

# Signs of Appeasement: Evidence for the Distinct Displays of Embarrassment, Amusement, and Shame

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According to appeasement hypotheses, embarrassment should have a distinct nonverbal display that is more readily perceived when displayed by individuals from lower status groups. The evidence from 5 studies supported these two claims. The nonverbal behavior of embarrassment was distinct from a related emotion (amusement), resembled the temporal pattern of facial expressions of emotion, was uniquely related to self-reports of embarrassment, and was accurately identified by observers who judged the spontaneous displays of various emotions. Across the judgment studies, observers were more accurate and attributed more emotion to the embarrassment displays of female and African-American targets than those of male and Caucasian targets. Discussion focused on the universality and appeasement function of the embarrassment display.

Since universal facial expressions of a limited set of emotions were first documented (Ekman & Friesen, 1971; Ekman, Sorenson, & Friesen, 1969; Izard, 1971), sparse attention has been given to facial expressions of other emotions. The resulting lacuna in the field—that the emotions with identified displays are fewer (7 to 10) than the states that lay people (Fehr & Russell, 1984) and emotion theorists (Ekman, 1992; Izard, 1977; Tomkins, 1963, 1984) label as emotions—presents intriguing possibilities. Displays of other emotions may be blends of other emotional displays, unidentifiable, or may await discovery.

This investigation addressed whether embarrassment has a distinct nonverbal display and, by design, gathered similar evidence for amusement and shame. Embarrassment and the other “self-conscious emotions,” which include shame, guilt, and pride, have received considerable attention in recent research aimed at determining the defining characteristics, functions, and distinctiveness of these emotions (see Lewis, 1993; Miller & Leary, 1992). The self-conscious emotions, defined by self-awareness and the comparison of one’s action to standards and rules, play central roles in socialization and the adherence to conventions, norms, and morals (Goffman, 1967; Lewis, 1993; Miller & Leary, 1992).

The more internal aspects of the self-conscious emotions, including their perceived antecedents, underlying attributions, and phenomenological experience, are quite distinct (Ausubel, 1955; Babcock & Sabini, 1990; Edelmann, 1987; Lewis, 1993; Lindsay-Hartz, 1984; Miller, 1992; Tangney, 1992). Social

communication also plays an important role in the self-conscious emotions. In particular, self-conscious emotions such as guilt and embarrassment motivate individuals to redress preceding transgressions through confession, appeasement, and apology (Baumeister, Stillwell, & Heatherton, 1994; Miller & Leary, 1992). Does the social communication of embarrassment include a distinct nonverbal display?

## The Appeasement Function of Embarrassment

Argument for a distinct embarrassment display follows from its hypothesized appeasement function. According to this view (e.g., Castelfranchi & Poggi, 1990), an individual who violates a social norm threatens the validity of the norm and potentially incurs the anger and unfavorable evaluation of others. Individuals who show embarrassment after violating a norm, however, appease others by displaying their submissive apology for the transgression and their knowledge of the violated norm. As Goffman (1967) observed, the embarrassed individual “demonstrates that . . . he is at least disturbed by the fact and may prove worthy at another time” (p. 111).

## Previous Observation and Research

The hypothesis that embarrassment has a distinct nonverbal display has produced inconclusive findings. Laboratory studies and naturalistic observation have found that embarrassment is marked by gaze aversion, shifty eyes, speech disturbances, face touches, and a nervous, silly smile that reaches its apex following gaze aversion (Asendorpf, 1990; Edelmann & Hampson, 1979; Eibl-Eibesfeldt, 1989; Goffman, 1967; Modigliani, 1971). Developmental research has shown that failure-related emotion (shame or embarrassment) is marked by gaze and head movements downward and rigid, slouched, forward-leaning posture (Heckhausen, 1984; Stipek, Recchia, & McClintic, 1992). Finally, the blush, which people report experiencing during embarrassment (Edelmann, 1987), also occurs during

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shame and anger (Lewis, 1993) and therefore does not uniquely signal embarrassment.

These findings fall short in establishing whether embarrassment has a distinct nonverbal display. The unique facial actions that distinguish embarrassment from other emotions have not been documented. Nor is it known whether embarrassment's actions unfold as the actions of other emotions do (Ekman, 1982). Finally, observers have yet to demonstrate the ability to distinguish displays of embarrassment from those of other emotions (Edelmann & Hampson, 1981).

### Overview of This Investigation

To test the hypothesis that the nonverbal display of embarrassment is distinct, this investigation followed two research approaches (Ekman, Friesen, & Ellsworth, 1982). In Study 1, which followed the *components study approach*, the nonverbal behaviors associated with individuals' experiences of embarrassment and amusement were compared. Embarrassment was compared with amusement rather than with emotions that do not involve smiling (e.g., fear and anger) because the two emotions are often confused (Edelmann & Hampson, 1981; Goffman, 1956). The remaining studies followed the more pervasive *judgment study approach*. Four studies determined whether observers could distinguish between the spontaneous displays of embarrassment and (a) amusement (Studies 2 through 5); (b) shame (Study 5); and (c) other emotions with identified displays, including anger, disgust, and enjoyment (Study 5).

#### *Study 1: Nonverbal Displays of Embarrassment and Amusement*

Study 1 compared the nonverbal responses of individuals who had reported feeling embarrassment or amusement in response to carrying out the directed facial action task (DFA), which is noted for its embarrassing qualities (Levenson, Ekman, & Friesen, 1990). In the DFA task, subjects pose and hold awkwardly achieved facial expressions according to the instructions of an experimenter who scrutinizes their behavior and corrects their often numerous mistakes. The DFA task involves several elements of embarrassment: participants are acutely aware of their own performance, observers' judgments of their performance, and the public mistakes they make. Performing the DFA task resembles one prevalent cause of embarrassment, the loss of physical poise (Edelmann, 1987). The study generated three kinds of evidence relevant to the investigation's main hypothesis.

#### *Morphological Distinctions in Embarrassment and Amusement Displays*

Behavioral analyses focused on participants' gaze, head, self-touching, and facial activity following their performance of the DFA task. A central aim was to document which actions differentiate the smiles of embarrassment and amusement from each other and from Duchenne, enjoyment smiles and non-Duchenne smiles (Ekman & Friesen, 1982; Frank, Ekman, & Friesen, 1993).

#### *Dynamic Patterns of Embarrassment and Amusement Displays*

Temporal analyses documented the differences in the dynamic patterns of the embarrassment and amusement displays. In addition, these analyses addressed whether the embarrassment display, like other displays of emotion, has an abrupt onset and a duration of roughly 4–5 s (Ekman, 1982).

#### *Relations Between Nonverbal Behavior and Self-Reports of Embarrassment and Amusement*

Correlations between the self-reported experience of emotion and nonverbal behavior have differentiated facial displays of positive and negative emotion (Ekman, Friesen, & Ancoli, 1980), sympathy and personal distress (Eisenberg et al., 1989), and enjoyment and nonenjoyment smiles (Frank et al., 1993). Analyses examined whether self-reports of embarrassment and amusement were related to different nonverbal behaviors.

### *Method*

**Participants.** Participants, who attended individual sessions, were drawn from a larger sample of participants who performed the DFA task as part of a multitask experiment (for complete description, see Levenson et al., 1990).

**Procedure.** Instructions for the DFA task were given by an experimenter in an adjacent room who could see the participant on a video monitor and communicate over an intercom. The participants were aware of being videotaped, which was accomplished by a partially hidden video camera mounted on the wall in front of the participant and behind a glass partition. The DFA task requires that participants perform several different facial expressions, each one followed by a rest period and a self-report emotion inquiry. Specifically, participants followed muscle-by-muscle instructions to configure their faces into expressions of anger, disgust, enjoyment, fear, sadness, surprise, and a control "effort" face. Participants were asked to hold each facial configuration, once correctly achieved, for 15 s. Having held the face for 15 s, participants were told to stop and then were given a 12–15 s rest period. Immediately following the rest period, the experimenter began an open-ended inquiry by asking participants if they had "experienced any emotions." Participants first listed the emotions that they experienced during the trial and then rated the intensity of their experiences of only the reported emotions (0 = no emotion, 8 = the most of that emotion ever experienced by the subject).

Typewritten protocols of all self-report inquiries were reviewed to select terms to identify embarrassed and amused subjects. Reports of feeling embarrassed, silly, stupid, self-conscious, and ridiculous were classified as embarrassment. Reports of feeling amused, funny, goofy, feeling like laughing, and reports of humor were classified as amusement. These synonyms, taken from previous discussions of embarrassment and amusement (Miller & Leary, 1992; Ruch, 1993), were each rated by a group of 12 judges to be more similar to the target emotion than the other emotion. Forty-two percent of participants reported embarrassment or a related term after at least one DFA trial (48% of female participants and 33% of male participants), and 36% of participants reported amusement or a related term (31% of female participants and 38% of male participants). Analyses found no differences in the frequency with which embarrassment and amusement were reported (a) overall, (b) by men or women, and (c) after the different DFA trials, nor in the intensity of self-reported embarrassment ( $M = 3.07$ ) and amusement ( $M = 3.60$ ), all  $ps > .10$ .

**Coding of nonverbal behavior.** To ensure nonoverlapping samples of embarrassed and amused targets, only the first trial after which a participant reported either emotion was coded and analyzed. This procedure yielded 35 displays of embarrassment (23 female, 12 male) and 28 of amusement (14 female, 14 male). Because inspection of participants' behavior during the actual DFA trials revealed little behavior other than the required facial configuration, only the facial behavior that occurred during the post-DFA, 12–15-s rest period was coded. Facial behavior was coded by using Ekman and Friesen's Facial Action Coding System (FACS; 1976, 1978), which distinguishes 44 minimal action units of facial activity that are anatomically separate and visually distinguishable. Scoring involves decomposing a facial movement into the particular action units that produced it, either singly or in combination with other units. The intensity (5 levels) of facial activity was scored according to the criteria of the FACS. The duration of facial activity was coded by noting the interval from the first evidence of the facial action (onset time) to the last evidence of its occurrence (offset time). The onset and offset times of hand touches of the face were scored.

**Reliability of measurement.** One person coded the behavior of all participants. A second person, who was unaware of participants' reports of emotion and the investigation's aims, coded 10 embarrassed participants and 10 amused participants who were randomly selected from the total sample of participants. Inter-coder reliability was evaluated by using a ratio in which the number of action units on which the two coders agreed was multiplied by 2 and then divided by the total number of action units scored by the two persons. This agreement ratio was calculated for each event observed by one or both coders. The mean ratio of agreement was .846.

## Results

**Morphological differences in embarrassment and amusement displays.** Whereas female participants report more intense and frequent embarrassment than male participants (Miller & Leary, 1992), two-way analyses of variance (ANOVAs) with emotion and sex as between-subjects variables found no significant sex differences on any of the nonverbal measures. All subsequent analyses were collapsed across sex.

The displays of embarrassment and amusement were compared by first examining the frequencies and then the characteristics (latency, duration, and intensity) of the behaviors of interest (gaze shifts, smiles, other facial actions, head movements, and face touches). Because of the risk of Type I errors, the following strategy was followed (Cohen & Cohen, 1983). For each category of nonverbal behavior, multivariate analyses of variance (MANOVAs) first examined whether embarrassed and amused participants who showed the relevant behavior differed in the characteristics of that behavior. Simple effects analyses followed up on significant multivariate effects. Table 1 presents the measures of the nonverbal behavior of embarrassed and amused participants.

**Gaze activity.** The MANOVA found that the pattern of gaze activity (latency, duration, number, and intensity of gaze shifts down and to the side) for embarrassed and amused participants differed,  $F(5, 34) = 3.00, p < .05$ . As in previous studies (Asendorpf, 1990; Edelmann & Hampson, 1979; Modigliani, 1971), embarrassed participants looked down more rapidly and for a greater proportion of the rest period and shifted their gaze position more frequently than amused participants (for all noted differences,  $p < .05$ ). The first sideways gaze shifts were

Table 1  
*Differences in Nonverbal Behavior of Embarrassed and Amused Targets*

Behavior	Embarrassed targets ( <i>n</i> = 35)		Amused targets ( <i>n</i> = 28)		Statistical comparison
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Gaze down					
Frequency (%)	94		72		$z = 1.08$
Latency	0.71	1.14	3.55	4.42	$t = 4.04^{***}$
Duration	0.67	0.27	0.34	0.40	$t = 4.22^{***}$
Gaze shifts					
Frequency (%)	100		85		$z = 0.66$
Latency	2.53	2.67	2.53	2.53	$t = 0.01$
Number	4.29	2.72	2.43	2.40	$t = 2.83^{**}$
Mean intensity	3.05	0.75	2.96	0.89	$t = 0.39$
Smile controls					
Frequency (%)	83		48		$z = 2.20^{**}$
Latency	1.46	1.44	3.02	2.94	$t = 2.18^{**}$
Duration	0.46	0.24	0.62	0.41	$t = 1.56^*$
Number	2.61	1.63	1.61	1.26	$t = 2.32^{**}$
Mean intensity	2.07	0.66	1.85	0.36	$t = 1.10$
Smile					
Frequency (%)	57		82		$z = 1.92^{**}$
Latency	1.95	2.12	2.27	2.23	$t = 0.56$
Duration	2.23	1.93	2.76	1.72	$t = 0.95$
Mean intensity	1.62	2.15	2.57	2.57	$t = 1.60^*$
Head movements					
Overall frequency (%)	57		31		$z = 2.20^{**}$
Head turn to side					
Latency	2.24	1.74	2.34	2.34	$t = 0.10$
Duration	0.49	0.54	0.37	0.32	$t = 1.32$
Mean intensity	3.08	1.04	3.22	0.54	$t = 0.09$
Face touches					
Frequency (%)	26		11		$z = 1.47^*$
Duration	1.02		0.87		

Note. Gaze down and head turn durations refer to the proportion of the rest period during which the action occurred.

\*  $p < .10$ . \*\*  $p < .05$ . \*\*\*  $p < .01$ .

typically to the left for embarrassed participants (63%) and to the right for amused participants (76%),  $z = 2.32, p < .05$ .

**Smile controls.** Both embarrassed and amused participants showed lower facial actions, deemed *smile controls*, whose muscular action potentially (a) counteracted the upward pull of the *zygomatic major* of the smile, or (b) obscured the smile, or (c) both. Embarrassed participants more frequently showed smile controls and showed them in greater number than amused participants. The MANOVA found that the characteristics of smile controls (latency, intensity, and duration) differed for embarrassed and amused participants  $F(3, 33) = 2.77, p < .05$ . Simple effects analyses showed that the smile controls of embarrassed participants had a quicker latency than those of amused subjects. Table 2 presents the facial actions categorized as smile controls. Embarrassed participants more frequently showed lip presses (82% vs. 54%,  $z = 1.74, p < .05$ ), whereas amused participants more frequently showed tongue protrusions and lip puckers, (38% vs. 13%,  $z = 2.51, p < .05$ ), which some consider approach behavior (Eibl-Eibesfeldt, 1989).

**Smiles.** Amused participants were more likely to smile than

Table 2  
*Lower Facial Actions Categorized as Smile Controls*

Action	Embarrassment ( <i>n</i> = 31)	Amusement ( <i>n</i> = 13)	<i>z</i> test
AU8: Lips together	6.4	15.4	2.75***
AU14: Dimpler	35.5	23.1	1.30
AU15: Lip corner depress	22.6	15.4	1.18
AU17: Chin raise	12.9	15.4	0.54
AU18: Lip pucker	9.7	23.3	2.74***
AU19: Tongue show	3.2	15.4	5.30***
AU20: Lip stretch	16.1	0.0	—
AU22: Lip funnel	3.2	15.4	5.30***
AU24: Lip press	80.6	53.8	1.74***
AU26: Jaw drop	9.7	15.4	1.43
AU27: Mouth stretch	6.4	0.0	—
AU28: Lip suck	12.9	15.4	0.54
AU29: Jaw thrust	6.4	0.0	—
AU32: Lip bite	3.2	7.7	2.68***
AU34: Cheek puff	3.2	0.0	—
AU36: Tongue bulge	3.2	0.0	—
AU37: Lip wipe	19.4	23.3	0.96

Note. Numbers refer to the percentages of participants of those who showed smile controls who showed each action. The *z* comparisons were not made when an action was not observed in one of the emotions.

\*\*\*  $p < .01$ .

embarrassed participants (82% vs. 57%,  $z = 1.92$ ,  $p < .05$ ), show non-Duchenne smiles (71% vs. 39%,  $z = 2.71$ ,  $p < .01$ ), and tended to more frequently show Duchenne smiles (36% vs. 17%,  $z = 1.71$ ,  $p < .10$ ). The MANOVA of the characteristics of smiles (latency, intensity, and duration) was not significant,  $F(3, 40) = 0.58$ ,  $p > .2$ .

**Head movements.** Embarrassed participants more frequently turned their head away from directly facing the camera than amused participants and were more likely to show head movements down (51% vs. 17%,  $z = 3.09$ ,  $p < .01$ ) and to the left (34% vs. 7%,  $z = 2.89$ ,  $p < .05$ ). Of the 20 embarrassed participants who showed head movements, first movements to the left were more common (50%) than to the right (20%),  $z = 2.51$ ,  $p < .05$ . The MANOVA of the characteristics of head movements (latency, duration, and intensity) was not significant,  $F(4, 23) = 1.19$ ,  $p > .10$ .

**Face touches.** Embarrassed participants tended to touch their faces more frequently than amused participants (26% vs. 11%,  $z = 1.47$ ,  $p < .10$ ).

**A prototypical embarrassment display.** A prototypical embarrassment display, presented in Figure 1, was created by calculating the mean onset and offset times of the actions shown by at least 50%<sup>1</sup> of embarrassed participants. The displays of embarrassment were more likely than those of amusement to follow this prototypical sequence at its first stage: gaze down (81% vs. 24%,  $z = 5.77$ ,  $p < .01$ ); the second stage: gaze down followed by a smile control (70% vs. 14%,  $z = 5.66$ ,  $p < .01$ ); and the third stage: gaze down followed by a smile control followed by a head movement (46% vs. 7%,  $z = 4.44$ ,  $p < .01$ ). This last percentage indicates that 46% of embarrassment displays followed the prototypical pattern. The relations between smiles and smile controls are addressed later. Figure 1 also

shows that the embarrassment display, like facial expressions of emotion, had an abrupt onset, beginning with gaze down about .7 s after the participants were told to rest, and a duration of about 5 s (only 23% of participants showed behavior other than gaze shifts, such as facial muscle actions or head movements, after the first 5 s of the rest period).

**Temporal aspects of the embarrassment and amusement displays.** The temporal patterns of the embarrassment and amusement displays differed in two ways. First, the initial action during embarrassment was gaze down (81% vs. 26% for amusement,  $z = 5.28$ ,  $p < .001$ ), and, during amusement, a smile (33% vs. 6% for embarrassment,  $z = 2.87$ ,  $p < .01$ ). Second, embarrassed smiles in contrast to amused smiles were more frequently accompanied (70% vs. 32%,  $z = 2.71$ ,  $p < .01$ ) and terminated (55% vs. 14%,  $z = 2.32$ ,  $p < .05$ ) by a smile control. More intense smile controls (the sum of the intensity ratings of their actions) were related to briefer smiles during embarrassment ( $r = -.31$ ,  $p < .05$ ) but not during amusement ( $r = .05$ , *ns*).

**Correlations between nonverbal behavior and self-reports of emotion.** Participants' self-reports of amusement were related to more intense smiles ( $r = .67$ ,  $p < .01$ ), briefer gazes down ( $r = -.32$ ,  $p < .05$ ), and tended to be related to less intense smile controls ( $r = -.29$ ,  $p < .10$ ). Participants' self-reports of embarrassment, in contrast, were related to longer gazes down ( $r = .51$ ,  $p < .01$ ), more intense smile controls ( $r = .40$ ,  $p < .05$ ), briefer smiles ( $r = -.35$ ,  $p < .05$ ), and more frequent gaze shifts ( $r = .35$ ,  $p < .05$ ) with quicker latency ( $r = -.29$ ,  $p < .05$ ).

## Discussion

Study 1 produced three lines of evidence consistent with the hypothesis that embarrassment has a distinct nonverbal display. First, the morphology and dynamic unfolding of the embarrassment and amusement displays differed. Embarrassed participants showed more smile controls that obscured the smile, gazes down of longer duration, more head movements down, and first head movements and gaze shifts to the left. Amused participants, on the other hand, smiled more frequently and shifted their gaze to the right. The infrequency of enjoyment (Duchenne) smiles during amusement may have been due to participants' discomfort at having performed the DFA task. Second, the embarrassment display, like other facial expressions of emotion, had a quick onset and tended to last 4–5 s. Finally, self-reports of embarrassment and amusement were correlated with the behaviors that differentiated the two emotions' displays.

It must be borne in mind that the embarrassment display documented in Study 1, which was distinct, was from one situation. Embarrassment is elicited by diverse antecedents, including overpraise, loss of privacy, and loss of physical control (Miller, 1992), which may produce different embarrassment displays than those documented following the

<sup>1</sup> Fifty percent was chosen as the frequency with which an action must occur to be defined as part of the prototype on the basis of previous research on emotion prototypes (Shaver, Schwartz, Kirson, & O'Connor, 1987).

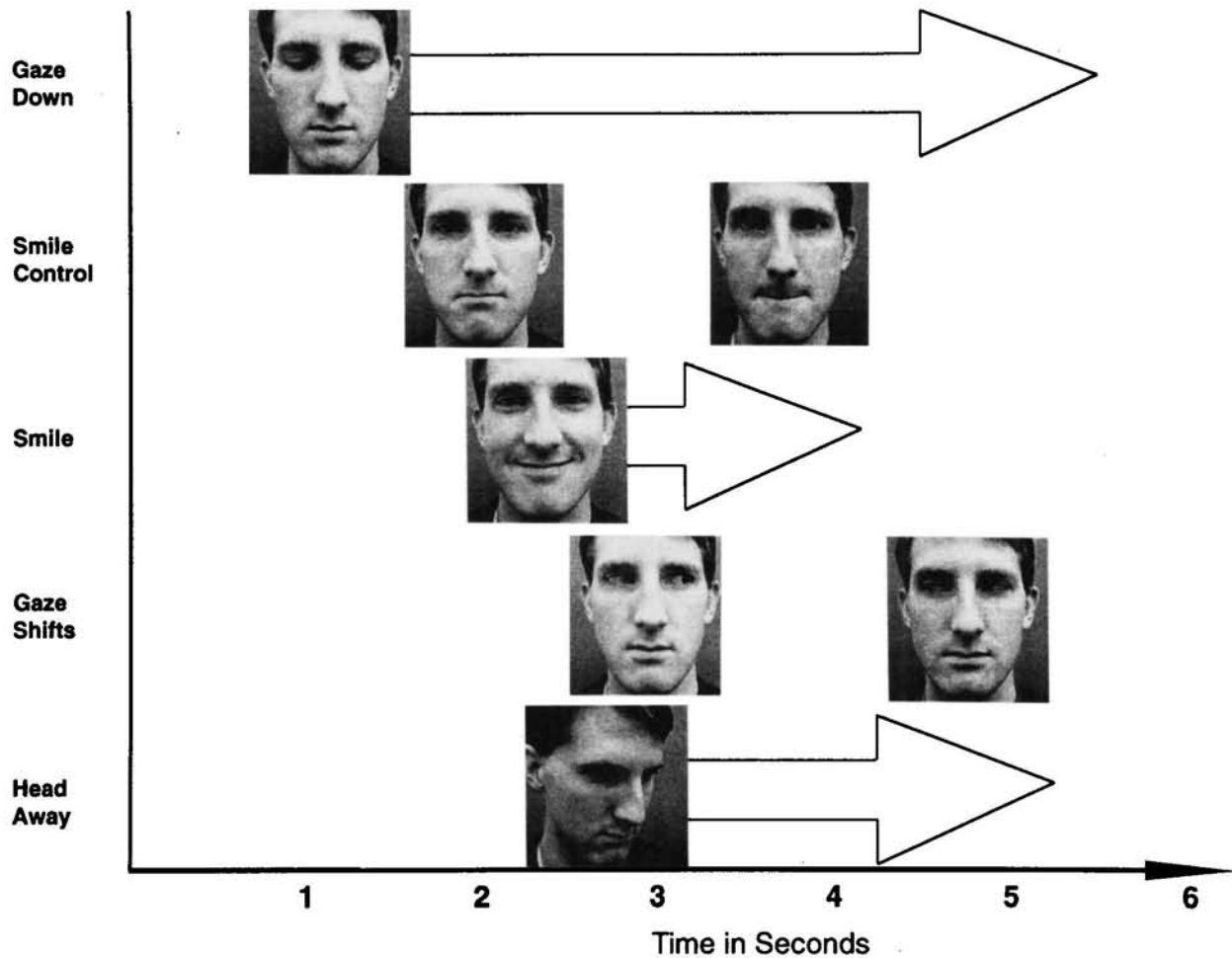


Figure 1. Representation of a prototypical embarrassment response. The mean duration of each action is equal to the interval beginning with the leftmost edge of the photograph and ending with the end of the arrow.

DFA task. Furthermore, the context of the DFA task, in which the participant sat alone in a room, communicating with the experimenter over an intercom, certainly influenced the character of the displays documented in Study 1. The tendency to self-touch, for example, was probably reduced by the physiological recording devices attached to the participants' hands. The relatively noninteractive DFA task may also have accentuated certain behaviors, such as gaze and head movements away, that would not be so pronounced in ongoing face-to-face interactions, and may have inhibited the occurrence of socially communicative behaviors, such as head shakes, shoulder shrugs, and eyebrow raises, that would be observed in more social settings. These considerations bear on the generality of the embarrassment display documented in Study 1. Study 5 addresses these concerns by giving observers the task of identifying embarrassment displays identified within a more social interaction. The DFA task, never-the-less, produced an embarrassment display that was distinct in behavioral analyses. The following

studies addressed whether observers could accurately identify the embarrassment and amusement displays analyzed in Study 1.

#### Overview to Studies 2, 3, and 4: Observers' Judgments of Embarrassment and Amusement Displays

If embarrassment displays appease observers, they should be identifiable to others. The following three studies tested this hypothesis. Participants (observers) judged a large sample of embarrassment and amusement displays from Study 1. In Study 2, observers indicated whether each target had reported experiencing embarrassment or amusement. In Study 3, observers judged several emotions and traits that each target displayed. In Study 4, observers generated their own descriptions of targets' emotions.

The following studies also tested the hypothesis that observers' judgments of embarrassment (and shame) displays would be influenced by the target's perceived status. Ap-

peasement displays signal lower status and submissiveness, which deters observers from punitive judgment and action (Castelfranchi & Poggi, 1990; de Waal, 1988). If embarrassment and shame displays signal lower status and submissiveness (e.g., Clark, 1990), they should be more readily perceived when displayed by low-status individuals. Following this reasoning, observers were expected to be more accurate and attribute more emotion in judging the embarrassment and shame displays of women and African Americans, who have historically been associated with lower status, than the same displays of men and Caucasians.

## Study 2

### Method

**Participants.** Observers were introductory psychology students (107 women and 45 men) at San Francisco State University who participated in the study before a guest lecture.

**Materials.** Two videotapes were created for Studies 2, 3, and 4. Only those targets from Study 1 who reported either embarrassment (or a related term) or amusement (or a related term) were considered, to avoid the possibility that other emotions experienced by targets would influence observers' judgments. From this pool of "pure" displays, 16 targets were randomly presented on the first videotape (amused targets: 5 women and 3 men; embarrassed targets: 5 women and 3 men) and 18 different targets were randomly presented on the second videotape (amused targets: 5 women and 4 men; embarrassed targets: 5 women and 4 men). The embarrassed and amused targets on each videotape were matched for the intensity of self-reported emotion. To test the perceived-status hypothesis, within each emotion male and female targets with comparable nonverbal behavior were selected. Specifically, within each emotion male and female targets did not differ statistically in their gaze down latency and duration, smile intensity and duration, smile control frequency and intensity, head movement duration and intensity, and face touch frequency (all  $ps > .10$ ). Each target's post-DFA task behavior was shown for approximately 12 s.

**Procedure.** The videotapes were presented to observers on monitors located on each side of a lecture hall. Eighty-one observers from one class viewed the first videotape, and 71 observers in another class viewed the second videotape. Observers were instructed that they would see a series of individuals who reported feeling either amusement or embarrassment after the period shown on the videotape. After viewing each target, observers were given 30 s to judge (a) whether the target "reported feeling either embarrassment or amusement," (b) "how much emotion the person was showing" (1 = *no emotion*, 7 = *extreme emotion*), and (c) "how confident you are in your judgment of the target's reported emotion" (1 = *no confidence*, 7 = *extreme confidence*). Amusement and embarrassment were presented as response alternatives in one of two orders on two randomly distributed forms.

**Personality measures.** Following the videotape, observers completed measures of embarrassability (Modigliani, 1968; modified by Edelman, 1985), propensity to blush (Leary & Meadows, 1991), fear of negative evaluation (Leary, 1983), affective intensity (Affective Intensity Measure [AIM]; Larsen & Diener, 1987), and emotional expressivity (Affective Communication Task [ACT]; Friedman, Prince, Riggio, & DiMatteo, 1980). Participants also rated their current mood (-5 = *very negative*, 0 = *neutral*, +5 = *very positive*).

### Results and Discussion

Separate three-way ANOVAs on the dependent measures (overall accuracy, mean attributed emotion, and mean

confidence) with videotape, observer ethnicity (African American, Asian, Caucasian, or Hispanic/Chicano), and response form as between-subjects variables found no significant main effects or interactions (all  $ps > .15$ ). In subsequent analyses, data from the two classes (the two videotapes), the different ethnic groups, and the two response forms were combined.

**Accuracy in distinguishing embarrassment and amusement responses.** Observers' overall accuracy (.61) was significantly greater than chance (.5) in the binomial test ( $p < .01$ ). Observers were more likely to judge targets as embarrassed ( $M = .56$ ) than amused ( $M = .44$ ),  $F(1, 150) = 58.78$ ,  $p < .001$ . Observers' accuracy exceeded their call rates for embarrassed ( $M_s = .67$  vs.  $.56$ ),  $t(150) = 8.53$ ,  $p < .001$ , and amused targets ( $M_s = .54$  vs.  $.44$ ),  $t(150) = 7.83$ ,  $p < .001$ .

**Influence of targets' sex on observers' judgments.** The perceived-status hypothesis predicted that observers would be more accurate and confident and would attribute more emotion in judging women's displays of embarrassment, a low-status emotion, but show no differences in judging male and female amusement displays. To assess this hypothesis, observers' mean levels of accuracy, attributed emotion, and confidence were examined in separate two-way ANOVAs, with observer sex as a between-subjects variable and target sex and emotion as within-subjects variables. No main effects or interactions were significant in the analysis of overall accuracy (all  $ps > .15$ ). The perceived-status hypothesis did receive support, however, in the analyses of the intensity and confidence judgments. Specifically, although more emotion was attributed to female ( $M = 4.27$ ) than male ( $M = 3.80$ ) targets,  $F(1, 146) = 44.80$ ,  $p < .0001$ , this difference was greater for embarrassed (.64) than amused (.30) targets,  $F(1, 146) = 7.43$ ,  $p < .01$ . Likewise, although observers were more confident in judging female ( $M = 4.60$ ) than male ( $M = 4.42$ ) targets,  $F(1, 146) = 10.92$ ,  $p < .0001$ , this difference was greater for embarrassed (.37) than amused (.02) targets,  $F(1, 146) = 7.36$ ,  $p < .001$ . Other main effects showed that male observers were more confident ( $M = 4.78$ ) than female observers ( $M = 4.39$ ),  $F(1, 146) = 5.54$ ,  $p < .05$ , that observers attributed more emotion to the amused ( $M = 4.14$ ) than embarrassed ( $M = 3.94$ ) targets, and that observers were more confident in judging amused targets, ( $M_s = 4.63$  and  $4.38$ , respectively),  $F(1, 146) = 17.11$ ,  $p < .0001$ .

**Relation between observers' personality and judgments.** Observers' overall accuracy was correlated with their scores on the AIM ( $r = .26$ ,  $p < .05$ ), the ACT ( $r = .18$ ,  $p < .05$ ), positive mood ( $r = .22$ ,  $p < .05$ ), and their self-rated confidence ( $r = .17$ ,  $p < .05$ ).

## Study 3

Study 2 explicitly directed observers to discriminate between embarrassment and amusement, which may have enhanced their ability to distinguish between the displays of the two emotions. Study 3 avoided priming observers to make such a discrimination by not providing information about targets' self-reported emotion and by gathering observers' judgments of several emotions and trait-like qualities. Observers were expected to attribute (a) more embarrassment, negative emotion (guilt, shame, and disgust), nervousness, and self-consciousness to

embarrassed targets and (b) more amusement and self-esteem to amused targets. The perceived-status hypothesis predicted that observers would attribute more embarrassment and shame to female than male embarrassed targets.

### Method

**Participants.** Observers were introductory psychology students at San Jose State University who received extra credit toward their course grade.

**Procedure.** The videotapes were presented to groups of 10 to 15 observers, each group viewing one videotape. Observers rated how much amusement, disgust, embarrassment, guilt, nervousness, self-consciousness, self-esteem, shame, and surprise each target showed (1 = none of the feeling shown, 7 = extreme amounts of the feelings shown). The order of the nine items varied on two forms randomly distributed to observers.

### Results

An ANOVA with form order and video as between-subjects variables and mean levels of the nine attributes as a within-subjects variable yielded no significant effects. The data for the two forms and videos were combined in subsequent analyses. An ANOVA with target sex, target emotion, and rated emotion or trait as within-subjects variables yielded several significant effects.<sup>2</sup> Observers attributed higher levels of the nine emotions or traits to female ( $M = 2.60$ ) than male ( $M = 2.49$ ) targets,  $F(1, 99) = 17.78, p < .0001$ , and higher levels to embarrassed ( $M = 2.58$ ) than amused ( $M = 2.51$ ) targets,  $F(1, 99) = 13.16, p < .001$ . There was a significant effect for rated emotion,  $F(8, 792) = 58.31, p < .00001$ , and there were significant interactions between target sex and rated emotion,  $F(8, 792) = 6.33, p < .0001$ , target emotion and rated emotion,  $F(8, 792) = 67.08, p < .0001$ , and target emotion, target sex, and rated emotion,  $F(8, 792) = 4.88, p < .0001$ . Table 3 presents observers' judgments of the targets, broken down by target gender and emotion.

An ANOVA with target sex, target emotion, and attributed emotion (embarrassment or amusement) yielded a significant interaction consistent with the study's main hypothesis,  $F(1, 100) = 147.73, p < .0001$ . Simple effects analyses showed that observers attributed more embarrassment ( $M = 3.11$ ) than amusement ( $M = 1.84$ ) to embarrassed targets,  $F(1, 99) = 118.71, p < .0001$ , and more amusement ( $M = 3.07$ ) than embarrassment ( $M = 2.83$ ) to amused targets,  $F(1, 99) = 5.41, p < .001$ . Furthermore, observers attributed more embarrassment to embarrassed than amused targets,  $F(1, 102) = 8.01, p < .01$ , and more amusement to amused than embarrassed targets,  $F(1, 102) = 244.57, p < .00001$ .

Separate two-way ANOVAs with target sex and target emotion as within-subjects variables examined each of the remaining emotions or traits. As hypothesized, observers attributed more shame, guilt, disgust, nervousness, and self-consciousness to the embarrassed targets, and more surprise and self-esteem to amused targets (all  $ps < .001$ ). Finally, in partial support of the perceived-status hypothesis, observers attributed more embarrassment, shame, and nervousness to female than to male

targets (all  $ps < .01$ ), although this effect was not qualified by the expected Target Sex  $\times$  Target Emotion interaction.

### Study 4

In Study 4 observers were constrained even less by the response format: They simply wrote down the word that best described each target's emotion.

### Method

**Participants.** Observers were 187 students (126 women and 61 men) at the University of Wisconsin—Madison, who received extra credit toward their course grade.

**Procedure.** Observers, participating in groups of 10 to 15, judged the targets from both videotapes in one of two randomly assigned orders. For each target, observers wrote down the word that described "the emotion shown by the individual in the videotape" or "no emotion."

**Coding of free-response data.** A coding system was developed to categorize participants' responses according to their similarity to embarrassment or amusement. After reviewing a subset of the responses who were unaware of the targets' emotion, three coders and I specified four criteria that resembled the defining elements of embarrassment (referred to earlier) to classify all responses as either embarrassment or amusement. These criteria were validated by a group of 19 judges who rated how much "each quality (criterion) characterizes the experience of embarrassment and of amusement" (1 = not at all, 7 = extremely characteristic). The first criterion was whether the response was a positive or negative emotion. Judges rated negative emotion as more characteristic of embarrassment than amusement ( $Ms = 5.57$  and  $1.27$ , respectively),  $F(1, 18) = 176.43, p < .0001$ , and positive emotion as more characteristic of amusement than embarrassment ( $Ms = 6.73$  and  $2.31$ , respectively),  $F(1, 18) = 233.47, p < .0001$ . Negative terms (e.g., shame or sadness) were classified as embarrassment; positive terms (e.g., happy or pleasant) were classified as amusement. The second criterion was whether the response referred to thought processes. Judges indicated that thought processes were more characteristic of embarrassment than amusement ( $Ms = 5.53$  and  $3.94$ , respectively),  $F(1, 18) = 8.64, p < .01$ , whereas the absence of thought processes was more characteristic of amusement than embarrassment ( $Ms = 3.79$  and  $2.00$ , respectively),  $F(1, 18) = 14.97, p < .001$ . Terms referring to thought processes (e.g., self-conscious, concentrating, or thinking) were categorized as embarrassment. The third criterion pertained to whether the word expressed concern for others' evaluation. Judges indicated that the concern for others' evaluation was more characteristic of embarrassment than amusement ( $Ms = 6.05$  and  $2.42$ , respectively),  $F(1, 18) = 101.54, p < .0001$ , whereas the lack of concern for others' judgments was more characteristic of amusement than embarrassment ( $Ms = 5.26$  and  $1.84$ , respectively),  $F(1, 18) = 61.93, p < .0001$ . Terms referring to concern for others' evaluation were categorized as embarrassment; terms denoting a lack of such concern (e.g., indifferent) were categorized as amusement. Finally, judges indicated that physical agitation, the fourth criterion, was more characteristic of embarrassment than amusement ( $Ms = 4.95$  and  $1.89$ , respectively),  $F(1, 18) = 58.00, p < .001$ , whereas physical calm was more characteristic of amusement than embarrassment ( $Ms = 4.00$  and  $2.21$ , respectively),  $F(1, 18) = 20.60, p < .001$ . Terms that referred to physical agitation were categorized as

<sup>2</sup> All omnibus analyses in Studies 3 through 5 that violated the compound symmetry assumption were carried out with the Greenhouse-Geisser correction and yielded the same  $p$  values as those reported in the text.

Table 3  
*Attributions of Emotion to Male and Female Embarrassed and Amused Targets*

Emotion	Embarrassed targets			Amused targets		
	Female	Male	Combined	Female	Male	Combined
Embarrassment						
<i>M</i>	3.43	2.80	3.11	2.95	2.72	2.83
<i>SD</i>	1.28	1.22	1.13	1.19	1.31	1.05
Amusement						
<i>M</i>	2.09	1.60	1.84	3.00	3.14	3.07
<i>SD</i>	0.86	0.86	0.68	1.11	1.11	0.81
Shame						
<i>M</i>	3.39	3.18	3.29	2.62	2.35	2.58
<i>SD</i>	1.22	1.22	1.10	1.11	0.96	0.88
Guilt						
<i>M</i>	1.86	2.05	1.96	1.64	1.71	1.67
<i>SD</i>	0.90	1.06	0.91	0.84	0.83	0.69
Disgust						
<i>M</i>	3.03	3.06	3.04	2.52	2.83	2.67
<i>SD</i>	1.25	1.35	1.16	1.10	0.87	0.82
Surprise						
<i>M</i>	1.52	1.55	1.53	1.89	1.97	1.93
<i>SD</i>	0.68	0.83	0.64	0.84	0.95	0.75
Self-Esteem						
<i>M</i>	2.49	2.45	2.47	2.80	2.75	2.78
<i>SD</i>	1.04	1.13	0.96	1.15	1.15	1.06
Nervousness						
<i>M</i>	3.71	3.21	3.46	3.29	2.99	3.14
<i>SD</i>	1.31	1.33	1.20	1.26	1.24	1.11
Self-consciousness						
<i>M</i>	2.45	2.59	2.52	2.04	1.99	2.02
<i>SD</i>	1.10	1.25	1.08	0.95	0.89	0.76

embarrassment (e.g., heart beating, aroused); terms that referred to low levels of physical agitation (e.g., calm, sleepy) were categorized as amusement. Using these four criteria, the three coders, blind to the experimental hypotheses, categorized each response as either embarrassment or amusement. Coders categorized a third of the responses, each overlapping with the two other coders on 10 participants' responses (340 terms). The average intercoder agreement was 97.6%.

## Results

For each target, observers were given an accuracy score based on whether the term they provided was categorized as the same or different from the target's self-reported emotion. An initial ANOVA of observers' overall accuracy with order of video presentation as a between-subjects variable found no significant effects. The data from the two video orders were combined in subsequent analyses. Observers' overall accuracy rate (.57) exceeded chance (.5) in the binomial test ( $p < .01$ ). An ANOVA with observer sex as a between-subjects variable and target sex and emotion as within-subjects variables yielded one main effect: Embarrassed targets were more accurately judged (.63) than amused targets (.51),  $F(1, 185) = 33.65$ ,  $p < .0001$ .

Further support of the Study 4 main hypothesis is found in the terms that observers most frequently used to label the embarrassed and amused targets. Observers most frequently labeled the embarrassed targets as *sad* (proportion of total responses = .121 vs. .071 for amused targets,  $z = 1.67$ ,  $p < .05$ ), and the amused targets as *happy* (.250 vs. .065 for embarrassed

targets,  $z = 5.07$ ,  $p < .001$ ). Observers more frequently labeled amused targets as *amused* (.057 vs. .024,  $z = 1.66$ ,  $p < .05$ ) and embarrassed targets as *nervous* (.054 vs. .021,  $z = 1.88$ ,  $p < .05$ ). Observers infrequently used the term *embarrassment* to label the emotions of embarrassed (.035) and amused targets (.035).

*Synthesis of Studies 2, 3, and 4: Relations between observers' judgments and targets' behavior.* Table 4 presents the correlations between observers' judgments and targets' behavior across the three judgment studies. Observers' judgments of embarrassment were positively correlated with the duration of gaze down, intensity of smile controls, number of gaze shifts, intensity of head movements down and to the left, and duration of face touching. Observers' judgments of amusement, on the other hand, were correlated with the intensity of the targets' smile and the absence of certain markers of embarrassment (e.g., head down and gaze down). Observers' attributions of shame in Study 3 were related to head and gaze shifts down, consistent with descriptions of shame (Izard, 1977; Lewis, Alessandri, & Sullivan, 1992) and were unrelated to two perceived markers of embarrassment, smile controls and sideways gaze shifts.

*Prototypicality of targets' behavior and observers' judgments.* Targets who displayed more emotion-specific behaviors (i.e., targets showing more prototypical displays) were expected to be judged with greater consensus. To examine this notion, we created a scale, presented in Figure 2, that classified the targets'

Table 4  
Correlations Between Observers' Judgments and Targets' Nonverbal Behavior

Behavior	Study 2	Study 3			Study 4	
	% Emb	Emb	Amu	Sha	% Emb	% Amu
Gaze down duration	.36**	.33**	-.21	.45***	.26*	-.26*
Smile control intensity	.10	.31*	.14	.10	.37**	-.26*
Smile intensity	-.46***	.06	.58***	-.42**	-.36**	.39**
Gaze shifts	.16	.36**	.04	.05	.23	-.26*
Head down intensity	.55***	.37**	-.32**	.66***	.37**	-.31*
Head to side intensity	.47***	.08	-.37**	.36**	.33**	-.30*
Face touch duration	.39**	.33**	-.13	.41**	.16	-.12

Note. By definition, the correlation between the percentage of observers who judged the target as amused and targets' behavior from Study 2 is the inverse of the correlation represented in the column. Emb = embarrassment; Amu = amusement; Sha = shame.

\*  $p < .10$ . \*\*  $p < .05$ . \*\*\*  $p < .01$ .

displays according to their resemblance to embarrassment or amusement prototypes. The embarrassment prototype included the behaviors related to targets' self-reports and observers' judgments of embarrassment: gaze down, a smile control, gaze shifts, head turns, and a face touch. The amusement prototype included an uncontrolled laugh or smile (Ruch, 1993) with an onset that preceded gaze aversion. The four scale points in between the embarrassment and amusement prototypes pos-

essed increasing behavioral markers of embarrassment. Each of the 34 displays presented in the judgment studies was placed in one of the six categories represented in the scale. Figure 3 presents the mean frequency with which the targets placed into the six different categories were judged as embarrassed and amused in Study 2. Across the judgment studies, and consistent with Figure 3, observers' judgments were correlated with the prototypicality of the display. The target's scale value (1 = pro-

### Scale ranging from prototypical amusement to prototypical embarrassment response

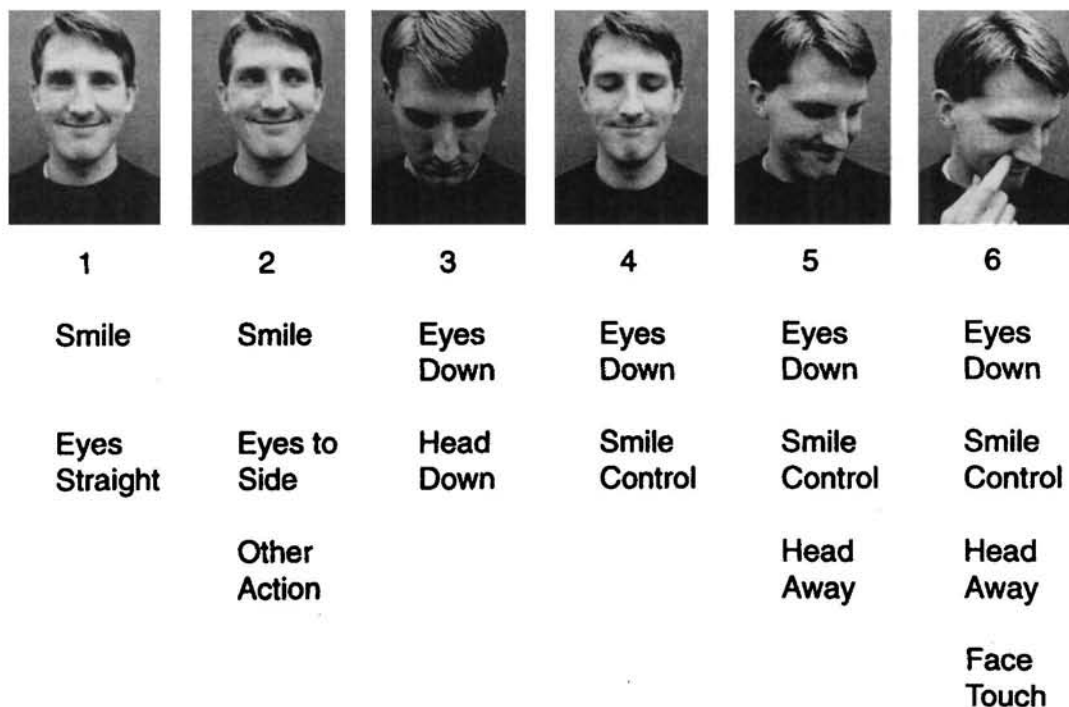


Figure 2. Scale for categorizing responses according to embarrassment and amusement prototypes.

## Judged Emotion of Target Stimuli

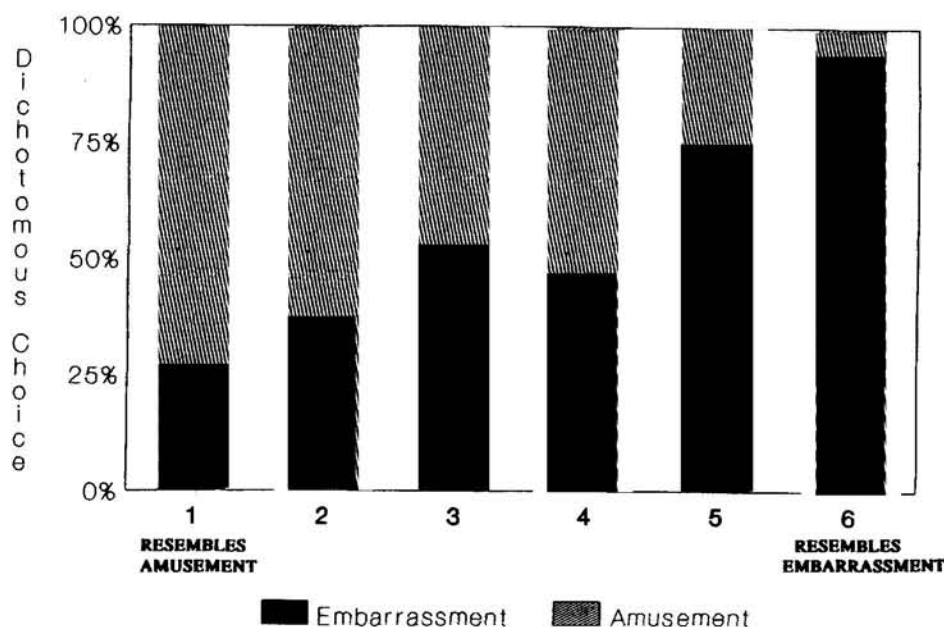


Figure 3. Percentages of participants who judged each kind of response as embarrassment and amusement.

typical amusement, 6 = prototypical embarrassment) was correlated with the percentage of observers who judged the target to be embarrassed in Study 2 ( $r = .76, p < .001$ ) and Study 4 ( $r = .67, p < .001$ ) and with observers' attributions of embarrassment ( $r = .36, p < .05$ ) and amusement ( $r = -.51, p < .01$ ) in Study 3.

### Study 5

The primary aim of Study 5 was to address whether the displays of embarrassment and shame are distinct. Many contend that embarrassment and shame share the same nonverbal display and, by implication, are variants of the same emotion (Izard, 1977; Tomkins, 1963). In contrast, the appeasement hypothesis suggests that embarrassment and shame will have distinct displays if they signal apologies for different kinds of transgressions. Indeed, research has shown that shame follows failures to live up to personal ideals of virtue and character (Babcock, 1988; Babcock & Sabini, 1990; Lindsay-Hartz, 1984), whereas embarrassment follows violations of rules regulating social comportment (Edelmann, 1987; Miller, 1992). Furthermore, shameful acts potentially elicit harsher judgments and punishment than embarrassing acts. On the basis of these differences in the content and seriousness of their preceding transgressions, the displays of embarrassment and shame were expected to be distinct to observers.

In Study 5, observers judged the spontaneous displays of two positive emotions (amusement and enjoyment), two negative emotions (anger and disgust), and two self-conscious emotions

(embarrassment and shame) shown by adolescent boys during the administration of an interactive IQ test. The perceived status hypothesis was tested by presenting observers with African-American and Caucasian targets' behaviorally equivalent displays of each of the six emotions.

Beyond testing whether embarrassment and shame have distinct displays, Study 5 extended the generality of the embarrassment display documented in Study 1. The embarrassment displays presented to observers in Study 5 were those of adolescents instead of college students. Half of the adolescent targets, furthermore, were African American. Most important, the emotion displays were sampled from a social, interactive situation in which the adolescent target engaged in a face-to-face interaction with an adult. Observers were expected to accurately identify the displays of the six emotions and to be more accurate and attribute more emotion in judging the embarrassment and shame displays of African-American targets.

### Method

**Participants.** Observers were 183 students (97 women and 86 men) at the University of Wisconsin—Madison who received extra credit toward their course grade.

**Materials.** The targets were 12- to 13-year-old male participants in the Pittsburgh Youth Study (PYS; for details, see Loeber, Stouthamer-Loeber, Van Kammen, & Farrington, 1989). Targets' displays of the six emotions were sampled from a FACS-scored portion (2½ min long) of their participation in the general information subtest of the interactively administered Wechsler Intelligence Scales for Children, reported on

elsewhere (Keltner, Caspi, Krueger, & Stouthamer-Loeber, 1993). In the general information test, an adult tester asked the targets a series of questions requiring answers that would be found in an encyclopedia (e.g., "How far is it from New York to Los Angeles?", "Who is Charles Darwin?"). According to script, the tester queried targets when they offered no response or ambiguous responses.

The selected displays of the six emotions satisfied validated behavioral criteria for each emotion. The selected displays of anger, disgust, and enjoyment (Duchenne smiles) corresponded to FACS-based descriptions of those emotions (Ekman, 1984). The selected displays of shame included head and gaze movements down (Izard, 1977; Lewis et al., 1992). The selected displays of amusement included Duchenne smiles, head movements back, and the mouth opening of laughter. The selected displays of embarrassment included gaze down, a controlled smile, head movements away, and face touching.

The displays of 24 different targets (four for each of the six emotions) were presented in one of two random orders. Two African-American and two Caucasian targets, matched for intensity (within 1 point on the FACS 5-point scale) and duration (within 0.5 s) of the relevant facial, head, and gaze movements, were selected for each of the six emotions. Only the video portion of the target's display from its onset to offset and no other behavior (talking, hand and arm movements except in the embarrassment displays, or other facial movements) was visible. Each target's display was viewed for about 3 s. Each target was visible from the chest up sitting at a table; the tester was not visible.

**Procedure.** Observers, participating in groups of 5 to 15, first indicated which of the six terms (amusement, anger, disgust, embarrassment, enjoyment, or shame) best matched each target's emotion. Observers then rated the intensity of the target's emotion (0 = *no emotion*, 8 = *extremely intense emotion*).

## Results

**Overall accuracy.** Observers' overall accuracy (.53) exceeded accuracy levels expected by chance (.167),  $p < .001$ . Table 5 presents observers' two most common categorical judgments and intensity ratings of the targets' displays.

An ANOVA with observer sex as a between-subjects variable and emotion (six levels) and target race as within-subjects variables first examined observers' accuracy levels. Female observers ( $M = .55$ ) were more accurate than male observers ( $M = .51$ ),  $F(1, 181) = 6.89$ ,  $p < .01$ , and African-American targets were more accurately judged ( $M = .55$ ) than Caucasian targets ( $M = .51$ ), although this effect was qualified by a Race  $\times$  Emotion interaction,  $F(5, 905) = 25.39$ ,  $p < .001$ . In partial support of the perceived-status hypothesis, simple effects analyses showed that observers judged African-American targets' displays of embarrassment, shame, and anger more accurately than those of Caucasian targets. Caucasian targets' displays of amusement and disgust were more accurately judged than those of African-American targets (all  $ps < .01$ ). Finally, there was a main effect for emotion,  $F(5, 905) = 21.23$ ,  $p < .001$ . Although the displays of all emotions were judged with above-chance accuracy, those of embarrassment and shame were the most accurately judged. The displays of all emotions were labeled with the primary emotion term significantly more often than the secondary term (all  $ps < .001$ ), with the exception of enjoyment smiles, which were as likely to be judged as amusement as enjoyment.

An ANOVA of observers' judgments of the intensity of emotion found two main effects. First, there was a main effect for

emotion,  $F(5, 905) = 188.24$ ,  $p < .00001$ . Observers attributed the most intense emotion to the targets displaying shame. Second, observers attributed more emotion to African-American ( $M = 4.36$ ) than Caucasian ( $M = 3.98$ ) targets,  $F(1, 181) = 72.98$ , although this effect was qualified by an Emotion  $\times$  Race interaction,  $F(5, 905) = 2.59$ ,  $p < .05$ . In partial support of the perceived-status hypothesis, simple effects analyses showed that observers attributed more emotion to African-American targets' displays of each emotion except amusement (all  $ps < .01$ ).

## Discussion

In Study 5, observers were presented with a wider array of spontaneous emotion displays than in the preceding judgment studies. Observers were well above chance in identifying the displays of all emotions, which is the first evidence showing that observers can accurately identify spontaneous facial displays of emotion. This is especially impressive when one considers that the displays were only viewed for about 3 s. Consistent with the study's main hypothesis, observers accurately distinguished between the displays of embarrassment and shame, infrequently confusing the two.

Observers' judgments, once again, were swayed considerably by observer and target characteristics. Consistent with previous studies (Hall, 1984), female observers were more accurate than male observers. Although African-American targets' emotion displays were more accurately judged than those of Caucasian targets, the greatest discrepancies were evident in observers' increased accuracy in judging African-American targets' displays of embarrassment and shame. Whereas the accuracy findings were fairly congruent with the perceived-status hypothesis, the emotion attribution findings, for the most part, were not: Observers attributed more emotion to African-American targets' displays of five of the six emotions.

## General Discussion

According to the appeasement function of embarrassment, individuals' displays of embarrassment appease observers of social transgressions. This view implies that embarrassment is marked by a distinct display—a hypothesis for which this investigation gathered four kinds of evidence. Because no a priori facial display had been predicted for embarrassment, Study 1 began by examining what nonverbal behavior accompanies the actual experience of embarrassment. Analyses showed that both the morphology and dynamic patterns of the behavior associated with embarrassment and amusement were distinct, differentially related to self-reports of emotion, and emotion-like in their onset and duration.

In the ensuing judgment studies, observers accurately discriminated between the displays of embarrassment and those of emotions most likely to be confused with embarrassment, including amusement, shame, anger, disgust, and enjoyment. Although not as accurate as judges of posed facial expressions (Ekman & Friesen, 1971), observers in our investigation were as accurate as judges of deceptive and nondeceptive behavior (DePaulo, 1992; Ekman, 1985) and enjoyment and nonenjoy-

Table 5  
*Categorical and Intensity Judgments of African American and Caucasian Targets' Displays of Six Emotions*

Facial expression	Race of target				Combined
	African American		Caucasian		
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Amusement					
Amusement	44.0		61.5		52.3
Enjoyment	29.0		24.0		26.5
Intensity	4.45	1.27	4.20	1.39	4.33
Anger					
Anger	43.5		38.0		40.8
Disgust	15.0		35.0		25.0
Intensity	3.95	1.41	3.25	1.39	3.60
Disgust					
Disgust	51.5		57.5		54.0
Anger	24.4		12.3		18.4
Intensity	3.33	1.44	3.02	1.38	3.12
Embarrassment					
Embarrassment	67.5		53.5		60.5
Shame	10.5		15.1		12.8
Intensity	4.35	1.19	3.93	1.27	4.14
Enjoyment					
Enjoyment	42.5		43.5		43.0
Amusement	40.7		43.2		41.9
Intensity	4.37	1.27	4.02	1.42	4.19
Shame					
Shame	82.0		52.0		67.0
Disgust	05.7		20.1		12.9
Intensity	5.69	1.50	5.46	1.15	5.57

ment smiles (Frank et al., 1993), and were more accurate than judges of morphologically similar emotions, such as surprise and fear (Ekman & Friesen, 1971). Furthermore, when judging prototypical embarrassment displays, observers were highly accurate (92% in Study 2).

These four lines of evidence support the hypothesis that embarrassment has a distinct facial display. The findings further argue, at least partially, for the distinct displays of shame and amusement, the latter being accurately differentiated from the Duchenne smile of enjoyment. Humans communicate nonverbally both more positive and negative emotions than previously considered (e.g., Ekman, 1992).

#### *Universality and Variants of Embarrassment*

In this investigation, targets' self-reports (from Study 1) and observers' judgments converged on a clear embarrassment response, marked by gaze down, controlled smiles, head turns, gaze shifts, and face touches. As previously discussed, these markers of embarrassment are likely to vary according to which of many diverse events has elicited the embarrassment. Accounting for the systematic variation in the embarrassment display is an important line of inquiry, one which will more fully characterize the theme and variants of the embarrassment display.

Knowing the markers of embarrassment makes several research directions possible. To ascertain the cross-cultural con-

stants and variation in embarrassment, still photographs of embarrassment can be constructed and included in more traditional cross-cultural judgment studies. For example, it will be interesting to determine whether people from cultures in which embarrassment and shame are referred to with the same word (e.g., in certain parts of India) can discriminate between the nonverbal displays of embarrassment and shame. Behavioral assessments of individual differences in embarrassment can document both the individual consistency in the embarrassment response and the correlates of embarrassment proneness. Given the themes that are central to embarrassment, one might expect people prone to embarrassment to be more conventional, conforming, and guided by salient personal standards. Pursuing these issues relies first on identifying the nonverbal markers of embarrassment—a building block offered by this investigation.

#### *Appeasement Functions of Embarrassment and Shame*

This study has provided evidence for one aspect of the appeasement gestures that allows individuals to "apologize" for transgressions: There are identifiable signals of appeasement-related emotions that are related to the perceived status of the individual displaying the emotion. Subsequent research needs to directly characterize the process by which displays of embarrassment (and shame) appease observers.

A first question concerns whether the embarrassment display

reduces the arousal of observers—one component of appeasement (de Waal, 1988). If so, it will be interesting to determine which component of the embarrassment display appeases observers, reducing their tendency toward hostile judgment and action. The candidates include the smile (Ellyson & Dovidio, 1985), the blush (Castelfranchi & Poggi, 1990), and even the neck display that is produced by head turns.

Second, it will be worthwhile to consider the different effects that displays of embarrassment and shame have on observers. Displays of embarrassment and shame may elicit different emotions in observers, such as amusement and sympathy, respectively, which result in different appeasement processes. Observers who experience amusement on observing an embarrassed individual may be inclined to make light of the sender's transgression. Observers who experience sympathy on observing an ashamed individual may instead be inclined to extend a sympathetic gesture to the sender, offering reassurance and comfort. Although so brief in its social manifestation, embarrassment, and its study, offer profound lessons about human relations.

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