Journal of Experimental Social Psychology 48 (2012) 350–353

Contents lists available at ScienceDirect

Journal of Experimental Social Psychology

journal homepage: www.elsevier.com/locate/jesp

FlashReport

# I like you but I don't know why: Objective facial resemblance to significant others influences snap judgments

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ARTICLE INFO

*Article history:*
Received 6 January 2011
Revised 9 May 2011
Available online 12 June 2011

*Keywords:*
Transference
Face perception
Impression formation
Snap judgments

ABSTRACT

Does a new person's objective facial resemblance to a significant other influence snap judgments of liking, and if so, does this effect occur even when individuals are not consciously aware of the resemblance? Participants (romantic couples) made trait judgments about 24 novel faces, each shown for 500 ms. Objective facial resemblance was manipulated using morphing techniques such that half of the novel faces resembled participants' partner and half did not. We found that women's evaluations of novel men who resembled their partner (vs. those who did not) were more positive, but men's evaluations of novel women were not appreciably affected by facial resemblance. These results held even when individuals were not consciously aware of the resemblance. Moreover, the effect of facial resemblance on judgments of liking was more pronounced for individuals who were more satisfied in their relationship, suggesting that these results were due to activating the specific partner representation (rather than familiarity). This research shows that objective facial resemblance to a significant other influences snap judgments of liking automatically, effortlessly, and without conscious awareness.



When a new person shares attributes with a significant other (SO), the mental representation of the SO is spontaneously activated, and is used to evaluate the new person—a phenomenon referred to as transference (Andersen & Chen, 2002). In the original transference work (Andersen & Baum, 1994; Andersen & Cole, 1990), participants who read written descriptors of a new person sharing some attributes with a SO evaluated this new person favorably and in ways consistent with the SO representation.

But, often the first information we receive about a new person isn't a written descriptor, but a snapshot of their physical appearance. To date only two studies (Kraus & Chen, 2010; White & Shapiro, 1987) have investigated whether *perceived* facial resemblance between a SO and an unknown other triggers transference. Both studies consisted of a "stimulus selection phase" in which participants identified from a collection of photograph individuals who bore high resemblance to a previously named SO. Later, at an ostensibly unrelated "test phase," participants evaluated a new person who either resembled a SO (i.e., an individual they had identified in the selection phase) or a yoked participant's SO. Participants who learned about a new person who resembled a SO (compared to a yoked participant's SO) evaluated the new person more positively, described themselves in ways consistent to when they are with the SO, and inferred that the new person possessed attributes similar to the SO (Kraus & Chen, 2010; White & Shapiro, 1987).

Although this work provides compelling evidence that *perceived* facial resemblance between a new person and a SO can lead to facially-triggered transference, it does not speak to whether *objective* facial resemblance does; both studies relied on subjective methods to create facial similarity. Because subjective judgments about facial resemblance do not necessarily reflect objective resemblance, past work leaves open the possibility that participants' choices at the selection phase were not determined merely by facial similarity to the SO but by other factors as well. For example, individuals tend to view close others more positively (e.g., Gagne & Lydon, 2004; Murray, Holmes, & Griffin, 1996) and as more attractive (Epley & Whitchurch, 2008), than they actually are. Thus, when participants in past studies were instructed to evaluate the novel faces based on their physical resemblance to the SO at the selection phase, they may have been motivated to select novel persons whom appeared to possess desirable attributes, including attractiveness, even though there may not have been objective facial resemblance. As a result, later evaluations could have been driven by liking and inferences at the selection phase, rather than activation of the specific SO representation at the test phase. Thus, manipulating objective resemblance would provide stronger evidence for facially-triggered transference. This is a primary aim of the present study.

The fact that past work has relied on subjective reports of facial resemblance is also relevant to our second aim. According to the theory, transference effects should occur without conscious

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doi:10.1016/j.jesp.2011.06.001

awareness (e.g., Andersen, Reznik, & Glassman, 2005). Support for this proposition has been obtained by presenting written descriptors of the new person outside of conscious awareness (Glassman & Andersen, 1999). It is less clear, however, whether the same is true for facially-triggered transference, especially in situations in which the face is consciously perceived, even though the facial resemblance to the SO is not (e.g., Bauer, 1984; Tranel & Damasio, 1985). Past work did not directly ask participants at the test phase whether the new person resembled someone whom they knew, but used general probes of suspicion, which may not have adequately captured subjective awareness. So it is still not known whether facial similarity between the new person and the SO can lead to transference in the absence of awareness of the resemblance. If it can occur without awareness, it would not be amenable to conscious control (e.g., Debner & Jacoby, 1994: Merikle, Smilek, & Eastwood, 2001). This would provide strong evidence for the automaticity of facially-triggered transference effects.

## Present research

Does *objective* resemblance between a novel person and a SO lead to facially-triggered transference? If so, can facially-triggered transference occur without awareness of the resemblance? To address these questions, we recruited romantic couples and took their photographs in an initial session. We used morphing techniques to digitally combine the photograph of the partner with photographs of unknown others, creating twelve novel faces all of which resembled the partner. In this way, we objectively manipulated each novel person's facial resemblance to partners and eliminated potential confounds (e.g., selection biases) that may have been present in previous work.

In an ostensibly separate study, we assessed facially-triggered transference. To minimize participants' awareness of the resemblance and to assess more automatic processes, we developed a unique method for assessing transference, which significantly departs from previously used methods. Specifically, we used a within-subjects design in which participants made a total of 144 snap judgments about 24 unknown others, 12 of which resembled the partner. Each novel face was presented for only 500 ms (e.g., Willis & Todorov, 2006) and evaluated on six traits (e.g., trustworthy). Given that individuals automatically evaluate partners positively (e.g., Zayas & Shoda, 2005), we predicted that novel faces resembling the partner (vs. not) would be judged as more likely to possess positive traits—evidence of facially-triggered transference.

Because our claim is that facially-triggered transference arises from activating the specific SO representation, we aimed to provide evidence against a familiarity account (e.g., Zajonc, 1968, 1980). That is, transference effects may arise as a result of exposing individuals to familiar targets and this feeling of familiarity (rather than activating the specific SO representation) may elicit positive evaluations. By recruiting couples who had been together for at least 1 year, we essentially controlled for familiarity across couples—i.e., all couples should be well exposed to their partners after 1 year. Therefore, if facially-triggered transference arises from activating the specific representation, then individuals highly satisfied in their relationships, who have more positive representations of their partner (e.g., Murray et al., 1996; Zayas & Shoda, 2005), should evaluate novel faces resembling the partner (vs. those who do not) more positively (e.g., Andersen & Baum, 1994).

To investigate whether facially-triggered transference can occur in the absence of awareness, we directly assessed participants' awareness of the resemblance using both subjective and objective methods, which tap different aspects of consciousness (Cheesman & Merikle, 1984; Wiens, 2007). Specifically, participants indicated whether the novel faces reminded them of anyone whom they knew (subjective awareness) and discriminated between faces that resembled the partner vs. those that did not in a forced-choice task (objective awareness).

Lastly, we explored whether transference effects would vary by gender. Although past work on transference has not reported gender differences (e.g., Kraus & Chen, 2010), the present methodology employs a subtler manipulation of facial resemblance—by using morphing techniques and by presenting each photograph for 500 ms. Given that women are more perceptive of subtle facial cues (e.g., McBain, Norton, & Chen, 2009), they might respond more strongly to subtle cues of facial resemblance—leading to gender differences in facially-triggered transference.

## Method

### *Participants*

Thirty heterosexual couples (*Mean* age = 21 years, $SD = 2.82$; relationship length = 12–132 months) participated in the study. One couple withdrew from the study and one male participant's data were lost, leaving 57 participants.

### *Measures and procedure*

In Session 1, participants completed the Perceived Relationship Quality Components Inventory-short form (Fletcher, Simpson, & Thomas, 2000) using a 7-point (*Not at all* to *Extremely*) scale ($\alpha = 0.79$, $M = 6.13$, $SD = 0.64$). Participants then posed for a head-shot (hair pulled back, jewelry/glasses removed) with a neutral expression.

To create stimuli, we paired couples and created yoked pairs between same-sex participants. We morphed the partner's photograph with each of 12 of 24 same-sex faces compiled from databases (Minear & Park, 2004; Tottenham et al., 2009) to create 12 "partner-similar" faces (50% partner's face + 50% same-sex face; see Fig. 1). Similarly, we morphed the yoked participant's partner's face with each of the remaining faces to create 12 "yoked-similar" faces. Because each yoked pair saw the same faces, peculiarities in stimuli were controlled entirely.

In Session 2 (2–4 weeks after Session 1), participants made snap judgments of each novel face (12 partner-similar, 12 yoked-similar) on six traits (accepting, aggressive, attractive, intelligent, supporting, trustworthy). Each trial consisted of a fixation cross (1000 ms), a face (500 ms), and a question (e.g., Is this person trustworthy?), which remained on the screen until participants indicated "yes" or "no" by pressing "D" or "K." Response keys ("yes" on left vs. right) were counterbalanced across participants. Trials were randomly presented except that the same face or the same trait question did not appear on consecutive trials.

After the snap judgment task, as a measure of subjective awareness of the resemblance, participants reported whether the novel faces resembled anyone whom they knew, and if yes, whom the faces resembled. We identified those participants who reported that one or more of the faces reminded them of their partner as subjectively aware. After debriefing, a subset of participants ($N = 46$; 24 females) completed an objective awareness task identical to the snap judgment task except that participants indicated whether each face resembled their partner or not.

To index the extent to which participants judged partner-similar (vs. yoked-similar) faces as possessing a trait, we computed A′ (Snodgrass & Corwin, 1988) for each of the six trait judgments. A′ reflects the extent to which an individual discriminates between two options while taking into account response biases. It is conceptually similar to examining proportion of trials in which partner-similar faces were judged to possess a trait (relative to yoked-similar faces). An A′ of 0.5 reflects chance responding, and an A′ significantly greater than 0.5 reflects the tendency to judge partner-similar (vs. yoked-similar) faces as possessing a trait. We averaged all six A′s (reverse scoring $A'_{aggressiveness}$) to index *facially-triggered transference*

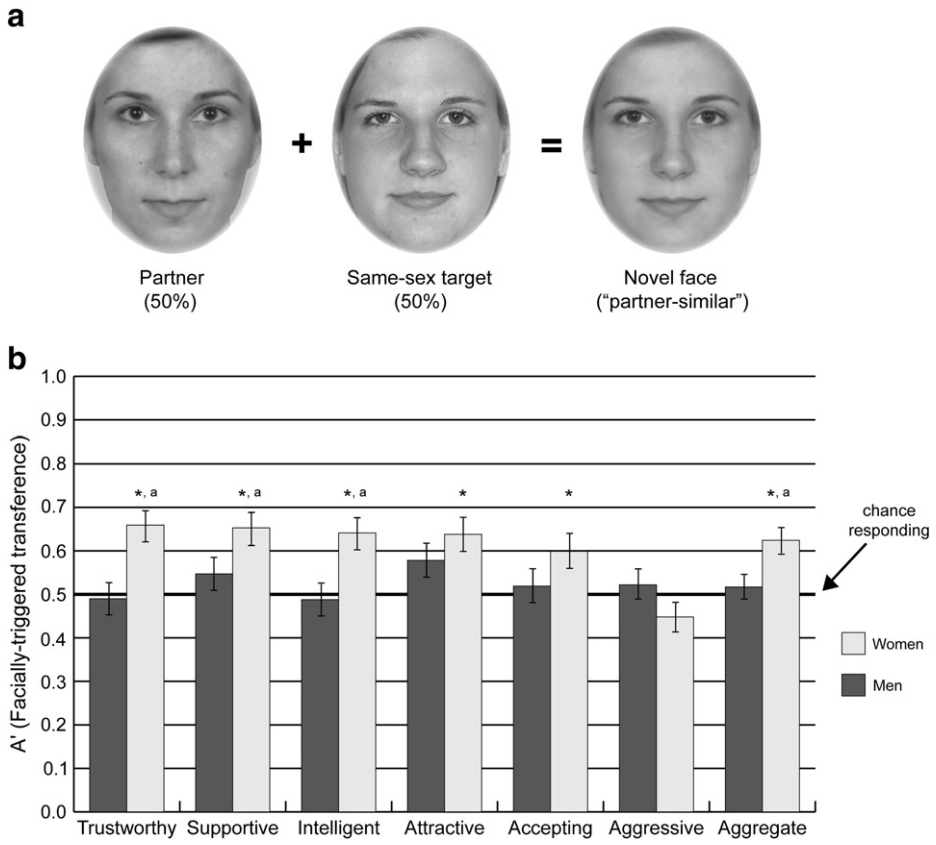


**Fig. 1.** Example of the morphing procedure used to digitally combine 50% of the partner's photograph with 50% of the photograph of a same sex target to produce a novel face resembling the partner ("partner-similar") (a), facially-triggered transference, reflected by mean $A'_{aggregate}$, and the tendency to judge partner-similar faces as possessing a particular trait, reflected by mean A′s for individual traits, for women and men separately (b). *Notes*. The morphing procedure described in panel (a) was repeated 12 times, morphing the partner's photograph with 12 different same-sex faces. This procedure was also used to produce the yoked-similar faces, which served as control stimuli; the yoked participant's partner's face was morphed 12 times, each with one of 12 different same-sex faces. In panel (b), A′ is a sensitivity measure adjusted for response bias. The bolded line marking A′ at 0.5 reflects chance responding—i.e., no tendency to judge partner-similar (vs. yoked-similar) faces as possessing the trait. An A′ significantly greater than 0.5 indicates a tendency to judge partner-similar faces as possessing the trait (i.e., accepting, aggressive, attractive, intelligent, supporting, trustworthy). $A'_{aggregate}$–reflecting the transference effect–was derived by reverse scoring aggressiveness, and computing the mean A′ for the six trait judgments. Bars marked with an "*" are significantly ($p<0.05$) higher than 0.5. Bars marked with an "a" indicate that women's A′ values are significantly ($p<0.05$) higher than men's A′ values. Error bars represent 1 standard error ± the mean.

($A'_{aggregate}$; $\alpha = 0.88$). An $A'_{aggregate}$ significantly greater than 0.5 indicates a tendency to evaluate partner-similar faces more positively than yoked-similar faces. We also computed sensitivity to discriminate partner-similar from yoked-similar faces in the objective awareness task ($A'_{awareness}$). We adjusted for interdependency among data points arising from the nested data using linear mixed models (see Section S1 in Supplementary Material available online for methodological details).

## Results and discussion

The present study showed that objective resemblance to the SO–created by morphing the SO's photograph with unknown faces–can give rise to facially-triggered transference, as reflected by an $A'_{aggregate}$ that was above chance ($t(28.22) = 2.95$, $p<0.01$, $d = 0.55$). This effect, however, was qualified by participant's sex ($t(27.99) = 2.83$, $p<0.01$, $d = 0.75$, Fig. 1). Whereas women judged partner-similar (vs. yoked-similar) faces more positively ($t(52.38) = 4.11$, $p<0.001$, $d = 0.87$), men did not ($t<1$, $d = 0.12$). Given that the novel faces were presented for only 500 ms, the findings suggest that facial resemblance to a SO can be processed efficiently from subtle cues, and still influence judgments about others automatically, spontaneously, and effortlessly. Importantly, relationship quality[1], for both men and women, was related to more positive snap judgments of partner-similar faces ($t(42.07) = 2.09$, $p<0.05$). The fact that individuals highly satisfied in their relationships, who have more positive partner representations, evaluated novel faces that resembled their partner more positively, suggests that facially-triggered transference arises from activating the specific SO representation rather than familiarity.

The results support the idea that resemblance to a SO can affect snap judgments of unknown others without awareness. In other words, facially-triggered transference occurred for women even when the 14 participants (9 females) who expressed subjective awareness of the resemblance ($t(40.95) = 3.23$, $p<0.01$, $d = 0.81$) were excluded from the analyses, and even when statistically controlling for objective awareness ($t(22) = 3.67$, $p<0.01$, $d = 0.96$; see Section S2 in Supplementary Material available online for additional analyses). These results are consistent with research showing that individuals can display implicit memory for familiar faces without explicit memory (e.g., Bauer, 1984; Tranel & Damasio, 1985).

[1] Relationship quality did not significantly vary by gender ($t<1$).

One of the novel findings of the present research is that women showed facially-triggered transference to a greater extent than men. Although gender differences in transference effects are uncommon, the present findings are consistent with other work showing that women, compared to men, are more sensitive to subtle facial (e.g., McBain et al., 2009) and relational cues (e.g., Cross & Madson, 1997), and process visual information more thoroughly (Guillem & Mograss, 2005). Women's detailed elaboration of visual content might lead them to give more weight to subtle cues of resemblance with a SO, whereas men might lend more weight to their prior knowledge about the facial characteristics of a trustworthy person (e.g., Meyers-Levy & Maheswaran, 1991). Although speculative, the fact that the present study observed sex differences while previous work (e.g., Kraus & Chen, 2010) did not suggests that making the resemblance more salient (by using subjective methods to create resemblance and providing an indefinite amount of time to view the photograph) was necessary for producing transference effects in men; women, on the other hand, could detect even subtle cues of facial resemblance and use those cues in person perception.

A major strength of the present study is utilizing a within-subjects design assessing snap judgments of 24 different novel persons, 12 of which resembled the partner and 12 that did not. Compared to past work that has relied on between-subjects designs in which participants viewed *one* photograph of *either* a person who resembled the SO *or* someone who did not, the use of multiple stimuli in the present study makes it unlikely that an idiosyncratic feature of the partner's face, or of the novel face, is driving the effects, increasing the validity and generalizability of the current findings (e.g., Fiedler, 2011). Moreover, the use of morphing techniques to manipulate facial resemblance circumvents potential confounds (e.g., selection biases at the stimulus selection phase). Thus, it provides a stronger test of the hypothesis that facial resemblance to the SO can influence judgments automatically and without awareness.

The present findings support the claim that facial resemblance between a novel other and a SO can activate the SO representation, which in turn leads to more favorable snap judgments of the novel person. Alternatively, could the effects have emerged in the absence of activating the specific partner representation? Because individuals may like their partner's facial features, exposure to the partner-similar features, rather than the activation of the specific partner representation, might have elicited more positive evaluations. Research and theorizing about face recognition suggests that this is unlikely. Seeing facial features or exceedingly different poses of a known other spontaneously activates abstract knowledge about that particular person as reflected by activation of neural regions involved in spontaneous retrieval of person knowledge and emotional responses (e.g., Gobbini & Haxby, 2007; Quiroga, Reddy, Kreiman, Koch, & Fried, 2005). In the same manner, partner-similar facial features should activate the partner representation. Future work should obtain direct evidence, however, by assessing the transference of attributes associated with the specific SO representation.

By systematically manipulating objective resemblance using morphing techniques, the present research is the first to quantify facial resemblance and to show that objective facial resemblance to a SO influences snap judgments of novel persons in the absence of conscious awareness of the resemblance. Moreover, facially-triggered transference appears to arise from activating the specific SO representation rather than familiarity. These findings are consistent with extensive research showing dissociations between implicit vs. explicit memory, and indicate that facially-triggered transference can influence person perception spontaneously and automatically.

## Acknowledgments

The authors would like to thank Kristina P. Wang and Madeline VenJohn for their assistance in data collection, James Booth for his assistance in data analysis, and Serena Chen for her thoughtful comments on earlier drafts.

## Appendix A. Supplementary data

Supplementary data to this article can be found online at doi:10.1016/j.jesp.2011.06.001.

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