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# Facial-Feature Resemblance Elicits the Transference Effect

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## Abstract

In transference, a perceiver's representation of a significant other is activated and used to interpret and respond to a new target person who bears some resemblance to the particular significant other. Integrating research on face perception and transference, we hypothesized that transference can occur on the basis of the resemblance of a target's facial features to those of a perceiver's significant other. Experimental results supported this hypothesis. Manipulating an upcoming interaction partner's facial features to resemble those of participants' significant other led participants to make representation-consistent inferences about and evaluations of the partner. Moreover, participants undergoing transference experienced shifts in their self-concept, so that they described themselves more like the person they are when with the relevant significant other. The results represent the first evidence of transference processes occurring through facial-feature resemblance. Implications for research on impression formation, social cognition, and emotions are discussed.

## Keywords

transference, face perception, significant others, impression formation

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The face carries a wealth of information about others and can dramatically influence first impressions (e.g., Todorov, Mandisodza, Goren, & Hall, 2005; Willis & Todorov, 2006). We investigated the impact of facial features on interactions with new others through transference, the phenomenon whereby a perceiver's mental representation of a significant other is activated and applied to a newly encountered person (Andersen & Glassman, 1996; Chen & Andersen, 1999). When transference occurs, the perceiver exhibits shifts in his or her thoughts, feelings, and behaviors toward those typically experienced in relation to the relevant significant other. Given the abundance and frequency with which information is inferred from the face (e.g., Todorov et al., 2005), face-based transference is likely to be among the quickest and most common forms of transference.

Our central prediction was that transference would occur on the basis of facial-feature resemblance of a target to a perceiver's significant other, leading to impressions and evaluations of the target consistent with those of the perceiver's significant other. Aligning with research on the relational self (e.g., Hinkley & Andersen, 1996), we also hypothesized that facial-feature resemblance would lead perceivers to shift how they thought about themselves toward the person they are when with their significant other.

Physical appearance is often the first cue available in person perception and therefore acts as an initial point from which

inferences are drawn about others (e.g., Kramer, Zebrowitz, San Giovanni, & Sherak, 1995; Livingston, 2001; Walster, Aronson, Abrahams, & Rottman, 1966). Facial cues play an especially important role in person perception. Personality characteristics (Kenny, Albright, Malloy, & Kashy, 1994; Todorov et al., 2005; Warner & Sugarman, 1986), physical fitness and health (Rhodes et al., 2001), and emotions (Ekman, 1989) all are inferred from people's facial features. For example, people with baby-faced facial characteristics (e.g., large eyes or round faces) are perceived as more childlike (Zebrowitz & Monteparte, 1992).

Perhaps the main reason why the face affects person perception is the impressive speed and consistency with which inferences are made on the basis of others' facial features. For example, studies show that people's personality trait perceptions (e.g., likeability or trustworthiness) reach consensus after extremely brief exposures to faces at speeds at or below 100 ms (Bar, Neta, & Linz, 2006; Willis & Todorov, 2006). Building on such findings, we sought to determine if transference—that is, person perception based on resemblance to a significant other—occurs through facial features.

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Two hallmark effects illustrate transference. The first is *representation-consistent inferences*: When transference occurs, perceivers infer that features of their significant other (e.g., plays basketball) are also characteristic of the new person (e.g., Andersen & Cole, 1990). The second is *representation-consistent evaluations*: New others in transference are evaluated in line with perceivers' like or dislike, respectively, of the relevant significant other (Andersen & Baum, 1994). Finally, transference also leads to *shifts in the working self-concept*. More specifically, the relational self is activated in transference, so that the thoughts, feelings, goals, and behaviors that are associated with the person one is in relation to the relevant significant other are elicited (Andersen & Chen, 2002).

Theoretically, any cue in the environment could elicit transference. In the present research, we sought to bring the growing literature on face perception to bear on transference processes, testing whether facial features in a new person might elicit the three transference effects discussed in the previous paragraph. Given the speed and consistency of facial-feature judgments (e.g., Willis & Todorov, 2006), evidence that transference occurs through facial features would suggest that significant-other representations are among the first social constructs to be activated and used when forming impressions of new others.

The present study advances transference work by being the first to examine physical-appearance-based cues as elicitors of the phenomenon and furthers work on face perception by suggesting an important role for significant others. In addition, researchers have argued that *semantic priming*, which involves exposing participants to stimulus words (e.g., *bed*) meant to activate a particular associated construct (e.g., sleep), lacks ecological validity (e.g., Macrae & Bodenhausen, 2000). Most real-world stimuli (e.g., dentist) are more complex, triggering multiple associative links (e.g., teeth or pain). Consistent with the need for greater ecological validity, we sought to demonstrate that transference—normally elicited through written semantic primes (for a review, see Andersen & Chen, 2002)—can be elicited by the facial features of a newly encountered other.

## Method

### Participants

Sixty-six undergraduates (51 women and 15 men) at a large public university participated for course credit or monetary compensation. The majority of participants self-identified as Asian American ( $n = 35$ ); the remaining participants self-identified as European American ( $n = 20$ ), Latino ( $n = 3$ ), African American ( $n = 2$ ), and “other” ( $n = 6$ ).

**On-line survey.** Participants completed an initial on-line survey wherein they described a person they knew well, liked, and considered to be important (i.e., a positively evaluated significant other). Participants rated the positivity of their

relationship with the person on a scale ranging from  $-4$ , *very negative*, to  $4$ , *very positive*, and indicated the length and type of relationship. Following past research (e.g., Andersen & Baum, 1994), participants generated 7 positive and 7 negative descriptors about their significant other and ranked the significant other in terms of his or her descriptive importance. Participants also nominated 12 irrelevant descriptors from a list of 50 attributes; these 12 descriptors later served as filler items (see the Test Phase section).

Participants were then asked to think about the person they are when with their significant other (i.e., their relational self) and to rate themselves on 10 self-attributes with this in mind. Specifically, participants indicated their agreement with each item of the Ten-Item Personality Inventory (TIPI), a brief assessment of the Big Five personality domains (Gosling, Rentrow, & Swann, 2003), using 7-point Likert scales ranging from 1, *disagree strongly*, to 7, *agree strongly*. A sample scale item is “I see myself as extraverted, enthusiastic.”

Finally, participants rated 200 faces in terms of the resemblance of each to their significant other, on a scale ranging from 1, *not at all*, to 7, *very much*. The faces were black-and-white front-facing photographs of faces and necks, taken from public databases, such as the Yale Face Database, the Database of Faces, and the AR Face Database (<http://www.face-rec.org/databases/>). To bolster the cover story used in the second session, involving an anticipated interaction with a fellow undergraduate (see the Learning Phase section), all of the faces were ones that we felt could be plausibly considered to be college age.

**Learning phase.** At least 2 weeks later, participants returned for an ostensibly unrelated second experiment. In the on-line survey, participants were not required to rate any of the faces as similar to their significant other; however, participants were eligible for this second session only if they had rated at least one face as more than moderately resembling their significant other (5 or higher rating). In the learning phase of this session, participants were told they had been paired with, and would later interact with, another person, as part of a buddy program being implemented at the university. Next, participants were given a photograph ostensibly of their upcoming partner's face, followed by several descriptors about their partner supposedly written by an interviewer. These descriptors were vague and general, so that they could be true of all people (e.g., Davies, 1997; Furnham & Varian, 1988). A sample descriptor is “At times she is extraverted, affable, and sociable, while at other times she is introverted, wary, and reserved.”

Before the second session, participants were paired on a one-to-one basis and then assigned to one of two conditions (own vs. yoked). For *own* participants, the photograph of the partner was the picture that participants had previously rated highest in resembling their own significant other. For *yoked* participants, the photograph was similar to those for the own participants, except that it was rated as not resembling their significant other (a 1 rating); thus, other information (e.g., health) was held constant across conditions.

**Test phase.** After learning about their partner, participants completed transference measures. For the evaluation measure, participants rated eight items (e.g., “How much do you think you will like this person?”) on 7-point Likert scales ranging from 1, *not at all*, to 7, *very much*. Their ratings were averaged ( $\alpha = .82$ ). Given our focus on positively evaluated significant others, we expected to see more positive evaluations of the upcoming partner among own relative to yoked participants.

The 15-item inferences measure assessed the extent that participants used their significant-other representation to make inferences about their partner. Participants were asked to rate how descriptive each of 15 items was of their upcoming partner on a scale ranging from 1, *not at all*, to 10, *very much*. Of these items, the most critical were derived from 8 of the significant-other descriptors (4 positive, 4 negative, ranked 1–3 and 7 in descriptive importance) that own participants had generated in the on-line survey. We expected higher ratings for these items among own relative to yoked participants, reflecting the use of an activated significant-other representation. The remaining test items were irrelevant filler items taken from the on-line survey.

In between the transference measures described in the preceding paragraphs, as a measure of their working self-concept, participants made self-ratings “at this moment” on the same self-assessment measure (TIPI) used in the on-line survey. We expected that relative to yoked participants, own participants would show closer correspondence between their self-ratings in the on-line survey and test phase, reflecting the activation of the relevant relational self in transference. To assess correspondence between participants’ self-ratings at the two time points, we computed the absolute value of the difference between the scores at the two time points for each of the Big Five factors and then averaged these difference scores.

Finally, participants completed two open-ended suspicion probes (“Did you find anything strange or unusual in any of the tasks you completed?” and “What ideas or hypotheses do you think the researchers are trying to study?”) and then were informed that they were in a control condition, which meant that they would not meet their partner after all. Participants were then fully debriefed, thanked, and excused.

## Results

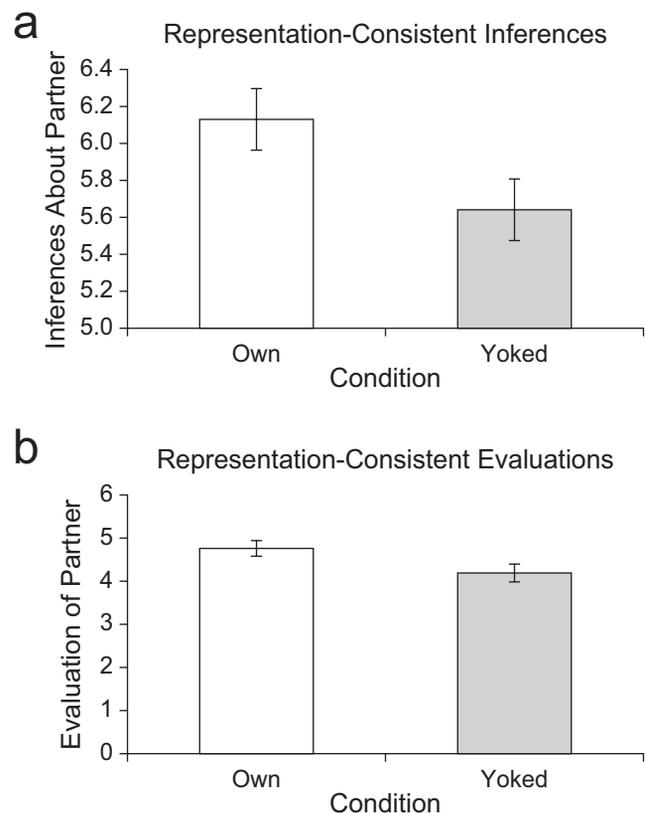
One participant was excluded because of suspicion about the study hypotheses, and 2 others were excluded because of an experimenter error. To maintain perfect yoking, the participants they had been paired with were also excluded (e.g., Andersen & Baum, 1994). The analyses were conducted with the remaining sample of 60 participants comparing the two facial-resemblance conditions. Of these participants, all but seven own-yoked pairs were matched on the respective gender and ethnicity of themselves and their significant other. Results excluding these mismatched pairs did not differ substantially from those reported below. Participants primarily named a parent ( $n = 26$ ), close friend ( $n = 16$ ), or sibling ( $n = 12$ ) as

their significant other, had known this person for a long time ( $M = 14.54$  years,  $SD = 7.01$ ), and had a positive relationship with him or her ( $M = 3.32$ ,  $SD = 0.83$ ).

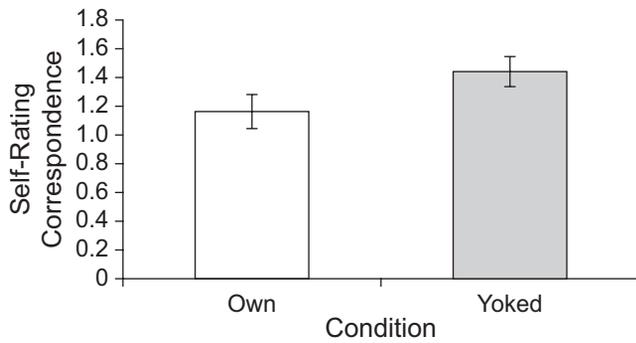
## Measures of transference

We expected to see evidence of transference in the form of more representation-consistent inferences among own relative to yoked participants. To test this hypothesis, we examined participants’ ratings of how likely their partner possessed the eight critical attributes of their significant other. As predicted, own participants ( $M = 6.13$ ) inferred that their partner was more likely to possess significant-other-consistent attributes relative to yoked participants ( $M = 5.63$ ),  $F(1, 58) = 4.48$ ,  $p < .05$ ,  $\eta^2 = .07$  (see Fig. 1a).

Given that all participants identified positively evaluated significant others, we also expected to find evidence for transference in the form of more positive evaluations of the partner among own compared with yoked participants. Indeed, own participants ( $M = 4.74$ ) evaluated their partner more positively relative to yoked participants ( $M = 4.19$ ),  $F(1, 58) = 7.54$ ,  $p < .01$ ,  $\eta^2 = .12$  (see Fig. 1b).



**Fig. 1.** Participants’ representation-consistent (a) inferences about and (b) evaluations of the partner as a function of condition (own or yoked). The graphs present participants’ mean ratings of the partner for traits descriptive of the significant other and for positive evaluations. Error bars represent standard errors of the mean.



**Fig. 2.** Correspondence between participants' self-ratings of their attributes when with the significant other and after learning about the interaction partner, as a function of condition (own or yoked). Attributes were rated on the Ten-Item Personality Inventory, a brief assessment of the Big Five personality domains (Gosling, Rentrow, & Swann, 2003). To assess correspondence between participants' self-ratings at the two time points (with the significant other or the interaction partner), we computed the absolute value of the difference between the scores at the two time points for each of the Big Five factors and then averaged these difference scores. Error bars represent standard errors of the mean.

### Activation of the relational self

Finally, we examined shifts in participants' self-concepts toward the relational self associated with their significant other. We predicted that the facial features of the partner perceived by own participants would activate the relational self associated with their significant other. Thus, relative to yoked participants, own participants would show closer correspondence between their self-ratings when with their significant other (made in the on-line survey) and their self-ratings after learning about their partner. As predicted, own participants ( $M = 1.17$ ) showed closer correspondence between their two sets of self-ratings relative to yoked participants ( $M = 1.44$ ),  $F(1, 58) = 4.56, p < .05, \eta^2 = .07$  (see Fig. 2).

### Discussion

In the present study, we extended the literature on face perception by predicting that transference would occur based on the resemblance of the facial features of a target to those of a perceiver's significant other. As hypothesized, participants perceiving an upcoming interaction partner whose face resembled their significant other's face showed two hallmark effects of transference: representation-consistent inferences and evaluations. Moreover, facial-feature resemblance led to shifts in participants' working self-concept so that participants rated themselves in a manner consistent with the person they are around the relevant significant other.

It may be useful to distinguish the present findings from research on kin recognition and self-resemblance in faces suggesting that self-resembling faces are evaluated more positively under certain conditions (Debruine, 2004; Debruine, Jones, & Perrett, 2005). Given the large proportion of participants in the current sample naming genetic relatives as significant others,

one might conclude that the greater positive evaluations of targets made by own participants were driven by self-resemblance and not transference. Although this alternative explanation could account for own participants' evaluations, it cannot explain why these participants made inferences about their anticipated partner in line with characteristics of their significant other, nor can it explain own participants' shifts in the self-concept toward the self they are when with the relevant significant other.

Overall, the current work represents a major theoretical and methodological advance in transference research, providing the first evidence indicating that transference is grounded in the rapid inferences that people make based on others' facial features (e.g., Livingston, 2001). Given how often facial features affect first impressions, future research might consider how often transference affects initial impression processes. Future work should also examine which aspects of the face elicit transference. Given research on emotional contagion and mimicry (e.g., Barsade, 2002; Hatfield, Cacioppo, & Rapson, 1994), perhaps face-based transference occurs on the basis of similar emotion expressions between one's significant other and an interaction partner. Finally, future research might consider how transference shapes romantic attraction, since perceptions of physical attraction may hinge in part on both significant-other resemblance and facial features.

To conclude, the present research illustrates that transference occurs during the very early stages of impression formation, on the basis of the facial-feature resemblance of new others to a perceiver's significant other. When face-based transference occurs, this has consequences for inferences about and evaluations of others, as well as for the self-concept.

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### Declaration of Conflicting Interests

The authors declared that they had no conflicts of interest with respect to their authorship or the publication of this article.

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