traits offer a different brand of social appeal: power. Mature traits convey dominance when displayed by men and women (Keating, 1985a). Men with mature, dominant-looking faces are socially influential and attractive (Cherulnik et al., 1990; Cunningham, Barbee, & Pike, 1990; Keating, 1985b; Mueller & Mazur, 1997; Penton-Voak et al., 1999). They report having more influence over peers during social interactions than less mature-faced men (Berry & Landry, 1997). In the military, men with dominant-looking faces and above-average mental and physical ability attain higher rank and father more offspring than their less dominant-looking cohorts (Mueller & Mazur, 1997; see Collins & Zebrowitz, 1995, for an exception). Little is known about the appeal of mature, dominant facial traits for women. In general, the connection between maturity of facial structure and social appeal, especially in the context of social influence, seems stronger for male than for female faces.

Neoteny, Maturity, and Gender

The gender of the face can shift the way in which status messages conveyed by neoteny and maturity relate to perceptions of attractiveness and related social judgments. Studies using schematic faces have found that perceivers judging attractiveness prefer fewer neotenous characteristics and more mature traits on male than on female faces (Friedman & Zebrowitz, 1992; Keating, 1985a; McArthur & Apatow, 1993–94). In addition, neotenous features have been linked to impressions of both trustworthiness and distrust, depending on the gender of the face. Babyish facial structures that inspired trust when displayed by men (Berry, 1991; Berry & McArthur, 1986; Zebrowitz &

Montepare, 1992) evoked suspicion when displayed by women (Berry, 1991; Cunningham, 1986). For these attributions, the consequences of being baby-faced differed for men and women.

Female phenotypes generally express more neotenous facial traits than do male phenotypes. Although elements of the basic, feature formula for neoteny and maturity are the same for men and women (e.g., large vs. small eyes, full vs. thin lips, rounded vs. square jaw and chin, thin vs. thick brows), the sexes are distributed differently along morphological scales of size, shape, and placement of these facial features. [5] Females begin and end life with more babyish facial characteristics than males (Gray, 1948; Guthrie, 1970, 1976; Zebrowitz, Olson, & Hoffman, 1993). In neonates, for example, the distance between the pupil and arch of the brow is larger for females than for males (Haviland, 1977); giving baby girls a wide-eyed, raised-brow, submissive-looking appearance (Keating, 1985b). Adult female faces are distinguished from adult male faces by relatively thin, arched brows, larger apparent eye size, smaller noses, more rounded jaws, and smaller chins (Bruce & Young, 1998; Burton, Bruce, & Dench, 1993; Enlow, 1982). These differences suggest that the display of neoteny is somehow advantageous to females. But why?

The adaptive significance of youthful displays may be the projection of a long, healthy reproductive future (Buss, 1987; Buss & Schmitt, 1993; Jones, 1995). Males in particular prefer young, fertile mates whose reproductive potential is high. The selection mechanism underlying human female neoteny may simply be sexual; the result of males preferring younger-looking females as mates (Buss, 1987; Buss & Schmitt, 1993; Jones, 1995). Thus, neotenous-looking females would be sought after as mates and perhaps also mistrusted, as their opportunities for infidelity would be relatively great (Cunningham, 1986).

A broader vision of neoteny's potential benefits emerges from the social status cues perspective. Sex differences in neoteny reverberate across nonhuman species: it is generally more common for adult females to mimic pedomorphic characteristics than it is for adult males (Eibl-Eibesfeldt, 1975; Wilson, 1975). Juvenile morphological features that facilitate predator avoidance offer survival benefits to female mimics in some species. However, the display of neotenous traits may also benefit females directly by sending signals that reduce the likelihood of male aggression and elicit caregiving, just as these signals do for the very young (Keating, 1985a; Perusse, 1995). In addition, the relatively long-term, familial nature of female primate social bonds (de Waal, 1989; Wilson, 1975) make it especially advantageous for females to display social receptivity and cloak aggressiveness toward kin and peers (Ostrov & Keating, 2000).

Finally, male responsiveness to neotenous cues in adult females may forecast responsiveness to pedomorphic characteristics in offspring, a reassuring prospect for female fitness. Females perhaps display neoteny partly to fish for "new-age sensitive guys," and not just in the 1990s. Konrad Lorenz report-

edly contended that the Neanderthal genetic line was not eliminated by warfare but arrested by the cuteness of homo sapiens whom they fancied as mates (Schweder, 1995). Was neoteny's appeal equally great for Neanderthal females and males? Later in the chapter we fast-forward to the 1990s and test whether, *in the context of heterosexual relationships, neotenous cues conveying submissiveness make female faces appear attractive, and look less appealing when displayed by males than by females.*

The expression and detection of dominance-related maturity cues also contributes to fitness by improving the odds of attracting and selecting reproductively worthy mates, by projecting one's own and assessing potential rivals' dominance, and by forecasting the likely cost of intrasexual competition (Buss, 1987; Buss & Schmitt, 1993; Cunningham, 1986; Cunningham et al., 1990; Dijkstra & Buunk, 1998; Keating, 1985a,b; Keating et al., 1981; Penton-Voak et al., 1999; Wade & McCrea, 1996). Research indicates that the display of mature-looking facial traits which, lend a dominant appearance, can be advantageous to males. More mature features, including masculine-looking square jaws, look dominant and often characterize attractive male faces (Cunningham, 1990; Keating, 1985a; Keating et al., 1981; see Perrett et al., 1998, for an exception). Males with mature, dominant-looking facial characteristics are more likely to report early sexual activity (Mazur, Halpern, & Udry, 1994). Females are apparently most attracted to masculine facial shapes at times in their cycle when sexual liaisons would most likely result in conception (Penton-Voak et al., 1999; Penton-Voak & Perrett, 2000). Mature traits also add to the sexual appeal of a woman's face: the development of high cheekbones, which is influenced by pubescent hormonal activity, is a highly desirable phenotypic trait in Western women and characterizes the faces of international beauty queens (Cunningham, 1986).

In general, however, relationships between maturity of facial structure, dominance, and attractiveness seem stronger for male than for female faces. Because male reproductive value is more clearly linked to dominance than female reproductive potential (Buss & Schmitt, 1993), neoteny is believed to play less of a role in male than in female good looks (Guthrie, 1976; Keating, 1985a). Instead, males who appear to possess the dominance-related abilities needed to accumulate and control resources should be favored by females as mates (Keating, 1985a; Mueller & Mazur; 1997). We subsequently test whether, *in the context of heterosexual relationships, mature facial traits that convey dominance make male faces appear attractive, and look less appealing when displayed by females than by males.*

Perhaps we seek in relationships elements of status signaled by both neoteny and maturity: qualities of submissiveness and dominance, receptivity and threat, dependence and independence. Cunningham and his colleagues proposed that mixed social messages define the facial appearances of attractive mates (Cunningham, 1986; Cunningham et al., 1990, 1995). *This possibility is probed later by experimentally manipulating facial images to make them "speak"*

more extremely than normal in each status direction. By pushing the normal faces' social messages off-center, we provide a novel test of whether making faces more extreme in their social status messages improves or diminishes their attractiveness as mates, dates, and friends.

Neoteny, Maturity, and Attractive Male and Female Leaders

As argued above, when judgments about heterosexual attractiveness are made, mature-looking facial cues signaling dominance are expected to have a more positive effect on male than on female attractiveness. Neotenous features conveying submissiveness, weakness, and naivete are predicted to look more attractive on female than male faces. Because social influence and leadership include aspects of interpersonal attractiveness as well as dominance (Carli, 1999; French & Ravin, 1959), the feature formula for attractive female and male leaders may differ. In later sections of this chapter, we investigate the possibility that, *in the context of leadership, facial status cues influence the attractiveness of male and female leaders differently.*

STUDIES OF FACIAL ATTRACTIVENESS IN DIFFERENT SOCIAL CONTEXTS

Three different social contexts in which status cues are likely to shift cognitions about facial attractiveness have been identified: helping, heterosexual relationships, and leadership. Each context inspires a different type of relationship, a different set of social expectancies, and, perhaps, a different cognitive solution for determining the attractiveness of status cues. The research questions posed earlier in this chapter are revisited here and put to the test.

These tests share basic methodological features. Different grades of social status cues were either experimentally induced by altering maturity cues on digitized facial images and/or by selectively sampling traits from target populations. Experimental manipulations used computer software to create a neotenous version of a face by proportioning eyes and lips 15% larger than normal, thus mimicking the big-eyed, pudgy-lipped look of babyhood.[6] As humans mature, eyes appear proportionately smaller and narrower, and vascular changes thin the lips (Guthrie, 1970). So, to make faces appear mature, the eyes and lips of a face were reduced by 15% in size. Figure 6.1 depicts exemplary stimulus faces. By experimentally manipulating features, we made normal faces "speak" more extremely in each status direction and provided a novel test of whether exaggerated status messages improved or diminished face appeal in different social contexts.

Our approach differed from that of researchers who applied software techniques to mathematically average many different faces (e.g., Langlois & Roggman, 1990; Rhodes et al., 1999). These techniques have been used to extract the effects that averaged or prototypical facial aspects have on attrac-

Figure 6.1. Exemplary stimulus faces. Faces on the left appear with enlarged eyes and lips, those on the right appear with diminished eye and lip sizes, and unaltered faces appear in the center.

tiveness. In contrast, we obtained nonnormative exemplars for each individual face by manipulating portraits away from their own unique, unaltered face, similar to the way Rhodes and Tremewan (1996) manipulated schematic faces by exaggerating their features. Using face as the unit of analysis, the question asked was this: Would making an individual's face look more mature or more neotenous shift its appeal in predictable ways? We searched not for an attractive "average," but for ways we could improve the appeal of normal faces by exaggerating the social status messages they sent.

There were notable limitations to our methods. In the studies reported here, only two features were systematically manipulated and alterations were restricted to a 15% size difference. Resizing features had multiple consequences. For example, making lips fuller by enlarging them increased the size of the entire mouth. Resizing also changed the spatial relationships among features. Thus, although our feature manipulations largely achieved the desired effects of altering attributions of status, maturity, and age, they really entailed more than changes in eye size and lip thickness.

Social Status Cues Attract Help

Research has shown that baby-faced adults are perceived as being relatively submissive, weak, dependent, and naive (e.g., Cunningham, Barbee, & Pike, 1990; Zebrowitz & Montepare, 1992). They apparently look like they need help, but whether they actually *attract* disproportionate amounts of help has not been directly tested. Rather, studies examining relationships between helping and facial maturity have generally surveyed whether adults who help others have babyfaces (Collins & Zebrowitz, 1995). We investigated whether, *in the context of helping, individuals with neotenous faces attract disproportionate numbers of people to come to their aid.*

Perceivers were given the chance to help adults whose digitized facial images were manipulated (as described above) to appear either neotenous or mature (Keating, Randall, Kendrick, & Gutshall, 2000). Images of black and white male and female faces of average attractiveness were used. Thus, two faces from each race/gender category were transformed to look more neotenous and more mature. The feature size transformations produced the desired effects: Faces with enlarged features were judged by undergraduate raters as less mature in structure than faces with features reduced in size (means = 3.6 and 4.3; $F(1, 7) = 12.58$, $p < .009$) and as younger (means = 22.16 and 25.13; $F(1, 7) = 10.82$, $p < .013$).

To see if face manipulations produced differences in status-related attributions, trait ratings for each manipulation of the eight faces were collected from U.S. undergraduates. Raters judged different subsets of the 16 facial images to ensure that they viewed only one version of a particular face. Because participants rated different subsets of faces, deviation scores were constructed to even-out within-subject differences in the use of scales. This technique essentially standardized trait ratings, making them comparable across faces (Rossi & Anderson, 1982). For each trait scale, deviation scores reflected differences from the overall mean rating across all faces and raters for that attribution. Faces received a deviation score for each trait, and face rather than rater was used as the unit of analysis. A deviation score of zero represented no difference from the mean rating of an attribute across all faces and raters. As expected, trait ratings revealed that neotenous feature substitutions made adults appear relatively submissive, babyfaced, young, weak, compassionate, feminine, naive, and honest compared to mature feature substitutions (see Table 6.1). Perhaps because our original faces were preselected to control for attractiveness, attractiveness ratings for their manipulated versions did not vary reliably or interact with gender or race ($ps < .12$). When used as a covariate, attractiveness ratings also did not generally account for differences in the perceptions of other traits.

A neotenous or mature face was printed at the top of a (fictitious) résumé, which described either "Susan Lawrence" (for female faces), or "David Lawrence" (for male faces), who claimed to be seeking employment in a bank and interested in "relocating near family." Résumés were attached to stamped en-

Feature Size Manipulation

Trait	Enlarged	Reduced	p
Submissive	.34	-.10	.01
Weak	.44	-.09	.03
Naïve	.26	-.07	.03
Feminine	-.05	-.21	.06
Compassionate	.02	-.41	.01
Honest	.15	-.23	.02
Attractive	-.20	-.41	ns

Table 6.1. Mean trait ratings for faces that were altered and printed on résumés (N = 16).

Note: Means represent deviations from average trait ratings across all faces and raters.

velopes printed with what appeared to be the potential employer's address, with a brightly-colored Post-It note that read, "Important! Mail Today!" affixed to it. Résumés were then "dropped" on sidewalks, in buildings, and near shopping areas in New York City (n = 409) and in Nairobi, Kenya (n = 176). "Helping" was indexed by whether résumés were posted (returned) or not.

Neotenous faces were expected to attract more help than mature faces, no matter where resumes were "lost." Preliminary results (depicted in Figure 6.2) were similar across nations and indicated that the motivation to help was influenced by facial structure. As predicted, resumes with baby-faced white male applicants and baby-faced black female applicants were returned at disproportionately high rates. Return rates for white females, though in the same direction, were not statistically significant. The pattern for black male faces differed for each country. These results provided partial support for the prediction that displays of neotenous facial cues motivate perceivers to help.

Some of the results from Kenya, however, countered predictions. Help from Kenyans (but not New Yorkers) was attracted by mature-faced black males. In Kenya, where jobs are scarce and ethnic minorities are distinguished by relatively fine-grained physiognomic cues, the motivations of participants may have been augmented by attempts to match faces with occupation (Montepare & Zebrowitz, 1998). It is possible that the manipulated black
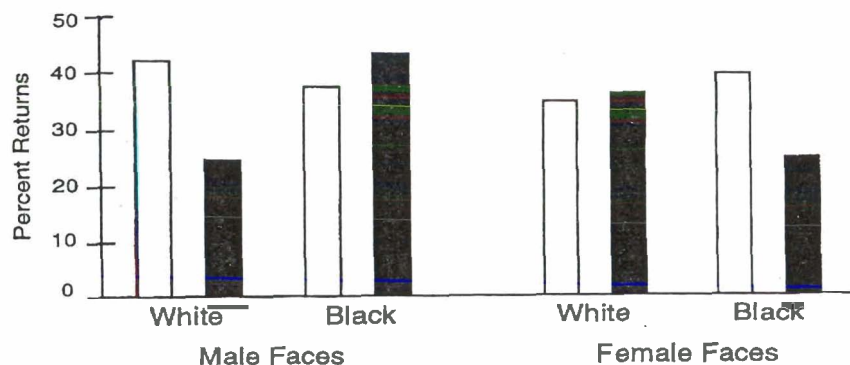
Figure 6.2. Percent of returned résumés depicting black and white, male and female applicants. Open bars report returns for applicants with enlarged facial features. Shaded bars report returns for applicants with reduced facial features.

male faces we used inadvertently resembled individuals from particular ethnic groups and biased which males received help.

Social Status Cues Affect Heterosexual Attractiveness

Two propositions from the social status cues perspective were made in the context of heterosexual relationships:

Mature facial traits that convey dominance make male faces attractive, and these traits look less appealing when displayed by females than by males.

Neotenous facial traits that convey submissiveness make female faces attractive, and these traits look less appealing when displayed by males than by females.

To investigate each proposition, we tested whether making normal faces more extreme in their social status messages improved or diminished their attractiveness as mates, dates, and friends. We applied the usual feature manipulation (described above) to a novel set of 24 undergraduates' portraits (evenly male and female) and tested how heterosexual attractiveness was affected (Keating & Doyle, 1999). Ratings from independent judges confirmed that enlarged features made faces appear less structurally mature and younger than unaltered faces and that reduced features made faces look more structurally mature and older.

Undergraduate perceivers rated subsets of the 72 stimuli so that they were never presented with more than one version of a particular face. Perceivers rated only other-sex faces. To capture multiple aspects of attractiveness, perceivers were asked to identify people they could imagine befriending, dating, or marrying, and to judge faces for attractiveness, sexiness, and other traits important to social bonds (e.g., honesty, caring, independence, faithfulness).

As before, face was used as the unit of analysis and ratings were transformed into deviation scores.

Which face type would appear most attractive and most desirable as a potential mate, date, or friend: mature, unaltered, or immature? We predicted that women would favor the dominance and power conveyed by mature-looking male faces and least prefer immature, nondominant versions of male faces (Buss & Schmitt, 1993; Guthrie, 1970; Keating, 1985a,b; Mueller & Mazur, 1997; Penton-Voak et al., 1999). Men were expected to value the receptivity and warmth expressed by neotenous traits in female faces and to perceive mature versions of female faces as least desirable (Guthrie, 1976; Keating, 1985a,b). It was possible, however, that faces incorporating messages of both power/maturity and warmth/immaturity would be perceived as more appealing than faces displaying the strong form of either single message (Cunningham, 1986; Cunningham et al., 1990, 1995). In this case, faces that conveyed aspects of both power and warmth would be preferred over those that emphasized one message over the other.

Differences in cross-sex judgments of the "attractiveness" of status cues were less than expected for male and female faces (see Table 6.2). Female faces with small, mature features looked less attractive than either unaltered faces or faces with enlarged features, as expected. However, enlarged features did not improve female attractiveness as we had predicted. For male faces, substitutions of enlarged features reduced attractiveness, as predicted, but so did the addition of diminished features. Thus, enhanced maturity diminished both women's and men's facial attractiveness, whereas enhanced neoteny diminished only men's attractiveness.

Despite some difference in which features made male and female faces look less "attractive," perceptions of their relationship potential converged: unaltered male and female faces were favored as mates, dates, and friends (Table 6.3).

We had no information about where our 24 unaltered faces stood in terms of a population average of faces, but exaggerating the features of actual faces may have resulted in face versions that appeared less normal or "more distinc-

	Feature Size Manipulation		
	Enlarged	Unaltered	Reduced
Male	-.39[a]	.45[b]	-.05[a]
Female	.01[a]	.54[a]	-.56[b]

Table 6.2. Mean attractiveness ratings for unaltered and manipulated images of male and female faces.

Note: Means represent deviations from average attractiveness ratings across all faces and raters. Row means with varied superscripts differ at $p < .05$ or better.

Feature Size Manipulation

Relationship	Enlarged	Unaltered	Reduced
Friend	-.08[a]	.33[b]	-.25[a]
Date	-.18[a]	.32[b]	-.11[a]
Mate	-.13[a]	.27[b]	-.16[a]

Table 6.3. Mean relationship ratings for unaltered and manipulated images of male and female faces.

Note: Means represent deviations from average across all faces and raters. Degrees of freedom for F-tests were (2,44). Row means with varied superscripts differ at $p < .05$ or better.

tive" (Rhodes et al., 1999) than other faces in the perceivers' universe. If so, then preferences for unaltered faces might be explained by their relative prototypicality (Langlois & Roggman, 1990; Rhodes et al., 1999).

Independent ratings confirmed that manipulated faces, as a group, looked less "normal" than unaltered faces. But relationship preferences for unaltered faces remained significant when assessments of how "normal" each face looked were covaried. Perhaps manipulated faces looked unhealthy (Thornhill & Gangestad, 1993), too masculine or too feminine (Penton-Voak et al., 1999; Perrett et al., 1998), or too old or too young (Buss & Schmitt, 1993) relative to unaltered faces. Each of these possibilities was tested using covariance analysis and none explained preferences for unaltered faces.

In fact, our "designer" faces largely failed to improve on Mother Nature: manipulated faces frequently produced trait ratings that were often no better than those for unaltered faces. For example, faces with enlarged eyes and lips received the same ratings as unaltered faces for traits such as "caring," "affectionate," and "good parent" (see Table 6.4). Faces with diminished eye and lip sizes elicited ratings for "dominant" and "strong" that were no different from those produced by unaltered faces. Moreover, manipulations designed to make faces look more powerful (i.e., dominant, independent, strong) mostly made them look less warm (i.e., affectionate, caring, good parent, faithful). Similarly, faces transfigured to look warmer instead looked less powerful. In other words, enlarging eyes and lips did not make faces look warmer but did make them look less powerful. Diminishing eyes and lips did not improve appearances of power but did reduce attributions of warmth. These patterns largely generalized across face gender (see Table 6.4).

Maybe the appeal of unaltered faces could be explained by the combined warmth and power messages they conveyed. Composite scores for warmth (i.e., the average rating for affectionate, caring, good parent, honest, faithful) and for power (i.e., the average rating for dominant, independent, strong) for

Feature Size Manipulation

Trait	Enlarged	Unaltered	Reduced	F
Dominant	-.53[a]	.08[b]	.38[b]	17.96***
Strong	-.59[a]	.22[b]	.36[b]	26.15***
Independent	-.33	.07	.25	9.76***
Masculine	-.38[a]	-.03[a]	.45[b]	16.44***
Caring	.30[a]	.15[a]	-.43[b]	13.78***
Affectionate	.22[a]	.22[a]	-.54[b]	14.00***
Good Parent	.14[a]	.14[a]	-.37[b]	8.41***
Faithful	1.37[a]	1.20[a]	.88[b]	5.37**
Honest	.37[a]	.11[b]	-.47[c]	13.59***
Sexy	-.28[a]	.44[b]	-.22[a]	6.75**
Rich	.10	.24	-.36	8.25***
Intelligent	.08[a]	.18[a]	-.28[b]	3.98*
Healthy	-.06	.20	-.16	1.93

Table 6.4. Mean trait ratings for unaltered and manipulated images of male and female faces.

Note: Means represent deviations from average trait ratings across all faces and judges. Degrees of freedom for F-tests were (2,44). Row means with varied superscripts differ at $p < .05$. Results for independent and rich were qualified by interactions with gender. $*p < .05$; $**p < .01$; $*** p < .001$.

each face type were used as covariates in three, separate ANCOVAs with marriage, date, and friendship potential as dependent variables, and face manipulation and face gender as independent variables. The correlation between the warmth and power composites was -.43. Warmth, power, then warmth plus power were covaried from the face manipulation effect. If the combination of warmth and power explained social appeal, then only the latter test should diminish the face manipulation effect, while covarying warmth or power alone should spare the effect of manipulation. As Table 6.5 shows, the perceptions of power and warmth together dramatically reduced the effect of face manipulation on relationship potential: With warmth plus power controlled, the effect was no longer significant for dating and marriage potential, and was reduced in significance for friendship. In contrast, controlling for power or warmth alone failed to substantially reduce the face manipulation effect on judgments of rela-

Covariate

	No Covariate	Warmth	Power	Warmth + Power
Friend	.35***	.30***	.40***	.22**
Date	.25***	.27***	.26***	.11
Mate	.19**	.17*	.20**	.09

Table 6.5. Effect sizes for feature manipulation on relationship rating with covariates removed.

Note: Effect size measure = partial eta squared. *$p < .05$; **$p < .01$; ***$p < .005$.

tionship potential. The combined messages of power and warmth largely accounted for the social appeal of faces.

We surmised that unaltered faces optimized both types of messages—power and warmth—rather than maximizing one message at the expense of the other. Regression analyses confirmed that perceptions of power and warmth combined (but not separately) explained the variance in preferences for unaltered male and female faces. We speculated that human faces were selected to display feature configurations that optimally combine social status messages conveying power and warmth (Keating & Doyle, 1999).

Some might interpret our study as a test of the averageness hypothesis. It is possible that making facial features more extreme in physical measurement moved some physiognomies away from the population average as well as from the individual's archetype (functional ideal), thereby eroding attractiveness (e.g., Carello, Grosofsky, Shaw, Pittenger, & Mark, 1989; Langlois & Roggman, 1990; Rhodes et al., 1999). However, whether our set of "normal" faces constituted anything close to a population average is unknown. Moreover, we were asking a very different question about what makes faces appealing.

Langlois and Roggman (1990) proposed that beauty materializes from faces with prototypical or "average" human features. Even if true (cf. Alley & Cunningham, 1991), a more essential question remains: "Why *that* average?" Why didn't a *different* human facial average evolve, say, one with bigger eyes or thinner lips? Why human faces converge on a particular average or prototype, and manifest a particular degree of variability, is a question that our approach may help to answer.[7]

Of course, variability (and prototypicality) in human faces is generally determined by functional considerations; constrained, for instance, by head shapes designed to accommodate the developing brain and jaw structures that permit effective chewing (e.g., Carello, Grosofsky, Shaw, Pittenger, & Mark, 1989; Mark, Shaw, & Pittenger, 1988). The social status cues approach suggests that the signal value of status messages imbued in facial structures over phylogenetic history may have also contributed to the evolution of human physiognomies and to what humans find becoming in a face (Guthrie, 1970; Keating, 1985b). Our data suggest that aspects such as eye size and lip thickness are among the stimulus elements that influence cognitions about attractiveness by sending social status messages. We found that the social messages conveyed by faces determined heterosexual appeal. Preferences could not be explained by variation in perceived health (Thornhill & Gangestad, 1993), by age (Buss, 1987), or by how feminine or masculine faces appeared (Penton-Voak et al., 1999; Perrett et al., 1998). Preferences were also independent of how normal faces looked. The best predictor of relationship preferences was a charismatic mix of warmth and power, and nature designed it. Thus, a combination of "good" social status messages made faces appealing, suggesting "what is good is beautiful," as well as the other way around (Dion, Berscheid, & Walster, 1972).

Social Status Cues and the Attractive Leader

When judgments about heterosexual attractiveness were made, facial cues signaling maturity and dominance diminished female attractiveness, whereas neotenous features conveying submissiveness, weakness, and naivete did not (Keating, 1985a; Keating & Doyle, 1999). In the context of leadership, women may be "faced" with a dilemma: Do cognitions about female facial attractiveness degrade women's ability to look influential (Zebrowitz, 1994)? Or, because social influence includes aspects of interpersonal attractiveness as well as dominance (Carli, 1999; French & Ravin, 1959), is the facial formula for attractive female and male leaders just different? We investigated whether, *in the context of leadership, facial status cues influence the attractiveness of males and females differently.*

Gender and the Attractive Leader

Faces convey social status with some accuracy; dominant-looking individuals are likely to assume positions of power, influence, and leadership. So far, support for this contention comes largely from data for men (e.g., Berry & Landry, 1997; Cherulnik, Turns, & Wilderman, 1990; Mazur et al., 1984), perhaps because associations between behavioral and physical aspects of attractiveness and leadership are closer for men than for women (Berry, 1991; Carli, 1999; Keating, 1985a; Sadalla et al., 1987).

We tested the influence of facial status cues on the attractiveness of male and female leaders (Keating, Oberting, & Weiss, 2000). Videotapes were made of college students who had babyish or mature facial characteristics and served as actors. Each actor portrayed leadership by appearing to speak to an audience. While speaking, actors conveyed either a direct, agentic, dominant leadership style (displaying facial and body dominance gestures that enhanced status) or

an indirect, referential, submissive leadership style (displaying facial and body submissiveness gestures that diffused status). Perceivers viewed silent videotapes of these performances and assessed actors' attractiveness, warmth, likability, dominance, competence, leadership, and influence.

Cognitive appraisals of how attractive and powerful men and women with mature and immature facial structures looked when portraying different leadership styles were expected to be moderated by gender role expectations. Direct, agentic leadership is typically perceived as more appropriate for men while indirect influence tactics are regarded as more appropriate for women (e.g., Carli, 1999; Costrich, Feinstein, Kidder, Marecek, & Pascale, 1975). Eagly (1987) described how social roles, like gender roles, serve as lenses through which information is processed. Information that violates sex role expectations is evaluated differently from information that is role-consistent. Because female sex role stereotypes incorporate expectations of submissiveness, the cost of displaying indirect leadership (submissiveness) and neotenous facial traits was expected to be less for women than for men. The cost of displaying direct leadership (dominance) and mature facial traits was expected to be greater for women than men. Specifically, baby-faced females and/or females who displayed submissive, status-diffusing behavior were expected to receive higher ratings for social power and appeal than their baby-faced, submissive male counterparts. Mature-faced females and/or females who displayed dominant, status-enhancing behavior were expected to receive lower ratings for social power and appeal than their male counterparts who looked and acted similarly.

Undergraduate perceivers (91 men and 79 women) watched the videotapes and rated actors on scales for aspects of social attractiveness and social power. Their responses were submitted to a factor analysis to search for common dimensions among perceptions. We expected elements of power and warmth to load on two separate factors as they had when heterosexual appeal was judged for static faces. Instead, three factors emerged. The first factor reflected perceptions of power based on authority (dominance and competence) and was labeled "authority." The two remaining factors tapped different aspects of social attractiveness in the context of leadership: "approachability" (warmth and likableness) and "charisma" (attractiveness and influence). The elements of each factor were averaged and separate analyses were performed for each dependent measure (Figure 6.3).

Results showed that physiognomy was not destiny for the appearance of authority; regardless of models' facial structure, dominance behavior produced higher overall ratings for authority compared to submissive behavior (means = 5.17 and 2.36; $F(1,162) = 306.62, p < .001$). Physiognomy in interaction with gender also influenced impressions of authority, $F(1,162) = 9.54, p < .002$. Regardless of behavior, physiognomic cues that confirmed rather than countered sex-role expectations generated favorable impressions, as expected (see Figure 6.3 for means). Baby-faced women looked more authoritative than either
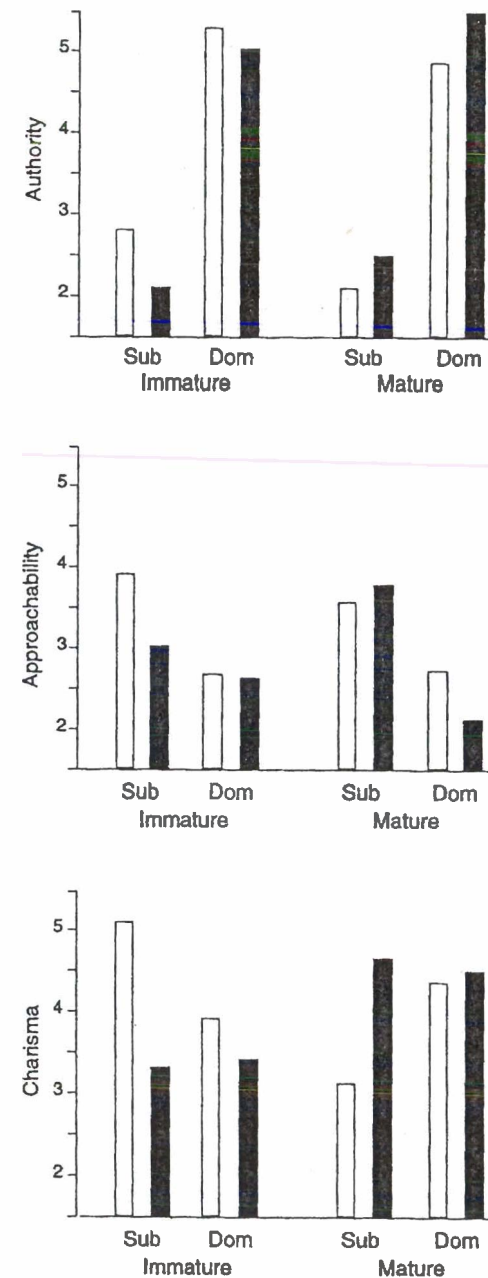

Figure 6.3. Social perceptions of men and women with immature or mature physiognomies who displayed submissive or dominant behavior. Open bars depict mean ratings for women. Shaded bars depict mean ratings for men. "Sub" designates submissive behavior. "Dom"

baby-faced men or mature-faced women, $Fs(1,162) = 4.75$ and 3.92, respectively, $ps < .05$. Mature-faced men appeared more authoritative than mature-faced women or baby-faced men, $Fs(1,162) = 8.20$ and 9.08, respectively, $ps < .01$. None of these results could be explained by an attractiveness halo effect. Rather, they paralleled what other researchers have found for dominance behaviors: direct dominance is more effective when projected by men than by women (e.g., Butler & Geis, 1990; Carli, 1999; Costrich et al., 1975; Sadalla et al., 1987).

As for attributions related to aspects of the attractiveness of leaders, Figure 6.3 shows that both mature-faced men and women were more charismatic than their baby-faced counterparts when dominant, status-enhancing behavior was expressed, overall means = 4.47 and 3.67, $F(1,162) = 12.51$, $p < .007$. However, physiognomy influenced male and female charisma and approachability differently when their behavior diffused status (see Figure 6.3 for means). Under this gestural script, approachable, charismatic men were (again) mature-faced rather than baby-faced, $Fs(1,162) = 3.78$, $p < .05$, and 10.53, $p < .01$. In contrast, women of each physiognomic type were equally approachable, $F(1,162) < 1.0$, but charismatic only when baby-faced, $F(1,162) = 23.10$, $p < .001$. In other words, women were charismatic when status messages from physiognomy and behavior were consistent. Mature-faced men were charismatic regardless of how they behaved and approachable when portraying submissiveness.

Thus, in the context of leadership, the physiognomic standards used to judge aspects related to men's social attractiveness seemed relatively rigid. Men with mature physiognomies were charismatic (attractive and influential) no matter how they behaved, while baby-faced men were neither charismatic nor especially approachable (warm and likable). Baby-faced men could do little with gestures to improve their charisma. In contrast, the cognitive template for the physiognomic expression of women's charisma seemed relatively fuzzy. Charismatic females included baby-faced women who displayed submissive behavior and mature-faced women who expressed dominance. This apparent plasticity in cognitions about the appeal of female physiognomies may explain why researchers have had difficulty identifying female facial traits associated with social influence (Berry & Landry, 1997; Keating, 1985a; Zebrowitz-McArthur & Montepare, 1989). Consistent with behavioral studies of influence styles, female influence strategies may incorporate cues signaling submissiveness and receptivity as well as dominance and threat (e.g., Carli, 1989, 1990).

Someday soon, the first female U.S. president will be elected to office (Cannon, 1999). What will she look like? Our research suggests that she could be mature-faced or baby-faced, depending on her leadership style. We offer two physiognomic projections of the first, successful, female presidential candidate (see Figure 6.4). These projections represent an amalgam of what we have surmised from research findings and what we have observed among present-day,
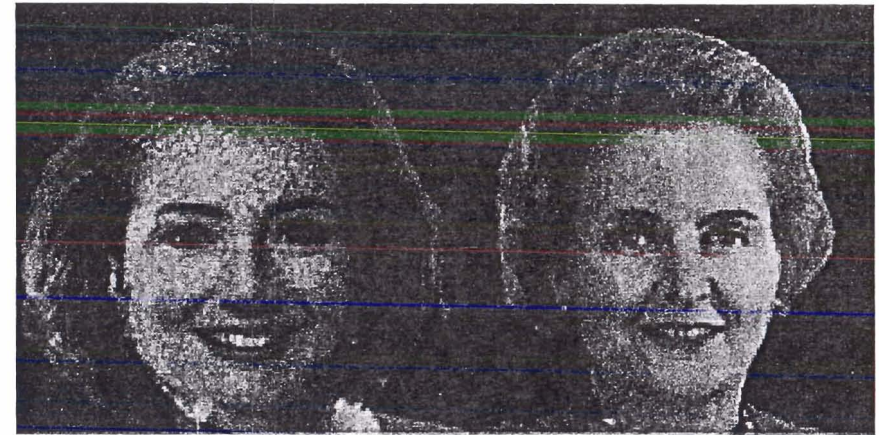

Figure 6.4. Projections for the facial appearance of the first female U.S. president. The face on the left portrays the likely physiognomy for a woman with an indirect leadership style. The face on the right portrays the likely physiognomy for a woman with a direct leadership style.

charismatic female leaders. Based on our research, we offer separate projections for women characterized by indirect, status-diffusing and direct, status-enhancing nonverbal styles. The face on the left of Figure 6.4 comprises a morph of two current, female leaders selected for their relatively indirect, self-presentational nonverbal styles (Elizabeth Dole and, to a lesser degree, Hillary Rodham Clinton). In accordance with our research, this morph's chin was rounded to give it a slightly more neotenous appearance. The face on the right is a morph of two female leaders characterized by relatively direct, status-enhancing, self-presentational styles (Margaret Thatcher and Madeline Albright) (see Figure 6.4). The eyes of this morph were reduced slightly in size to give a slightly more mature appearance. The successful female candidate who exhibits a status-diffusing leadership style is projected to have a facial appearance close to the morph on the left; the candidate with a status-enhancing leadership style should resemble the face on the right.

Do Facial Status Cues Affect the Attractiveness of Real Presidents?

Laboratory studies like ours may exaggerate the influence facial appearance has on person perception: most use unfamiliar faces for which features provide the only basis for social judgments. We pursued the formula for charismatic physiognomies by using *familiar* faces. We tested whether the effects of neotenous and mature facial cues on social cognition were pervasive enough to alter judgments about the attractiveness of people with personal histories, specifically political leaders (Keating, Randall, & Kendrick, 1999).

This was hardly a new idea. All over the world, leaders attempt to enhance their influence by controlling their physical images. In the United States, White House officials promote favorable images of the president by carefully orchestrating photo-ops and by dispensing selected presidential photographs to the press and public (Adatto, 1993; Jamieson, 1984). In Iraq, portraits of President Saddam Hussein are commissioned by the government and typically portray a smiling Saddam who looks about half his actual age (Weiner, 1998). Are the efforts to "spin" a leader's physiognomy worth it? Can altering facial appearances improve the appeal of a president?

Researchers have documented the influence proximate nonverbal cues have on impressions made by politicians (e.g., Budesheim & DePaola,1994; Exline, 1985; McHugo, Lanzetta, Sullivan, Masters, & Englis, 1985; Way & Masters, 1996). Physical attractiveness in particular influenced evaluations of political candidates even when personality profiles were provided and political stances described (Budesheim & DePaola, 1994). Perceivers' agreement with the candidate's positions on issues mattered less when portrait photographs were provided than when they were withheld (Budesheim & DePaola, 1994). We therefore hypothesized that subtle changes in proximate, physiognomic cues would shift cognitions about familiar political leaders, over and above personal reputation and regardless of perceivers' political biases.

To test these ideas, we manipulated the famous facial images of real U.S. presidents (Keating et al., 1999). In one study, we applied our previous feature formula to three familiar presidential physiognomies: Bill Clinton, Ronald Reagan, and John F. Kennedy. Baseline photographic images depicted each president while he was in office. Each face was made more neotenous by enlarging eyes and lips by 15%, and made more mature by reducing the sizes of these features by the same amount (see Figure 6.5). Undergraduate perceivers viewed one version of each president and used scales to render social judgments about them. Trait ratings were transformed into deviation scores, as before.

Feature alterations were not consciously detected by perceivers. Virtually all perceivers identified each president correctly, by name, regardless of which version they saw. When queried about the faces, only two perceivers (out of a total of 207) indicated that the faces looked unusual in any way. The cognitive template for these well-rehearsed, famous physiognomies was notably flexible, at least when only one face version was seen. Rensink, O'Regan, and Clark (1997) seemed to tell it right: If perceivers are not privy to the transition, they often do not detect the change.

The impact of altering status cues on presidential images was expected to vary across the three presidents because of their distinctive physiognomies. Kennedy, the youngest U.S. president, was naturally baby-faced. His normal face was characterized by relatively neotenous facial features such as large eyes, thin brows, thick lips, and a round chin. Reagan, the oldest U.S. president, was naturally mature-faced and dominant-looking, with small eyes, bushy brows,

Figure 6.5. Neotenous, unaltered, and mature versions of the faces of Presidents Clinton, Reagan, and Kennedy. Neotenous versions appear to the left, unaltered in the center, and mature to the right.

Source: Figure 1 from "Presidential Physiognomies: Altered Images, Altered Perceptions," *Political Psychology*, v. 20, no. 3 (1999), pp. 593–610. Reprinted with permission from Blackwell Publishers.

thin lips, and a square jaw. President Clinton's face incorporated both mature-looking (small eyes, thin lips, and a prominent nose) and immature-looking (thin brows and a round chin) features. Thus, exaggerated maturity was hypothesized to primarily benefit impressions of Kennedy. Exaggerated neoteny was expected to be most advantageous to Reagan and Clinton.

Specific predictions were that enlarged, neotenous features would enhance impressions of attractiveness, honesty, and compassion, especially for the two presidents Clinton and Reagan, whose unaltered faces contained relatively few babyish cues. Neotenous features were generally expected to diminish perceptions of dominance, strength, and cunning. Substituting small, mature-looking features for normal ones was predicted to improve these ratings for Kennedy, who lacked many of the dominance features characteristic of his older, more mature-faced presidential peers. Enhancing the maturity of the oldest presidential physiognomy was expected to reduce perceptions of Reagan's power by conveying the diminished status of the elderly (Guthrie, 1970).

Results showed that replacing normal features with mature-looking ones had a different impact on ratings related to power for the three presidents (see Table 6.6). As predicted, facial maturity cues boosted ratings of Kennedy's cunning and, to some degree, his dominance (though not his strength), while neotenous cues reduced impressions of these three traits. Exaggerated neoteny also generally diminished perceptions of these power-related attributes for Reagan, and, particular to his physiognomy, so did enhanced maturity. However, perceptions of the sitting president's (Clinton's) dominance, strength, and cunning were unaffected by facial changes.

The pattern of results for aspects of presidential warmth differed from that of power (see Table 6.7). Impressions of Kennedy's honesty, attractiveness, and compassion were unaffected by facial manipulations. Judgments of Reagan's honesty and attractiveness were generally lowered by enhanced maturity, as predicted, but not raised by enlarged, neotenous features. Clinton was perceived as more honest and attractive with enlarged, neotenous eyes and lips, and less compassionate with reduced, mature features.

Altering the status messages inherent in mature and neotenous facial cues shifted character judgments about familiar leaders. The particular structure of each presidential face presumably determined the specific impact of facial status cues. However, the unique reputations and histories of leaders may have also moderated the impact of status cues. For example, increased neoteny primarily benefited President Clinton, whose honesty and personal attractiveness was under scrutiny at the time our data collection took place (during the Monica Lewinsky scandal in 1999) (Keating et al., 1999). Nevertheless, the take-home message is somewhat sobering. Depending on the face, status cues can be manipulated to improve perceptions of the attractiveness, honesty, and power of political leaders without the perceiver being aware.

Feature Size Manipulation

	Enlarged	Unaltered	Reduced	F
Clinton				
Dominant	-.06	-.29	-.15	
Strong	-.06	-.58	-.15	
Cunning	.43	.04	.32	
Reagan				
Dominant	-.62[a]	.24[b]	-.56[a]	3.84*
Strong	-.24[a]	.18[a]	-.88[b]	3.44*
Cunning	-.76[a]	.54[b]	-.31[a]	4.04*
Kennedy				
Dominant	-.09[a]	.62[b]	.91[b]	3.84*
Strong	-.04[a]	.94[b]	.82[b]	3.40*
Cunning	-.85[a]	-.12[b]	.71[c]	6.47**

Table 6.6. Mean power-related ratings for unaltered and manipulated versions of presidential physiognomies.

Note: Means represent deviations from average trait ratings across all faces and raters. Degrees of freedom for F-tests were (2,46). Row means with varied superscripts differ at $p < .08$ or better. *$p < .05$; ** $p < .01$.

SUMMARY AND CONCLUSIONS

The basic premise of the social status cues perspective is that aspects of facial growth conveying social status information evolved as social display in humans as in other species. Status messages from the human face activate cognitive biases in perceivers and influence social attraction. Faces are "attractive" in that they draw us into relationships. The attractiveness of status cues depends on social context. Three different social contexts in which status cues were predicted to shift cognitions about facial attractiveness were probed: helping, heterosexual relationships, and leadership. Each context imposed a different set of social expectancies and a different cognitive solution for determining attractiveness.

Facial status cues were varied by selectively sampling faces and/or by altering the features of digitized, facial images. By enlarging eyes and lips, most faces appeared more neotenous, more babyish, and more submissive. By

Feature Size Manipulation

	Enlarged	Unaltered	Reduced	F
Clinton				
Honest	- .10[a]	- .76[b]	- 1.17[b]	4.22*
Attractive	.29[a]	- .38[b]	- .78[b]	5.77**
Compassionate	.19[a]	- .18[a]	- .83[b]	5.56**
Reagan				
Honest	.58[a]	.50[a]	- .42[b]	4.30*
Attractive	- .84[a]	- .45[a]	-1.71[b]	5.51**
Compassionate	.56	.28	- .06	1.65
Kennedy				
Honest	.67	.52	.18	--
Attractive	1.22	1.42	1.22	--
Compassionate	.56	- .12	- .38	--

Table 6.7. Mean warmth-related ratings for unaltered and manipulated versions of presidential physiognomies.

Note: Means represent deviations from average trait ratings across all faces and raters. Degrees of freedom for F-tests were (2,46). Row means with varied superscripts differ at $p < .08$ or better.
* $p < .05$; ** $p < .01$.

shrinking the sizes of these features, most faces looked more mature, less baby-ish, and more dominant.

In the context of helping, status messages inherent in facial neoteny were predicted to attract more help than those conveyed by facial maturity. In general, neotenous faces generated more help than mature faces. A notable exception to this pattern was found in Nairobi, where more help was given to mature-faced than to baby-faced black men.

In the context of heterosexual appeal, the attractiveness of status cues conveyed by neoteny and maturity were hypothesized to diverge for male and female faces. Exaggerated neoteny was predicted to improve female attractiveness but diminish male good looks. Enhanced maturity was expected to make male faces more attractive and female faces less so. Results partially supported predictions in that neoteny was more detrimental to male than to female attractiveness, while maturity was detrimental only to female attractiveness. Relationship appeal, however, was degraded by exaggerated maturity or

neoteny in either sex, which suggested that the combination of status cues inherent in normal faces optimize messages promoting social bonds.

In the context of leadership, facial status cues that confirmed rather than countered sex-role expectations were expected to generate favorable impressions of leaders. Consistent with this idea, mature-faced males appeared influential and attractive (charismatic) no matter how they behaved. Influential, attractive female leaders displayed either a babyface and submissive behavior or a mature face and dominance behavior. Thus, charismatic women projected congruous status cues from physiognomy and behavior. Physiognomic status cues proved powerful enough to shift cognitions about familiar leaders, as well. Changes made to the digitized facial images of well-known presidents altered perceivers' assessments of their attractiveness, honesty, and power, even though the changes themselves went undetected.

Consistent with the social status cues approach to facial attractiveness, the critical messages that faces delivered were social in nature, and the fit between social status messages and social context was responsible for cognitions about attractiveness. The research reported here demonstrates that, in relationships and in politics, interpersonal appraisals are guided in important ways by responses to proximate, physiognomic social status cues. Human sensitivity to facial cues, whether conscious or otherwise, reveals that an "attractive" physiognomy is more than just a pretty face. Given the right social context, facial status cues convey charismatic qualities that motivate us to sacrifice, to love, to follow, and to trust some people more than others.

NOTES

1. This cognitive bias extends across species; puppies, kittens, and even baby rhinosaurus look "cute" in their own way. The human cute response even projects to inanimate objects and abstract stimuli, presumably explaining our attraction to teddy bears and Volkswagon beetles (Hinde & Barden, 1985; Pittenger, Shaw, & Mark, 1979).

2. The stimuli used by Kramer and colleagues (1995) distinguished attractiveness and babyfaceness and found effects for each when infant girls gazed at female faces. The results for male infants and faces were not statistically reliable.

3. The fitness value of any signal is limited by its *relative* advantage; if everybody's doing it, the relative value of a signaling tactic dissolves (Dawkins & Krebs, 1976). Whether deceptive signaling evolves as a strategy also depends upon the cost involved in producing the signal (Guilford & Dawkins, 1995; Otte, 1974).

4. Many "cloaked," psychological traits, including dominance and warmth, are believed to be accurately judged from facial appearances (e.g., Berry & Finch Wero, 1993; Mueller & Mazur, 1997; Zebrowitz and Collins, 1997).

5. There are discrepancies in reports of what characterizes a neotenous or babyish face. Zebrowitz & Montepare (1992) found that "baby-faced" males were characterized by relatively large eyes and thin brows, whereas "baby-faced" females were distinguished by a small nose bridge. Cross-cultural measurements of faces revealed that

females who appeared neotenous (operationalized as appearing younger than their actual age) had wide eyes, full lips, and a small nose (Jones, 1995).

6. Pilot studies revealed that a 15% change altered perceptions without arousing perceivers' suspicions that changes were made.

7. Feature configurations for human faces evolved to have many constraints. Using an identikit or software morphing program to create novel faces gives an appreciation for types of faces types that never develop.

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