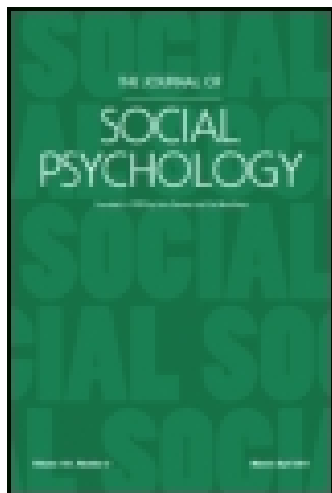


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The Journal of Social Psychology

Publication details, including instructions for authors and subscription information:

<http://www.tandfonline.com/loi/vsoc20>

Do I Mirror Your Mood if We're Peas in a Pod? Similarity and Liking in the Social Induction of Affect

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Accepted author version posted online: 07 May 2015.



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To cite this article: Monika Wróbel, Klara Królewiak & Anna Z. Czarna (2015): Do I Mirror Your Mood if We're Peas in a Pod? Similarity and Liking in the Social Induction of Affect, *The Journal of Social Psychology*, DOI: [10.1080/00224545.2015.1047437](https://doi.org/10.1080/00224545.2015.1047437)

To link to this article: <http://dx.doi.org/10.1080/00224545.2015.1047437>

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Do I Mirror Your Mood if We're Peas in a Pod? Similarity and Liking in the Social Induction of Affect

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This research was supported by a grant from the National Science Centre in Poland (DEC-2012/07/D/HS6/00947) awarded to the first author. The authors thank Aiden Gregg for his helpful suggestions, and Magdalena Gawarzyńska, Bartosz Neska, Sylwia Jarosz, Aleksandra Karolak, Magdalena Kowalska, Justyna Michalak, Paulina Rudzińska, and Alicja Sabat for their help in conducting experimental sessions.

Abstract

The present study investigates whether similarity in personality traits between a sender displaying affect and a receiver observing it influences the social induction of affect. We hypothesized that exposure to a similar sender would foster concordant affective reactions, whereas exposure to a dissimilar sender would foster discordant ones. To induce affect, we used short videos presenting a sender displaying happy versus sad emotional expressions. To

manipulate personality similarity, we used a software program to generate brief bogus descriptions of the sender based on the receivers' prior responses to personality items. Our results demonstrated that dissimilarity led to decreased liking and, as a result, reduced the tendency to react with concordant affect to a happy sender's emotional expression. However, we found no evidence supporting the induction of discordant affective reactions.

Key words: socially induced affect, affect contagion, liking, personality, similarity

Much empirical evidence suggests that people with whom we interact greatly shape our affective states (Hatfield, Cacioppo, & Rapson, 1994; Hatfield, Carpenter, & Rapson, 2014). This regularly observed phenomenon – of the feelings of a *receiver* being influenced by those of a *sender* – is variously referred to as *emotional/mood/affect contagion* (Hatfield et al., 1994; Neumann & Strack, 2000; Paukert, Pettit, & Amacker, 2008), or more generally as the *social induction of affect* (Epstude & Mussweiler, 2009; McIntosh, Druckman, & Zajonc, 1994). The phenomenon occurs in a wide range of social interactions, having been observed not only in face to face contacts (e.g. Barsade, 2002), but also in response to videos (e.g., Papousek, Schuler, & Lang, 2009; Stel & Vonk, 2009), pictures (e.g., Lundqvist & Dimberg, 1995; Wild, Erb, & Bartels, 2001), and audio recordings (e.g., Neumann & Strack, 2000). It is commonly assumed that the social induction of affect involves the imitation of the sender's emotional expressions, which in turn elicits the same affective state in the receiver (Hatfield et al., 1994; McIntosh et al., 1994; Neumann & Strack, 2000). These two mechanisms, both unintentional in nature, are known as emotional mimicry (Hatfield et al., 1994; Hess & Fischer, 2013) and peripheral (e.g., facial or vocal) feedback (Philippot, Chapelle, & Blairy, 2002). For instance, Neumann and

Strack (2000) showed that while listening to a happy or sad voice, listeners not only adopted the corresponding tone of voice, but they also experienced concordant affective reactions. Lundqvist and Dimberg (1995) demonstrated a similar effect for facial expressions.

According to the classic view, a concordant affective reaction is the most frequent consequence of exposure to the other person's emotional expression. However, it has been argued that a receiver may sometimes react to a sender's expression with discordant affective states (Hatfield et al., 1994; McIntosh et al., 1994). This phenomenon, sometimes labeled as "countercontagion" (Hatfield et al., 1994)¹, has often been explained in terms of the social induction of affect being moderated by the relationship between the sender and receiver. More specifically, it has been argued that *concordant* induction occurs when the receiver *likes* the sender, whereas *discordant* induction occurs when the receiver *dislikes* the sender (Hatfield et al., 1994; McIntosh et al., 1994).

Liking and the social induction of affect

The claim that people should react with concordant affect to the expressed feelings of those they like, and discordant affect to the expressed feelings of those they dislike, is hardly new. In fact, the relationship between a sender and a receiver has been extensively researched as one of the most powerful moderators of the social induction of affect. In particular, past studies have shown that concordant affective responses occur more often among friends or in-group members than among strangers or out-group members (Anderson, Keltner, & John, 2003; Kimura, Daibo, & Yogo, 2008; Platow, Haslam, Both, Chew, Cuddon, & Goharpey, 2005). For example, while

watching former U.S. president Ronald Reagan, his political supporters reflected his emotional expression, whereas his political opponents did not (McHugo, Lanzetta, Sullivan, Masters, & Englis, 1985).

Evidence has accumulated that *liking* also potentiates emotional mimicry (Likowski, Mühlberger, Seibt, Pauli, & Weyers, 2008; Stel et al., 2010). Likowski and colleagues (2008) found that senders' likeability influenced facial responses to facial emotional displays. In particular, happy faces of likeable senders evoked stronger contractions of the receivers' *zygomaticus major* (the muscle responsible for smiling) than happy faces of dislikeable senders; similarly, sad faces of likeable senders evoked stronger contractions of the receivers' *corrugator supercilii* (the muscle responsible for frowning) than sad faces of dislikeable senders.

Although the above-mentioned studies suggest that liking plays a role in the social induction of affect, they provide only indirect evidence to support this relationship. Most focus *only* on emotional mimicry or indicate that people who *probably* like each other converge affectively to a greater extent than other people. The few studies that did directly assess the link between liking and the social induction of affect yielded inconclusive findings. Some research (McIntosh, 2006; Van der Schalk, Fischer, Doosje, Wigboldus, Hawk, Rotteveel, & Hess, 2011) did not support the moderating effects of liking on the social induction of affect (although they found evidence for the link between liking and emotional mimicry). Other studies, however, did provide such support by showing that the direction of affect induction depends on liking regardless of whether likeability is manipulated by vignettes describing the sender as an utterly moral or immoral character (e.g., a person who helps handicapped children versus a person who makes fun of

them; Królewski & Wróbel, 2014) or with a list of moderately positive versus negative traits (e.g., *kind, helpful, friendly* versus *unkind, selfish, quarrelsome*; Wróbel & Królewski, 2015). In particular, participants who liked the sender declared that their positive affect increased after exposure to the happy sender but decreased after exposure to the sad sender. A different pattern was observed for participants who did not like the sender: their positive affect either remained unaffected (Wróbel & Królewski, 2015) or decreased when the sender was happy and increased when the sender was sad (Królewski & Wróbel, 2014). This suggests that in some circumstances (e.g., when the sender is presented in an unfavorable light) dislikeability may hinder concordant reactions by influencing not only *mimicry* (Likowski et al., 2008; McIntosh, 2006; Van der Schalk et al., 2011), but also the induction of *inner feelings* (Królewski & Wróbel, 2014; Wróbel & Królewski, 2015).

The role of liking in the social induction of affect may be obscured by the fact that a standard study on socially induced affect compares receivers' reactions to happy versus sad senders. Both everyday observations and empirical research (Reysen, 2006) show that people are rated as more likeable when they express positive feelings than when they express negative ones. Thus, liking seems to depend not only on the relationship between the sender and the receiver, but also on the sender's emotional expression. Indeed, it is difficult to predict who will be more likeable – a happy out-group member or a sad in-group member – and what impact that will have on affect induction. Bourgeois and Hess (2008), for instance, found that the influence of shared group membership on emotional mimicry depends on whether the sender displays positive or negative emotions. Here, receivers mimicked happy emotions regardless of whether they belonged to the sender's group or not, whereas the mimicry of negative emotions was moderated by group

membership; participants mimicked the facial displays of these emotions more frequently in reaction to in-group members, as compared to out-group members (for similar results, see: Van der Schalk et al., 2011). Therefore, to clarify the role of liking in the social induction of affect, it is important to determine not only to what extent liking influences the social induction of affect, but also to what extent liking depends on the sender's positive versus negative emotional expression.

Similarity in the sender-receiver interaction

One of the best-known determinants of liking is similarity (Byrne, 1971; Tenney, Turkheimer, & Oltmanns, 2009). Even 3 year-old children prefer similar peers to dissimilar ones (Fawcett & Markson, 2010). Conversely, dissimilarity may exert an opposite effect on liking (Singh & Ho, 2000). Accordingly, receivers should react with concordant affect when interacting with a similar sender and discordant affect when interacting with a dissimilar sender. For example, Reagan's political supporters may have reflected his expressions because they felt similar to him, whereas his political opponents may not have because they felt dissimilar. Similarity might also explain why the degree of closeness within a relationship influences the social induction of affect (Anderson et. al., 2003; Kimura et al., 2008). Concordant affective responses arguably occur more frequently among friends than among strangers because the former are more similar to each other than the latter (Aube & Koestner, 1995; Selfhout, Denissen, Branje, & Meeus, 2009).

Epstude and Mussweiler (2009) have recently highlighted the role of similarity in the social induction of affect. In a series of studies, they confirmed that spontaneous comparison processes

influence socially induced affect. The authors demonstrated that receivers confronted with a similar comparison standard (e.g., pictures or voices of same-sex senders) indicated a better mood after exposure to happy senders than after exposure to sad senders (i.e., a concordant affective reaction), whereas receivers confronted with a dissimilar comparison standard (e.g., pictures or voices of opposite-sex senders) indicated a better mood after exposure to sad senders than after exposure to happy senders (i.e., a discordant affective reaction). Although Epstude and Mussweiler's studies provide solid evidence that similarity influences the social induction of affect, they do not show what role (if any) liking plays in this process.

The question about the role of similarity and liking in the social induction of affect is important because it relates to the circumstances under which concordant and discordant affects occur. The identification of these circumstances is potentially crucial in order to determine the direction and strength of socially induced affect in various real-life situations. Thus far, concordant affective reactions have been shown to play a key role in interpersonal relationships. These include interactions between roommates, romantic partners, co-workers, patients and therapists, and salespeople and customers (Anderson et al., 2003; Hatfield et al., 1994; Howard & Gengler, 2001; Pugh, 2001). In this regard, concordant affect serves various functions: it strengthens the bonds between interacting partners (Spoor & Kelly, 2004), improves cooperation (Barsade, 2002), and influences attitudes toward products (Howard & Gengler, 2001). The question remains whether discordant affect would also occur in such interactions, and if so, under what conditions. For instance, would the affect displayed by a dissimilar and dislikeable salesperson or therapist lead to discordant affective reactions instead of concordant ones? We addressed this question in our research.

The present study

The present research extends previous studies in various ways. First, we go beyond shared group membership and examine the role of personality similarity. Since it is possible that people belonging to the same group may still differ considerably, shared personality characteristics are arguably a superior indicator of similarity than shared group membership. Second, we include measures of initial mood to track changes in the receivers' affect. The majority of previous studies on the social induction of affect (e.g., Epstude & Mussweiler, 2009; McIntosh, 2006), assessed participants' affective reactions only once (after exposure to the sender's displayed affect). Hence, it was impossible to determine if positive and negative affect increased, decreased, or simply remained stable. Third, we test whether liking mediates the effects of similarity on the social induction of affect because so far the link between liking, similarity, and socially induced affect has not been analyzed so systematically.

To explore the role of similarity and liking in the social induction of affect, we manipulated similarity in personality traits between the sender and the receiver and then presented participants with short videos showing a happy versus sad sender. We predicted that individuals exposed to a similar happy sender would report an increase in positive affect and a decrease in negative affect (i.e., concordant affective reactions), whereas individuals exposed to a dissimilar happy sender would report the opposite (i.e., discordant affective reactions). Similarly, we hypothesized that individuals exposed to a similar sad sender would report a decrease in positive affect and an increase in negative affect, whereas individuals exposed to a dissimilar sad sender would report an increase in positive affect and a decrease in negative affect.

Additionally, we tested specifically whether liking operated as the mediator between similarity and the social induction of affect. We predicted that a similar sender would be liked more than a dissimilar sender, and, as a result, participants exposed to the former would be more susceptible to socially induced concordant affect than participants exposed to the latter. Additionally, having shown that liking would depend not only on similarity, but also on a sender's positive or negative emotional expression, we tested whether the proposed mediating mechanism would work similarly for participants exposed to a happy sender and participants exposed to a sad sender. More specifically, we were interested in whether a sender's expression would moderate the effect of similarity on liking.

Method

Participants and procedure

Eighty-five students from the University of Lodz (70 women and 15 men; $M_{\text{age}} = 20.28$ years, $SD = 2.32$) took part in the study. We randomly assigned them to four experimental conditions: (1) a similar sender displaying a happy emotional expression (*S-happy*; $n = 21$); (2) a similar sender displaying a sad emotional expression (*S-sad*; $n = 23$); (3) a dissimilar sender displaying a happy emotional expression (*D-happy*; $n = 21$); (4) a dissimilar sender displaying a sad emotional expression (*D-sad*; $n = 20$). They participated in experimental sessions individually.

To minimize the experimenter effect, we used a software program to present all measures and stimuli materials. Upon participants' arrival to the laboratory, the experimenter informed them

that the study would concern cooperation and that their task would be to evaluate their future co-worker. Then, they completed a short questionnaire regarding their personality traits. It consisted of 15 adjectives (e. g., *curious, sociable, calm, diligent, warm*) that referred to the Big Five model (McCrae & Costa, 1987; McCrae & Costa, 1999). Participants rated them on a 4-point scale (*does not describe me at all, does not describe me very well, describes me somewhat, describes me very well*). We had chosen all 15 items (3 items per each trait) from an initial pool of 144 adjectives. At first, we generated the pool on the basis of the descriptions of neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness given in the literature (John & Srivastava, 1999; McCrae & Costa, 1999; McCrae & Costa, 2003). Then three judges (psychologists with expertise in personality psychology) selected the adjectives that best conveyed the meaning of the traits – each of the judges independently selected 40 adjectives (8 per trait) before discussing their choices with the other judges. As a result, we shortened the list to 15 adjectives that met two criteria: (1) at least two out of three judges had selected the adjective; (2) during the discussion all three judges agreed to include the adjective in the final list. We analyzed the psychometric properties of the questionnaire in a pilot study ($N = 64$ students; 47 female, 17 male). The study provided support for a five-dimensional structure of the measure (overlapping with the Big Five personality model) as well as its acceptable internal consistency (Cronbach's α s from .62 to .80) and construct validity (Pearson's correlations with the corresponding NEO-FFI scales² ranged from .34 to .78, $ps < .01$).

Having completed the questionnaire, participants assessed their affect. Then we informed them that the computer would select a person that they would cooperate with. After a few seconds the following information appeared on the screen: “The computer has chosen a person number X for

you. You will cooperate with this person, but first we would like you to evaluate him/her, because we are interested in how evaluations influence cooperation. First, you will see how the person number X answered the questions you also answered at the very beginning of the study. Second, you will watch a short video presenting this person. When making the video we asked the person number X to sit in silence for 2 minutes in front of the camera.” After the instructions, we presented participants with a questionnaire which purportedly had been already completed by their future co-worker and asked them to familiarize themselves with his/her responses. To create the responses we used a software program which generated them on the basis of participants’ scores on the personality questionnaire. In conditions *S-happy* and *S-sad* we presented the co-worker as being similar to the participant, whereas in conditions *D-happy* and *D-sad* we presented the co-worker as being dissimilar³. Next, participants watched one of two silent videos showing their alleged co-worker. We had taken the videos from the Emotionally Contagious Films set (ECFs, Wróbel, 2009). The videos were identical in terms of length (2 min), lighting, and the stimulus person’s physical appearance; they differed only in terms of his emotionally expressive behavior. In the *S-happy* and *D-happy* conditions the videotaped man was excited and aroused, whereas in the *S-sad* and *D-sad* conditions he looked distressed and upset. Previous studies have shown that the ECFs successfully induce affect (Czarna, Wróbel, Dufner, & Zeigler-Hill, 2015; Wróbel, 2009; Królewski & Wróbel, 2014). After watching the videos, participants rated their affect again and declared how much they liked their co-worker. At the end of the experiment, we interviewed them regarding their hypotheses and debriefed them. None of them realized that we had manipulated similarity between them and the sender. Two

students had guessed that the aim of the ECFs was to change their affect, and thus we excluded them from further analyses.

Measures

We measured participants' affect using four adjectives taken from the broadly used Positive and Negative Affect Schedule (PANAS, Watson, Clark, & Tellegen, 1988). Two adjectives (*enthusiastic* and *active*) referred to pleasant, positive activation (PA), whereas the other two (*upset* and *nervous*) referred to unpleasant, negative activation (NA) (Yik, Russell, & Steiger, 2011). Participants indicated their answers on a 5-point scale ranging from *not at all* to *very much*. We decided to use four adjectives instead of the whole PANAS, because some of its items refer to specific states (e.g., *ashamed*, *proud*, *guilty*, *scared*), which are difficult to evoke through social induction (Epstude & Mussweiler, 2009; Hess & Blair, 2001; Neumann & Strack, 2000). We used the adjectives twice – prior to the video and once again after it. To divert participants' attention from the real purpose of the assessment we told them that the way people feel often influences evaluation processes, and thus we had to measure their mood.

To assess liking we used the Interpersonal Attraction Scale (IAS; Wróbel, 2009) – a one-dimensional, 3-item tool that measures the extent to which participants find a sender nice, amiable, and interesting. Participants rated each item on a 100-millimeter graphic scale ranging from *not at all* to *very much*. Previous studies have confirmed that the IAS is a valid and reliable tool for measuring liking (Wróbel, 2009; Królewski & Wróbel, 2014).

Results

Table 1 presents the means, standard deviations, intercorrelations, and Cronbach's α s for the measures included in the study.

To assess the changes in participants' affect we conducted two 2 (manipulation: pre-test, post-test) x 2 (sender's expression: happy vs. sad) x 2 (similarity: similar sender vs. dissimilar sender) mixed-model ANOVAs, with manipulation as a within-subjects factor, the sender's expression and similarity as between-subjects factors, and PA and NA as dependent variables. Although for NA we found no significant effects, for PA there was an interaction between manipulation and the sender's expression, $F(1, 81) = 11.13, p = .001, \eta_p^2 = .13$. In the happy conditions participants' positive affect slightly increased, although the change did not reach statistical significance (the mean increase was .17 scale points, 95% CI [-.03, .36]). In the sad conditions participants' affect significantly decreased (.29 scale points, 95% CI [.09, .48]). We further analyzed the effects of manipulation for each condition separately. Planned contrast comparisons revealed that, as predicted, exposure to the similar sender's emotional expressions led to concordant affective responses: PA increased in the *S-happy* condition ($M = 3.45, SD = .57$ vs. $M = 3.74, SD = .64, t(81) = 2.07, p = .041, r = .22$) and decreased in the *S-sad* condition ($M = 3.41, SD = .85$ vs. $M = 3.13, SD = .89, t(81) = -2.14, p = .035, r = .23$). We also observed an unexpected decrease in PA in the *D-sad* condition ($M = 3.38, SD = .76$ vs. $M = 3.08, SD = .92, t(81) = -2.12, p = .037, r = .23$). In the *D-happy* condition we found no statistically significant change in PA ($M = 3.31, SD = .83$ vs. $M = 3.36, SD = .74, t(81) = .35, p = .731, r = .04$). Thus, we found a classic concordant induction pattern after exposure to the similar sender (participants

declared higher PA when he was happy than when he was sad, $t(81) = 2.49, p = .015, r = .27$), whereas for the dissimilar sender we observed no statistically significant differences in PA between the *D-happy* and *D-sad* conditions, $t(81) = 1.12, p = .168, r = .12$.

We also examined whether the sender's similarity and emotional expression influenced liking. A 2 (similarity: similar sender vs. dissimilar sender) x 2 (sender's expression: happy vs. sad) ANOVA, using liking as a dependent variable, revealed significant main effects of similarity, $F(1, 81) = 5.69, p = .019, \eta_p^2 = .07$, and the sender's expression, $F(1, 81) = 10.00, p = .001, \eta_p^2 = .11$. We also found an interaction effect, $F(1, 81) = 3.93, p = .051, \eta_p^2 = .05$, showing that the happy sender was liked more when he was similar ($M = 80.68, SD = 14.38$) than when he was dissimilar ($M = 58.56, SD = 18.72, t(81) = -3.07, p = .003, r = .32$), but there were no differences for the similar ($M = 61.89, SD = 23.34$) versus dissimilar ($M = 56.82, SD = 21.81$) sad sender, $t(81) = -.29, p = .775, r = .09$ (see Figure 2).

Finally, to test whether the sender's expression moderated the mediational impact of liking on the effect of similarity on the social induction of positive affect, we conducted a moderated mediation analysis. Specifically, we used a bootstrapping method advocated by Hayes (2009, 2013), with similarity as an independent variable (X), change in PA as an outcome variable (Y), liking as a mediator (M), and the sender's expression as a moderator of the effect of X on M (see Figure 3). We calculated change in PA as a ratio of PA prior to the video divided by the PA after the video minus 1. A value of 0 indicates no change in PA, a value larger than 0 indicates an increase in PA, and a value smaller than 0 indicates a decrease in PA. The number of bootstrap samples for bias corrected confidence intervals was 5,000. Providing evidence for moderated

indirect effect, the index of moderated mediation was significant ($b = .05$, $SE = .03$, 95% CI: [.01, .13]). The indirect effect of similarity on change in PA was statistically significant for participants exposed to the happy sender ($b = .05$, $SE = .03$, 95% CI: [.02, .12]) and non-significant for participants exposed to the sad sender ($b = .01$, $SE = .02$, 95% CI: [-.03, .05]). Thus, liking mediated the effect of similarity on the change in PA only in the happy conditions.

Because liking was measured after the video⁴, it could also be argued that it was participants' affect that mediated the effect of the sender's similarity on liking rather than the other way around. To exclude this possibility, we conducted an additional moderated mediation analysis in which we interchanged the mediator and the outcome variable (Kenny, 2014). The analysis provided evidence that the reverse causal relationship between liking and socially induced affect could be ruled out. We found that the indirect effect of similarity on liking through change in PA (estimated with 5000 bootstraps) was non-significant both for participants exposed to the happy sender ($b = 1.42$, $SE = 2.18$, 95% CI: [-2.31, 6.47]) and for participants exposed to the sad sender ($b = -.19$, $SE = 1.92$, 95% CI: [-4.68, 3.11]). The index of moderated mediation was also non-significant ($b = 2.11$, $SE = 2.73$, 95% CI: [-1.34, 9.80]).

Discussion

We conducted the present study to determine whether similarity in personality traits between a sender and a receiver influences socially induced affect. In general, the results are consistent with the hypothesis that the social induction of affect may be influenced by similarity between a sender and a receiver. The observed effect, however, was limited to positive affect. As expected,

watching a video showing a similar sender resulted in concordant self-reported affect – participants declared an increase in positive affect after being exposed to the happy similar sender and a decrease in positive affect after being exposed to the sad similar sender. Contrary to predictions, exposure to a dissimilar sender did not lead to discordant affective reactions. Participants who watched the video presenting the happy dissimilar sender did not report any statistically significant changes in affect, and participants who watched the video showing the sad dissimilar sender declared concordant (not, as we expected, discordant) changes in affect. Thus, similarity influenced participants' reactions to the happy sender, whereas exposure to the sad sender resulted in concordant induction regardless of whether the sender was similar or dissimilar to the participant. This pattern of results suggests that dissimilarity can reduce the tendency to react with concordant affect to happy senders, but it does not facilitate discordant induction.

Currently, these findings are difficult to explain, as knowledge of the moderators of the social induction of affect remains somewhat inconclusive. Whereas some studies suggest that the process may be moderated by similarity (Epstude & Mussweiler, 2009), others do not support this conclusion (Van der Schalk et al., 2011). It is probable that the cover story which stressed cooperation facilitated concordant induction and hindered discordant induction in the current study. For instance, Lanzetta and Englis (1989) found that mimicry depends on the type of task participants are engaged in: expectations of cooperation foster concordant emotional responses to displays of pleasure and distress, whereas expectations of competition foster discordant emotional responses. Similar mechanisms might have been activated in the present study. Second, it is likely that differences in personality characteristics between the sender and the

receiver were too subtle to induce discordant affect. It is probable that incongruent personality traits exert weaker effects on social interactions than, for instance, incongruent attitudes, because the awareness of personality similarity is less rewarding than the awareness of attitudinal similarity (Singh, 1973). An interaction with a person who agrees with us confirms that we are reasonable and logical, whereas an interaction with a person who has similar personality traits might not be that rewarding. It suggests that the social induction of discordant affect may require very strong manipulation. This interpretation is in line with the results of our earlier studies on discordant affective reactions. When a sender is presented in a highly unfavorable light (e.g., as a nasty, cruel character who ridicules handicapped children), receivers tend to react with discordant affect to his emotional expression (Królewski & Wróbel, 2014), whereas a moderately dislikeable (e.g., unkind, selfish) sender may evoke no affective reaction at all (Wróbel & Królewski, 2015).

The study also shed some light on the role and determinants of liking in sender-receiver interactions. Although past studies have suggested that liking is one of the best known moderators of the social induction of affect (Hatfield et al., 1994), the results of the present research show that its role might be more complex than initially assumed. When the sender looked miserable and distressed, he was judged less favorably than when he was smiling, regardless of whether he was similar or dissimilar to participants. Moreover, having watched the sad video, participants in both *S-sad* and *D-sad* conditions reported that their positive affect had decreased. A different pattern of results was observed for the happy sender – participants liked him more when he was similar to them than when he was dissimilar. This, in turn, influenced their positive affect – participants reported concordant reactions to the similar sender, but they

did not report any changes when the sender was dissimilar. These results suggest that dissimilarity might reduce the likeability of elated, excited people and, as a result, minimize the tendency to catch their positive feelings. Furthermore, a sender's emotional expression appears to be a stronger factor influencing the social induction of affect than similarity – especially so when the receiver does not know the sender. Therefore, future studies on the role of liking in the social induction of affect should take this possibility into account.

There are at least three limitations of the present study. First, the sample was small and disproportionately female. Although evidence concerning gender differences in susceptibility to socially induced affect has been mixed (Doherty, 1998; Eisenberg & Lennon, 1983; Sonnby-Borgström, Jönsson, & Svensson, 2008; Wild, Erb, & Bartels, 2001; Wróbel, 2010), future studies may benefit from including more male receivers as well as male and female senders instead of one video-taped male sender. Second, we used only self-report measures of affect – while in general they provide insight into a person's moods and emotions, they also have several limitations (e.g., sensitivity to social desirability bias; Barrett, Robin, Pietromonaco, & Eysell, 1998; Robinson & Clore, 2002). Moreover, the reliabilities of our affect measures were low and therefore the results must be interpreted with some caution. Future research would thus benefit from the use of other measures of affect (e.g., implicit scales, physiological measures, or methods based on observation). Third, our approach relied on the experimental method, which limits the ecological validity of the findings. It is possible that more realistic life settings instead of exposure to a video-taped sender would allow for a more systematic test of concordant and discordant affective reactions. We should stress, however, that the method we used also provides some advantages compared to other methods, as it is a standardized and validated procedure for

research on socially induced affect (Hess & Blairy, 2001; Hsee, Hatfield, & Chemtob, 1992; Papousek, Freudenthaler, & Schuler, 2008, Stel & Vonk, 2009), and thus leaves little room for confounding variables.

In sum, the present work can help us understand why individuals are not equally susceptible to “catching” the feelings of others. Our findings provide additional arguments that the social induction of affect depends on the relationship between the sender and the receiver. Although we found no support for discordant affective responses, we showed that dissimilarity may reduce the tendency to react with concordant affect to a sender’s positive emotional expression. Additionally, we demonstrated that liking mediates the effects of similarity on the social induction of positive affect. These findings point to the need for further investigation of the factors influencing affect transmission. The identification of these factors would provide a better understanding of the reasons why concordant reactions occur in some social settings, whereas in others, they do not. This, in turn, may prove helpful for people who make use of socially induced affect on a daily basis, such as therapists, teachers, salespeople, or politicians.

Footnotes:

¹ The meaning of the term “countercontagion” is somewhat unclear because it has been used to label both *opposite* (e.g., happiness in response to the sender’s sadness) and *complimentary* (e.g., fear in response to the sender’s anger) reactions (Hatfield et al., 1994). Therefore, in accordance with Epstude and Mussweiler (2009) and McIntosh et al. (1994), we use the term “social induction of affect.” This term implies that the transmission of affect may take two forms: concordant induction (the receiver shows an affective shift in *the same* direction as the sender’s

displayed affect) and discordant induction (the receiver shows an affective shift in *the opposite* direction). Moreover, the term “social induction of affect” links this process to other phenomena, such as socially-induced burnout (Bakker, Demerouti, & Schaufeli, 2003), or socially-induced memory errors (Edelson, Sharot, Dolan, & Dudai, 2011).

² We used a Polish adaptation of the NEO-FFI by Zawadzki, Strelau, Szczepaniak, & Śliwińska (1998).

³ We manipulated the number of responses that were IDENTICAL (the software generated the sender’s responses which were exactly the same as the receiver’s), OPPOSITE (the sender’s responses were contrary to the receiver’s, e.g., *describes me very well* vs. *does not describe me at all*), or CLOSE (the sender’s responses were similar to the receiver’s but not the same, e.g., *does not describe me at all* vs. *does not describe me very well*). In the *S-happy* and *S-sad* conditions the 15-item questionnaire purportedly completed by the sender consisted of 7 identical responses and 8 close responses whereas in the *D-happy* and *D-sad* conditions the questionnaire consisted of 7 opposite responses and 8 close responses.

⁴ This approach had two objectives. First, it enabled us to test the extent to which liking depended on both the sender’s similarity and emotional expression. Second, it prevented participants from realizing that we expected liking to influence their affective reactions to the sender’s expression.

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Received: 17 Jun 2014

Accepted: 21 Apr 2015

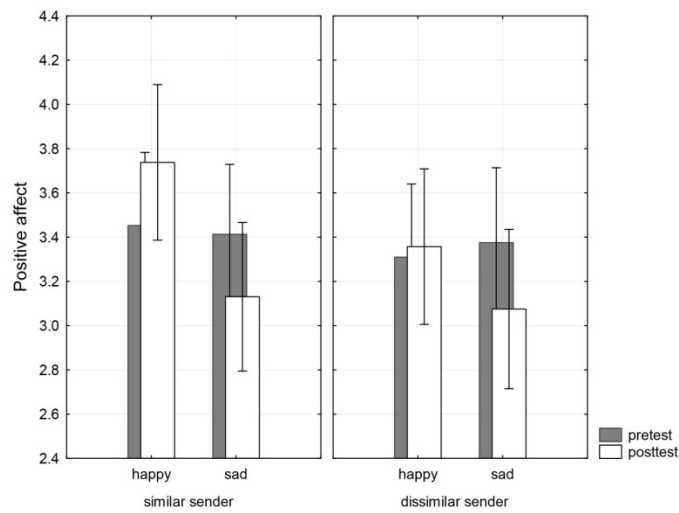
Table 1. Descriptive statistics, internal consistency and intercorrelations

		<i>M</i>	<i>SD</i>	1	2	3	4	5
Pre-test	1. Positive affect	3.39	.75	.65				
	2. Negative affect	1.74	.68	-.19	.67			
Post-test	3. Positive affect	3.32	.84	.65***	-.18	.65		
	4. Negative affect	1.56	.65	-.25*	.61***	-.25*	.77	
	5. Liking	64.44	21.66	.05	.07	.27*	.14	.75

Note. Cronbach's *alphas* are reported in boldface along the diagonal.

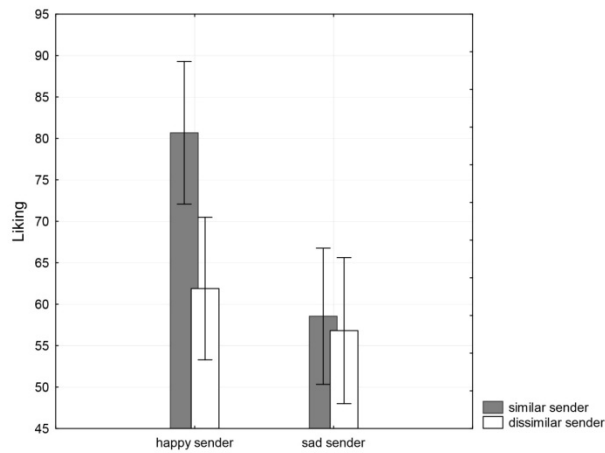
* $p < .05$; *** $p < .001$

Figure 1. Participants' pre-test and post-test positive affect as a function of the sender's similarity (similar vs. dissimilar) and emotional expression (happy vs. sad). Scores range from 1 to 5 with higher scores indicating more positive affect. Error bars represent 95% confidence intervals.



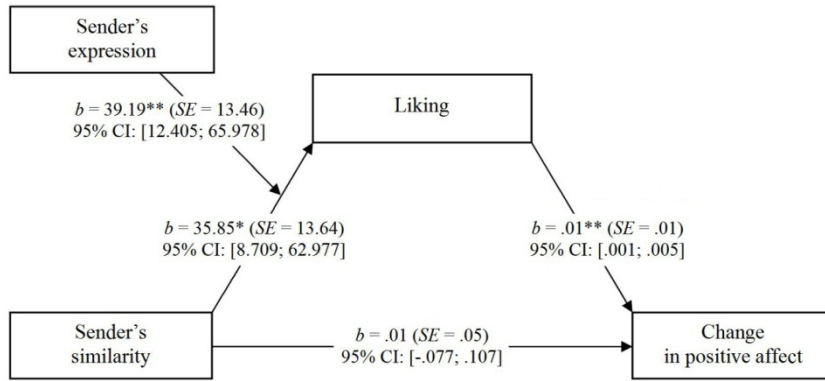
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Figure 2. Liking as a function of the sender's similarity (similar vs. dissimilar) and emotional expression (happy vs. sad). Scores range from 0 to 100 with higher scores indicating greater liking. Error bars represent 95% confidence intervals.



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Figure 3. Moderated mediation model coefficients



* $p < .05$; ** $p < .01$

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