Empathic Blushing in Friends and Strangers

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Three volunteers watched a previously recorded video of one of them singing, as cheek sensors monitored their blushing. When performers watched videotapes of their performance, they blushed significantly more than strangers, but not more than their own friends, watching with them. Friends and strangers did not differ significantly in blushing, however. Skin conductance arousal responses of performers and friends, but not performers and strangers, or friends of performers and strangers, were correlated. In a second experiment, strangers who sang before watching another person sing blushed more than strangers who did not sing first, or who sang and then watched a neutral video. This suggests that performing the embarrassing act may have predisposed people to blush, perhaps empathically, later. No gender differences were seen in blushing. Embarrassability questionnaire scores did not correlate with blushing. Empathic accuracy, and associative learning, are proposed to account for the results.

The research reported in this article focuses on the study of empathy, using physiological responses to infer empathy. Berger (1962), who used skin conductance as a measure of arousal, was the first to define empathy in terms of correspondence in two individuals’ emotional physiology, where one person’s arousal was appropriate to the other person’s situation. This approach has since been used by many investigators (e.g., Bandura, 1965;Craig & Lowery, 1969; Krebs, 1975; Lanzetta & Englis, 1989; Miller, 1987). Following the notion of empathy as “shared physiology” (Levenson & Ruef, 1992), we measured blushing as a physiological response and examined the correspondence of blushing between individuals.

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Blushing offers advantages over the standard physiological responses in the analysis of emotional empathy. Many kinds of emotional events cause changes in heart rate and skin conductance, so that the differentiation of empathy from other emotions is confusing when these responses are used (Eisenberg, Fabes, Bustamante, & Mathy, 1987; Hoffman, 1982; Strayer, 1987). Yet only a few emotional situations will evoke blushing (we call these situations “embarrassing”), making it a selective response with which to study empathy.

Because blushing is involuntary, it may be more genuine than self-reports. We submit that it is more difficult for a participant to control a blush than the outcome of a questionnaire. Blushing reveals emotional circumstances that otherwise might be masked by voluntary facial expressions, gestures, or verbal responses.


In the two experiments reported in this article we researched empathic blushing between friends and strangers (experiment one), and a straightforward procedure to increase empathic blushing in strangers (experiment two). Therefore, we review some studies that have examined how various relations between individuals affect empathy. Only studies measuring emotional physiology are noted.

Lanzetta and Englis (1989) defined empathy (as we do) in terms of emotional physiology similar or identical to another’s. They found that cooperation between subjects promoted empathy, whereas competition promoted dissimilar emotional responses, which the authors called “counterempathy.” Similar results had been obtained earlier suggesting that the heart rates of patient and psychotherapist moved together throughout much of the therapy, but in opposite directions (“counterempathy”) during times when interactions were antagonistic (DiMascio, Boyd, & Greenblatt, 1957). In another study that examined the effect of cooperation and competition on empathy, experimenters asked volunteers to visualize “how it feels” as they watched actors perform embarrassing tasks. Observers who earlier had interacted cooperatively with the actors, instead of competitively, or independently, gave more skin potential responses (Miller, 1987).

When research participants believed that their personalities were similar to those of performers receiving bogus electric shocks, they reacted with significantly greater changes in heart rate, skin conductance, and vasoconstriction than the controls (Krebs, 1975).

Finally, Levenson and Ruef (1992) recorded physiological responses as spouses conversed with each other, or watched videotapes of earlier conversations. Among their findings was that greater physiological synchrony between spouses was associated with self-reported negative affect, particularly in marriages with the least satisfaction.