



## The nonverbal environment of self-esteem: Interactive effects of facial-expression and eye-gaze on perceivers' self-evaluations



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### HIGHLIGHTS

- We argued that a self-esteem sociometer is sensitive to others' facial behavior.
- Facial emotions with direct eye-gaze predictably influenced perceivers' self-esteem.
- Facial emotions with averted-gaze did not influence perceivers' self-esteem.
- Attention to faces moderated these effects.

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### ABSTRACT

Self-esteem fluctuates in response to verbal feedback and social exclusion, but such unambiguous feedback may not occur frequently enough to account for moment-to-moment self-esteem fluctuations. We propose that others' facial behavior provides a frequently-encountered source of feedback to which self-esteem should respond. We expected repeated exposure to angry faces to reduce perceivers' self-esteem but only when those faces exhibited direct-gaze ("looked at" perceivers). Two studies supported this hypothesis. In Study 1, participants viewed a series of faces under the guise of a memory paradigm. Self-esteem was reduced among participants who viewed angry faces compared to participants who viewed neutral or happy faces. Crucially, this pattern only occurred in response to faces exhibiting direct-gaze. In Study 2, participants completed a word-identification task in which attention to faces was task-irrelevant. The results of this study replicated Study 1 but only to the extent faces captured participants' attention during the priming task.

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It hurts to get rejected for a date or told of one's undesirable traits but fortunately for humans' self-esteem, most people do not receive this sort of overt feedback more than a few times daily (Blumberg, 1972; Felson, 1980; Leary, Cottrell, & Phillips, 2001; Waung & Highhouse, 1997; Zadro, Williams, & Richardson, 2004). Subtler feedback, such as feedback generated by facial expressions and other nonverbal cues, may occur with greater frequency (cf. Ambady & Weisbuch, 2010) and thus exert a persistent influence on self-esteem. Yet despite research demonstrating the influence of others' nonverbal behavior on perceivers' attention, emotion, and attitudes (e.g., Dimberg, Thunberg, & Elmehed, 2000; Phelps, Ling, & Carrasco, 2006; Weisbuch & Ambady, 2009), there is little evidence regarding how the self-concept is shaped by nonverbal cues. Drawing from theories that suggest the self-concept is built via social-feedback (Cooley, 1902; Leary, 1999; Mead, 1934), we here examine how self-esteem is shaped by others' nonverbal behavior.

### Self-esteem and social value

Classic theories across the social sciences suggest that the self-concept is shaped by others' opinions. In describing the *looking-glass self*, Cooley (1902) posited that beliefs about others' evaluations of oneself ("reflected appraisals") are the foundation of the self-concept. Mead (1934) built on this idea to emphasize the accumulation of reflected appraisals into a relatively stable *generalized other*. Consistent with the views of Cooley and Mead, self-esteem has recently been described as a gauge of one's perceived social value wherein state self-esteem fluctuates in response to moment-to-moment social feedback (e.g., Leary, 1999; Leary & Baumeister, 2000; Leary et al., 2001; Leary & Downs, 1995; Leary, Haupt, Strausser, & Chokel, 1998). Such fluctuations can also be described as oscillation around each individual's attractor (or resting) state of self-esteem (Vallacher Nowak, Froehlich, & Rockloff, 2002) with the key point here that self-esteem fluctuations reflect perceived social value.

Many studies have supported this *sociometer* model of self-esteem (Leary, 2012). For example, verbal feedback and ostracism both exert

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powerful influences on state self-esteem (Kamal, Blais, McCarrey, Laramée, & Ekstrand, 1992; Leary, Tambor, Terdal, & Downs, 1995; Leary et al., 2001; Zadro et al., 2004). Yet much of this evidence regards forms of feedback that occur relatively infrequently. Even the most talkative people speak only so-often (Ambady & Weisbuch, 2010) and when they do speak, are often hesitant to give negative or even positive feedback (Blumberg, 1972; Felson, 1980; Waung & Highhouse, 1997). Thus, while verbal feedback and ostracism can account for changes to self-esteem over longer time periods, they probably do not occur frequently enough to account for moment-to-moment fluctuations in self-esteem. These fluctuations may be explained, however, by feedback accruing via nonverbal behavior.

#### *Nonverbal behavior and self-esteem*

Whenever one person sees another, she or he typically sees body-posture, eye-gaze, facial-expressions (neutral or emotional), and other nonverbal cues. The high frequency of nonverbal behavior is consequential in that perceivers' emotions, attitudes, and behavior effortlessly respond to others' nonverbal cues (e.g., Dimberg et al., 2000; Murphy & Zajonc, 1993; Tiedens & Fragale, 2003; Weisbuch & Ambady, 2009). Yet little research has examined how the self-concept responds to others' nonverbal behavior.

In the one set of studies we located, participants watched a dynamic, 2-min video of a person exhibiting mostly-direct or mostly-averted gaze and visualized interacting with that person (Wirth, Sacco, Hugenberg, & Williams, 2010). Across three studies, participants in the mostly-averted gaze conditions exhibited an array of self-evaluative responses including reduced self-esteem, suggesting that self-esteem can be sensitive to a single nonverbal cue (eye-gaze). Importantly, this study established that self-esteem is sensitive to *dynamic* patterns of eye-gaze exhibited by a single individual. Thus, when participants envisaged interacting with a person who exhibited a particular dynamic pattern of eye-gaze, their self-esteem adjusted to whether that eye-gaze pattern was consistent with inclusion (mostly direct-gaze) or exclusion (mostly averted-gaze). These findings made an important contribution to scientific understanding of self-esteem but also opened up important new questions which we address herein.

Although people often interact with single individuals, those single individuals display multiple nonverbal cues at any one moment (not just eye-gaze). Moreover, the social environment includes many individuals some of whom are only encountered briefly. We thus sought to examine the extent to which self-esteem tracks meaningful *combinations* of nonverbal cues and whether it can track such combinations across multiple target persons. Even if eye-gaze and other nonverbal cues can evoke meaningful responses when isolated, these cues typically do not exist in isolation. For example, eye-gaze and facial expression can be artificially isolated with photo-editing software, but such isolation is atypical in everyday experience. Facial expressions (including neutrality) and eye-gaze regularly occur together in space. The comingling of these cues is not lost on perceivers, who interpret eye-gaze with respect to facial-expression and vice-versa (Adams & Kleck, 2003, 2005; Lobmaier, Tiddeman, & Perrett, 2008; Slepian, Weisbuch, Adams, & Ambady, 2011). Similarly, a photograph or video can isolate the face of a single individual but over time, most people encounter many faces and each of these faces contain nonverbal cues (e.g., eye-contact). Consistent with this “nonverbal environment,” perceivers update their attitudes and appetites to reflect the temporally-distributed pattern of nonverbal cues they encounter (Weisbuch & Ambady, 2009; Weisbuch, Pauker, & Ambady, 2009; Winkielman, Berridge, & Wilbarger, 2005).

A sociometer sensitive to complex nonverbal patterns in the environment could find state self-esteem readings in *any* face-to-face interaction, would be sensitive to evaluations that people are unwilling or unable to communicate overtly, and would be sensitive to the accrual of such tacit evidence. In short, people can process spatially- and

temporally-distributed patterns of nonverbal cues and we expect self-esteem to be sensitive to those patterns.

#### *The current research*

We examined whether self-esteem was reliably influenced by multiple nonverbal cues encountered across different faces over time. We focused here on the well-studied combination of eye-gaze and facial-emotion (cf. Adams, Franklin, Nelson, & Stevenson, 2010). In each of two studies, participants completed self-esteem measures after viewing a series of faces that varied—on a between-subjects basis—with respect to emotion expression and eye gaze.

We expected exposure to negative (versus positive) facial emotion to reduce perceivers' self-esteem but only when those faces exhibited *direct-gaze* (i.e., were “looking at” perceivers). In other words, self-esteem should only be influenced by facial emotions directed at the self. Just as hearing negative statements directed at oneself may reduce one's self-esteem (Kamal et al., 1992; Kernis & Johnson, 1990), seeing negative facial expressions directed at oneself might reduce one's self-esteem. Negative facial expressions directed away from oneself are not self-oriented and thus might not reduce self-esteem. Our hypotheses were strongest for negative facial expressions. Positive facial expressions directed at oneself may increase self-esteem but this hypothesis was a bit more exploratory in that positive facial expressions are normative (Cole, 1986; Hayes & Metts, 2008; Matsumoto, 1993) so may not be received as signals about the self. Consequently, we expected self-esteem to be lower after exposure to a temporally-distributed pattern of facial anger versus facial joy or facial neutrality, but *only when those faces exhibited direct-gaze*.

We have argued that self-esteem is most likely to respond to complex patterns of nonverbal cues. Yet it is also possible that exposure to negative facial expressions decreases perceivers' self-esteem, regardless of eye-gaze cues. This pattern might be observed for several reasons. For example, compared to eye-gaze direction, facial expressions may be more salient, may be interpreted as more reliable indices of others' responses to oneself, or may generate subjective emotion in perceivers (via emotion contagion; e.g., Dimberg et al., 2000; Neumann & Strack, 2000; Wild, Erb, & Bartels, 2001) that bleeds over into self-esteem. We examined this alternative hypothesis but based on evidence reviewed in preceding sections, we expected the influence of facial expressions to be moderated by eye-gaze.

#### **Study 1**

Participants saw 24 faces in an ostensible face-memory study. There were three facial emotion conditions (neutral, angry, happy) such that all faces within a given between-subject condition exhibited the same emotion. Thus, each participant viewed 24 different faces that exhibited the same emotion (e.g., anger). Orthogonal to this independent variable, there were three eye-gaze conditions corresponding to the ratio of direct to averted-gaze faces (mostly-direct, equal, or mostly-averted). Each participant was thus randomly assigned to view a series of faces within a 3 (facial emotion) × 3 (eye-gaze) independent-groups design. We predicted that that exposure to facial anger (vs. joy or neutrality) would reduce participants' self-esteem but only when faces displayed direct-gaze.

#### *Method*

##### *Participants and setting*

Participants were recruited and paid via Mechanical Turk (for guidelines, see Buhrmester, Kwang, & Gosling, 2011) and the experiment was conducted online. The sample was limited to people living in the United States under age 41 (to parallel facial ages presented in this study). Participants were excluded if they completed the experiment twice ( $n = 9$ ), failed to finish ( $n = 6$ ), or used the answer-choice “1” to

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