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''Seeing is Believing'': The Effects of Facial Expressions of Emotion and Verbal Communication in Social Dilemmas

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ABSTRACT

In social dilemmas, verbal communication of one's intentions is an important factor in increasing cooperation. In addition to verbal communication of one's intentions, also the communication of emotions of anger and happiness can influence cooperative behavior. In the present paper, we argue that facial expressions of emotion moderate verbal communication in social dilemmas. More specifically, three experiments showed that if the other person displayed happiness he or she was perceived as honest, trustworthy, and reliable, and cooperation was increased when verbal communication was cooperative rather than self-interested. However, if the other person displayed anger, verbal communication did not influence people's decision behavior. Results also showed interactive effects on people's perceptions of trustworthiness, which partially mediated decision behavior. These findings suggest that emotion displays have an important function in organizational settings because they are able to influence social interactions and cooperative behavior. Copyright © 2009 John Wiley & Sons, Ltd.

KEY WORDS facial expression of emotion; social dilemmas; communication; cooperation

Organization members frequently display emotions during communication with others. For example, service agents use happy displays to amplify their spoken message (Pugh, 2001). The impact of emotion displays and communicated messages is crucial for the receiver's subsequent behavior toward the sender. An important aspect of organizational life is that people often are confronted with situations in which individual and collective interests collide. In such situations it is more beneficial to follow one's individual interests instead of being cooperative for the collective. However, if all people decide to serve their self-interest, the collective will be worse off than if all would have cooperated. We refer to this situation as a social dilemma (Komorita & Parks, 1994). One way to increase cooperation in social dilemmas is to allow people to communicate with each other. Verbal communication is an efficient way to communicate one's intentions to others and thus to

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help coordinate decisions in these highly interdependent situations (Orbell, Van de Kragt, & Dawes, 1988; Komorita & Parks, 1994; Parks, Henager, & Scamahorn, 1996). For example, Frank, Gilovich, and Regan (1993) showed that if participants in a prisoner's dilemma game were allowed to communicate their intentions and interests with their group members, they were more cooperative.

Interestingly, communication not only involves a direct verbal conversation about one's intentions and interests, but also comprises more indirect forms such as the expression of emotions (e.g., Ekman, 1997). Hence, one does not only say how one feels, but one can also show one's feelings. Experimental research on the effects of other's emotions on people's reactions is scarce. Research that did look into these effects in high interdependent situations such as negotiations has shown that the verbal expression of one's emotions influences how others perceive one's intentions and consequently affect the decisions that these others take (Van Kleef, De Dreu, & Manstead, 2004a, b). Thus, emotions also communicate the intentions of the one expressing the emotion to others (e.g., Keltner & Gross, 1999). The present research wishes to extend recent research on the interpersonal effects of emotions by examining whether the facial expression rather than the verbally communicated emotions of others of the emotions anger and happiness affects one's own decision behavior in social dilemmas. In addition, we wish to go beyond the aim of prior research by exploring to what extent people's facial expression of emotions moderates the earlier established effect of people's verbal communication about their intentions and interests. More specifically, in the present research, it is examined whether the other party communicating a cooperative versus self-interested intention in the social dilemma setting will exert more influence on own decision behavior when this other displays the facial expression of happiness relative to anger.

COMMUNICATION IN INTERDEPENDENT SITUATIONS

Verbal communication is an efficient way to communicate one's intentions to another person (e.g, Forgas, 1985; Ng, 2001) and particularly so in interdependent situations (Komorita & Parks, 1994). In fact, social dilemma research has identified verbal communications of one's intentions, before a decision by the other to cooperate or defect is made, as one of the more robust and promising solutions (Dawes, McTavish, & Shaklee, 1977; Kerr, Garst, Lewandowski, & Harris, 1997; Kerr & Kaufman-Gililand, 1994; Sally, 1995). Verbally expressing one's intentions is believed to be effective in situations where people need to coordinate their behavior and, as a result, research findings indeed show that people are more cooperative when positive communication is possible (Orbell et al., 1988; Komorita & Parks, 1994; Parks et al., 1996), particularly so in face-to-face interactions (Dawes et al., 1977; Ostrom, Walker, & Gardner, 1992).

Interestingly, however, apart from verbal communications, people's intentions can also be expressed by means of people's emotions. For example, Van Kleef et al. (2004a) showed that an opponent's written expression of emotions influenced people's decision behavior in negotiations. That is, expressions of anger about a given offer led participants to give in more easily with the other party. Yet, when the opponent expressed happiness about a given offer, participants were more inclined to exploit the other party. This line of research convincingly showed that emotions signal intentions that the other party is to be trusted and that he or she willing to cooperate. Van Kleef et al. (2004a) were among the first to experimentally show that emotions have important social functions in mixed-motive situations (see also Keltner & Haidt, 1999) and that emotions not only influence the behavior of the person experiencing the emotion, but also the behavior of the person observing the sender of the emotion (e.g., Knutson, 1996).

In the present research, we argue that it is of importance to examine how facial expressions, in addition to verbal expressions of emotions, affect decision making in interdependent situations such as social dilemmas. Facial expressions of emotions may shape a context in which communication may be perceived differently. So, what do we know about the possible effects of facial expressions of emotions?

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EMOTION DISPLAYS AND INFERENCES MADE

In the social psychology literature it is a well-known fact that the experience (and even verbal communication) of emotions is often accompanied by the facial expression of these emotions (Cacioppo, Petty, Losch, & Kim, 1986; Matsumoto, 1987). Facial displays of emotion lead people to perceive others' emotional state. For example, a person who lowers his eyebrows signals an angry emotion. People are good perceivers of these emotional displays as they can quickly interpret and assign an emotional state to them, and this especially holds for *angry* and *happy* emotions (Boone & Buck, 2003). Moreover, people are especially skilled to perceive and interpret that such emotional displays of anger or happiness communicate important intentions, goals, and attitudes (Hess, Banse, & Kappas, 1995; Keltner & Haidt, 1999; Whalen et al., 1998). In addition, people further use these emotional signals and subsequent interpretations to guide their actions (Elfenbein, Marsh, & Ambady, 2002; Keltner & Haidt, 1999). What do facial expressions of anger and happiness communicate?

Displays of happiness communicate appeasement and feelings of reassurance, thereby discouraging aggressive or flight responses in others (Masters, Sullivan, Lanzettta, McHugo, & Englis, 1986; Hess, Blairy, & Kleck, 2000). Moreover, happiness expressions also signal that one is more likely to be cooperative (Ketelaar, Koenig, Tost, Davis, & Russell, 2006). In contrast, displays of anger signal conflict and aggression and as such elicit avoidance-related behavior, indicating that anger expressions appear aversive and threatening (Conway, Di Fazio, & Mayman, 1999; Marsh, Ambady, & Kleck, 2005). Also, others expresssing anger evoke inferences that those others are not willing to cooperate (Ketelaar et al., 2006). All in all, these research findings seem to suggest that the person expressing happiness is a trustworthy and honest person in social interactions (being appeasing and signaling cooperative intentions), whereas expressing anger is more likely to lead to inferences that the other is less trustworthy and honest (signaling threat) (see Van Kleef et al., 2004a,b). Providing additional support for this conclusion, research by Todorov et al. (2005) showed that people infer attributions of trustworthiness and reliability from emotion displays of politicians and these inferences even influenced their voting decision in congressional elections. Thus, facial expressions of anger and happiness are expected to signal attributions related to trustworthiness and thus should affect cooperative decision making in social dilemmas as well.

The interactive effect between facial displays of emotions and verbal communication

In the context of social dilemma situations, issues of trust are important, because they promote cooperation (De Cremer, Snyder, & Dewitte, 2001; Parks & Hulbert, 1995) and, important for the present research, people's willingness to trust explanations and promises of other group members (Shapiro, 1991; Tomlinson, Dineen, & Lewicki, 2004). Indeed, recent research has shown that if people trust the other person, they perceive this person as more honest and are more likely to take into account the other person's verbal communication (Tomlinson et al., 2004). Moreover, in the context of cooperation in organizational and legal settings, De Cremer and Tyler (2007) showed that if a party communicates intentions to listen to others and take their interests at heart, cooperative decision making is only promoted if this other is seen as honest and trustworthy. Thus, this recent research clearly shows that verbal communications by others are likely to exert influence on people's actions and decisions within the social dilemma context if these others are evaluated as trustworthy and sincere.

Above, we reasoned that people's facial expression of happiness are interpreted as more sincere and trustworthy (Izard, 1993; Keltner & Kring, 1998), it thus follows that their verbal communication of their intentions (e.g., to do good for all) will be more likely to be accepted as truthful and reliable information (*cf.* George & Bettenhausen, 1990). Consequently, this verbal communication will then exert influence on the decisions that people make in social dilemmas. On the other hand, when people's facial expressions communicate anger they are more likely to be interpreted as less trustworthy and cooperative, which makes that their verbal communications of their intentions will be evaluated as less honest and meaningful. As a result, their verbal communication will possibly be discounted and therefore, exert less influence on decision making in social dilemmas.

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To summarize, in the present research we make the prediction that facial expressions and verbal expression will interact in such a way that verbally communicating one's intentions (i.e., to do one's best for all or only for one's own interest) will affect cooperative decisions in a social dilemma setting, but particularly so if the verbal communication is accompanied by a facial expression of happiness relative to anger. Thus, in the condition of a facial expression of happiness, cooperation is expected to be higher when cooperative intentions are verbally communicated rather than self-interested intentions. Yet, in the condition of a facial expression of anger, cooperation is less expected to be influenced by verbal communications. This prediction will be examined directly in Experiments 2 and 3.

However, before engaging in a direct test of our prediction, we first need to conduct a study examining whether emotion displays of anger and happiness are indeed related to the characteristics of trustworthiness, cooperation, and being a social person; all features that determine whether one can be seen as sincere or not (Experiment 1a). Further, we tested whether communicated messages were seen as more plausible and reliable if emotions of happiness rather than anger were displayed (Experiment 1b).

EXPERIMENT 1A

Experiment 1 is a preliminary test to see whether emotion displays of happiness and anger relate to properties of sincerity and trustworthiness in the extent that they convey such information as trust, cooperation, and support. It is expected that displays of happiness rather than anger would be perceived as more trustful. More precisely, participants would rate the displays of happiness, among others, as more friendly, trustful, cooperative, and supportive than the displays of anger. In addition, we also tested whether our materials containing the emotion displays (and which are employed in our subsequent studies) indeed communicate the emotions of happiness and anger.

Method

Participants

Fifty-three undergraduate students (18 men and 35 women) participated in exchange for a course credit.

Procedure

Upon arrival in the laboratory participants were welcomed and seated by the experimenter. Participants were given a survey in which they were asked to complete a number of questions for both an angry and a happy display. Each survey contained on top of each page one stimulus picture and underneath the rating scales. Pictures of the angry and happy displays were obtained from Ketelaar, Preston, Strosser, Davis, and Russell (Ketelaar et al., 2007; see also Ketelaar et al., 2006) and are depicted in Table 1. These emotional displays are well suited because both faces were from the same male person so that differences between the angry and happy display could be compared. Participants first rated the happy display, then a filler female neutral display was inserted, and finally they rated the angry display.

Dependent measures. All questions were measured on a 7-point scale ranging from 1 (= not at all) to 7 (= very much so). First of all, to assess the extent to which participants recognized the displayed emotion they were asked to indicate to which degree the person was happy, angry, and friendly. Further, to see whether the different displays related to differences in trust it was asked to what extent participants trusted the person and the extent they thought they could trust this person. These two items were combined to form one composed trust scale (happy display: $r = .78$, $p < .001$; angry display: $r = .69$, $p < .001$).

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Table 1. Means and standard deviations for the dependent measures for happy and angry displays





Dependent variables	Happy display	Angry display
Happy	6.47 (0.91)	1.83 (0.99)
Angry	1.21 (0.45)	4.85 (1.59)
Friendly	5.77 (1.14)	2.62 (1.39)
Trustful	4.54 (1.29)	2.84 (1.14)
Cooperative	5.32 (1.55)	3.94 (1.46)
Aggressive	1.92 (1.44)	4.28 (1.78)
Easy to work with	5.11 (1.21)	3.09 (1.26)
Supportive	5.02 (1.61)	3.98 (1.54)

Note: higher ratings indicate higher levels of the different dependent variables. Standard deviations are within parentheses.

Furthermore, participants rated the extent to which they thought this person is cooperative, aggressive, easy to work with, and finally, the extent that they thought this person could support them. Finally, participants were thanked for their participation.

Results

Repeated measures ANOVA's with angry and happy displays as within subject factor were performed on all items. First of all, these analyses showed that there were significant differences between the angry and happy displays for the extent that participants perceived the person to be happy, $F(1, 52) = 569.87$, $p < .001$, $\eta^2 = .92$, angry, $F(1, 52) = 233.99$, $p < .001$, $\eta^2 = .82$, and friendly, $F(1, 52) = 120.65$, $p < .001$, $\eta^2 = .70$. Participants found the person with a happy facial expression indeed happier, less angry, and friendlier relative to the angry facial expression (Table 1).

Moreover, participants considered the happy display more trustful than the angry display, $F(1, 52) = 47.68$, $p < .001$, $\eta^2 = .48$ (Table 1). Participants also perceived the person who displayed happiness more cooperative than the angry display, $F(1, 52) = 21.93$, $p < .001$, $\eta^2 = .30$ (Table 1). Finally, the happy display relative to the angry display was also perceived to be less aggressive, $F(1, 52) = 61.77$, $p < .001$, $\eta^2 = .54$, expected to be more easy to work with, $F(1, 52) = 75.40$, $p < .001$, $\eta^2 = .60$, and was found to be more supportive, $F(1, 52) = 10.03$, $p < .005$, $\eta^2 = .16$ (Table 1).

Discussion

As expected, Experiment 1a showed that people infer others' emotional state from facial displays of emotions. Thus, the emotion displays used here are valid exemplars of happy and angry expressions. People who portray an angry display are perceived as angry whereas people who signal a happy display are perceived as happy and friendly. In addition, emotion displays of happiness and anger were also perceived as more trustful, cooperative, supportive, and less aggressive.

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EXPERIMENT 1B

Experiment 1a showed that people expressing a happy rather than an angry display are indeed seen as more honest and trustworthy persons. An important question relevant to the present research is: if a person displaying happiness or anger communicates certain information verbally would also suggest that this information is perceived as less or more trustworthy and reliable? Based on the findings of Experiment 1a, in the present experiment, it is argued that displays of happiness and anger may thus also signal information about whether this person's verbal communication is a plausible and reliable source. It is expected that a person communicating a message and displaying happiness is believed to be reliable and the information is expected to be plausible. However, a person communicating a message and displaying anger is believed to be less reliable and the information is expected to be less plausible.

Method

Participants

Eighteen undergraduate students (four men and 14 women) participated voluntarily in exchange for a course credit.

Procedure

Upon arrival in the laboratory participants were welcomed and seated by the experimenter. Participants were given a survey in which they were asked to complete a number of questions for either an angry or a happy display (the same facial displays that were used in Experiment 1a). Each survey contained on top of the page one stimulus picture (either an angry or happy face) and underneath the rating scales.

Dependent measures. All questions were measured on a 7-point scale ranging from 1 (= not at all) to 7 (= very much so). First of all, to assess the extent to which the manipulation of emotional display was successful, participants were asked to indicate to which degree the person was ''happy'' and ''angry.'' Further, to assess the extent to which participants reasoned that the communications of an angry versus happy looking person are useful and reliable, participants were asked to indicate to which extent they believed that ''the information that this focal person would tell them is plausible'' and '' the communications of this person could be seen as a reliable source of information.'' These items were combined to form one average score ($r = .88$, $p < .001$). Finally, participants were thanked for their participation.

Results

Manipulation checks

A one-way ANOVA on the happiness question showed that participants in the happy facial condition considered the focal person to be much happier than those in the angry facial condition (Ms = 6.00 vs. 2.00; SDs = 0.81 and 0.75; respectively), $F(1, 16) = 113.77$, $p < .001$, $\eta^2 = .88$. A one-way ANOVA on the anger question showed that participants in the angry facial condition considered the focal person to be much angrier than those in the happy facial condition (Ms = 5.50 vs. 1.50; SDs = 0.75 and 0.52; respectively), $F(1, 16) = 175.04$, $p < .001$, $\eta^2 = .92$.

Communication acceptance

A one-way ANOVA on the average communication acceptance score showed that participants in the happy facial condition considered the communications of the focal person to be more plausible and a more reliable source of information than those in the angry facial condition (Ms = 4.40 vs. 3.37; SDs = 0.96 and 0.74; respectively), $F(1, 16) = 6.08$, $p < .05$, $\eta^2 = .28$.

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Discussion

Experiment 1b showed that a person displaying an emotion is less likely to be taken as a reliable source of information if this person displays anger rather than happiness. This suggests that facial expressions of emotions not only influence people's perception of another's trustworthiness but also whether certain information is seen as plausible and reliable. Information coming from a person displaying anger is seen as less reliable in contrast to a person displaying happiness.

EXPERIMENT 2

Experiment 1a and 1b showed that people displaying happiness were perceived as more trustworthy and their communication would be more reliable in contrast to people displaying anger. Based on these findings and recent research showing that people who are perceived as trustworthy are also trusted more in their verbal communication (Tomlinson et al., 2004), we argue that if happiness is displayed, people's verbal expressions of their intentions (doing well for all or only for one's self-interest) are taken as more reliable and honest. That is, if an individual displays happiness, expectations are evoked that this individual is more trustful and honest. As such, verbal expressions of his/her intentions will then influence people's decision behavior. In contrast, if an individual displays anger expectations are evoked that this individual is less trustful and honest, verbal expressions of his/her intentions are expected to exert less of an influence on people's decision behavior.

A situation in which expectations about trust and cooperation are especially important is the give-some social dilemma (Van Lange, 1999). In this two-person social dilemma situation participants own a number of chips which they can decide to donate to the other player. If they donate all their chips to the other player the chips will be doubled in value. Both players can simultaneously decide on whether to give chips to each other. In this situation, all players are better off if they donate all chips to each other, because then, these chips will be doubled in value. However, it may well be that the other player keeps all his chips which results in the participant ending up with nothing. Thus, in this situation it is particularly important that the other person is perceived as trustworthy and honest.

In Experiment 2, participants were told that before playing the social dilemma game they would see each other first. Participants were able to see their opponent for a second on the computer screen. A video of a smiling (display of happiness) or a grimacing (display of anger) person, which was the same person as in Experiment 1, was shown to participants. Thus, we used the facial expressions of Experiment 1 and made a video based on these pictures in which the person displaying anger or happiness moved for a second (as such giving participants the impression that they were playing against a real person). After participants saw the video of their opponent it was told that they could communicate a message to each other. Both players would be sending each other simultaneously a message. Then, participants received the message of the other person in which his or her intentions were expressed. That is, participants either received a message in which the other player stated that he would go for enhancing both players mutual interest (cooperative message) or for enhancing his own self-interest (self-interested message).

As discussed above, it is expected that the verbal message that is expressed would be taken more seriously when the other person displays happiness. In this situation, participants would be less likely to contribute much to the other player if a self-interested message rather than a cooperative message is communicated. In contrast, it is expected that if the other player displays anger the verbal message would be discounted more and would not so much affect contribution behavior.

Method

Participants and design

One hundred sixty-one undergraduate students (39 men and 122 women) participated voluntarily and were paid 7 Euros. They were randomly assigned to a 2 (display: angry vs. happy display) $\times$ 2 (message: cooperative vs. self-interested message) between participants-design.

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Procedure

Upon arrival in the laboratory, participants were seated in separate cubicles containing a chair, a table, and a computer. All further instructions were presented on the computer screen.

Participants were told that they were going to do several tasks together with another participant who was present in the laboratory. In reality participants only played the social dilemma with the computer. The tasks that participants were told to play was adapted from Van Lange (1999). Participants learned that they, as well as the other group member, could earn money. They were told that in each task both of them possessed an amount of 10 chips. Each chip was valued at 50 Eurocents. Further, they learned that they were given the opportunity to give chips to the other player. Chips that would be given to one another would be doubled in value, that is, 1 Euro. Hence, group members would be better off with respect to their own outcomes when they would give all chips to each other, so that they would end up with a total of 10 Euros each. In reality, they only played one game with each other.

Manipulation of displays. Before participants engaged in the exchange task, they learned that both players first would be able to see each other on the computer screen. A webcam was attached to the computer screen so that participants were led to believe that they were seen by the other player. Participants in the *angry face* condition saw a short video of a man who displayed anger, whereas participants in the *happy face* condition saw a video of a man who displayed happiness. These emotion displays were from the same person as the photographs in Experiment 1, except that in the present study a small video was shown instead of a still picture. The videos were QuickTime color movies that were centered on the screen, had a size of 720×480 pixels, and a length of 1.23 seconds (Ketelaar et al., 2007). Videos were used in order to improve the reality of seeing the other player (Nahm, Perret, Amaral, & Albright, 1997).

Manipulation of the message. Then, participants received the opportunity to send a written message to each other. The two messages were said to be sent simultaneously so that they would not be able to respond to each other's message. In the *cooperative message* condition, the message of the other was ''I really want to make the best of it''. In the *self-interested message condition* participants learned that the other's message said ''I really want to get the most out of it for myself''. From the messages that participants wrote themselves they were clear that they perceived the situation as a realistic one. Examples of messages they wrote are: ''Let us make the best of it for both of us'', ''It is best to cooperate'', or ''I have the feeling I can trust you'' (in the happy display condition).

Dependent measures. Before participants received the message of the other player, and hence, before they engaged in the decision task, it was asked to what extent they considered the other person that they would play against in this situation as trustworthy (i.e., acknowledging the trustworthiness of this person; rated on a 7-point scale: 1 = not at all, 7 = very much so). Then, after participants received the message of the other player, participants could decide how many chips they wanted to give to the other player. Finally, participants were debriefed and thanked for their participation.

Results

A 2 (displays) $\times$ 2 (message) ANOVA on trustworthiness showed only a main effect for displays, $F(1, 157) = 21{,}14$, $p < .001$, $\eta^2 = .01$, revealing that participants were more trustful, and thus acknowledged the other person as more trustworthy, about the situation when the other had a happy ($M = 4.84$, $SD = 1.07$) rather than an angry display ($M = 3.99$, $SD = 1.25$).

Decision behavior

A 2 (displays) $\times$ 2 (message) ANOVA on decision behavior showed a significant interaction effect, $F(1, 157) = 3.75$, $p = .05$, $\eta^2 = .01$ (Figure 1). The interaction showed that if the other player portrayed a happy

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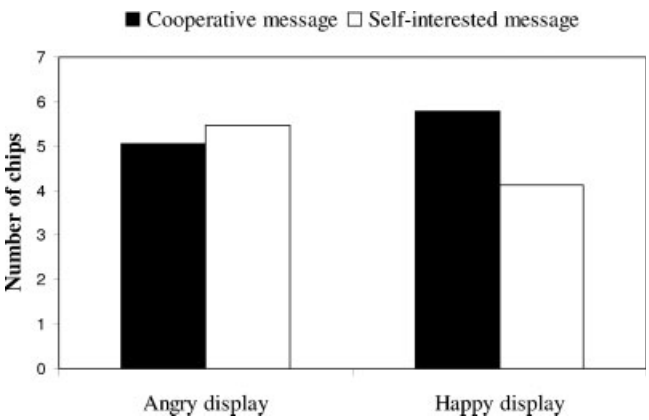


Figure 1. The number of chips that are donated to the other player as a function of the other's emotion display and verbal communication (Experiment 2)

display, participants donated more chips when this player communicated a cooperative ($M = 5.8$, $SD = 2.88$) rather than a self-interested message ($M = 4.13$, $SD = 3.21$), $F(1, 157) = 4.85$, $p < .05$, $\eta^2 = .03$. If the other player portrayed an angry display, contribution behavior was not influenced by the message that was given, $F(1, 157) = 0.28$, $p < .60$, $\eta^2 = .00$ (cooperative message: $M = 5.07$, $SD = 3.83$; self-interested message: $M = 5.48$, $SD = 3.60$).

Discussion

Experiment 2 showed that another person's emotion display moderates the verbal message that is communicated with respect to decision behavior. If the other person displayed happiness, participants were influenced by the verbal message and contributed more when a cooperative rather than a self-interested message was communicated. However, when anger was displayed participants did not appear to be influenced by the verbal message so much and their contributions did not depend on the message being cooperative or self-interested. This finding suggests (in line with Experiment 1a and 1b) that when happiness was displayed group members were influenced more by the verbal expression, consequently impacting their decisions. In addition, results suggest that angry displays seem to convey dominant and threatening information thereby enhancing contributions overall (irrespective of the other's intentions; see e.g., Sinaceur & Tiedens, 2006).

EXPERIMENT 3

Experiment 2 showed that how people decide on their contribution behavior in a social dilemma situation is dependent on the interaction between verbal and facial expressions. Interestingly, when the opponent displayed anger—although verbal expressions were not taken into account—overall, participants were fairly cooperative with regard to their contributions. This finding corresponds with prior research in negotiations showing that anger in another person makes people to concede more easily and act cooperatively (Van Kleef et al., 2004a). Moreover, it seems that when the other player displayed anger participants perceived this as threatening and dominant making them contribute sufficiently (e.g., Conway et al., 1999; Marsh et al., 2005; see also Sy, Côté, & Saavedra, 2005 with regard to the relation between anger and insufficient contributions). If in Experiment 2 participants may have felt that they should uphold their contributions when anger was communicated, than it stands to reason that this observation may be explained by the fact that participants

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feared that the other party could retaliate in subsequent sessions. That is, participants were not informed about the number of sessions they were going to play with this person. Thus, the perception that displays of anger signal a threat could be reduced if participants would be informed that only one session would be played. Hence, under these conditions, participants may feel that the other party cannot retaliate. Moreover, in a situation where only one session would be played, the threat of the angry display would be reduced and the effect of the verbal message increased, resulting in the emergence of an interaction between emotion display and verbal message. Therefore, to test this assumption, in Experiment 3, participants were specifically informed that only one session would be played of the social dilemma game.

It is again expected that, as in Experiment 2, contribution behavior is dependent on the interaction between verbal and facial expressions. More precisely, if happiness is displayed it is expected that decision makers are seen as a credible and trustworthy source. This will allow for the verbal message to be taken into account more and affect contributions in such a way that higher contributions are expected when a cooperative rather than a self-interested message is expressed. In addition, if anger is displayed participants are expected to reduce their contributions if a self-interested rather than a cooperative message is expressed, although this effect is expected to be less pronounced than if happiness would be displayed. Another improvement of Experiment 3 is that we measured trust after both manipulations in order to specifically test whether perceptions of trust would mediate the interactive effect of displays and message.

In addition, we also examined the predicted effects beyond the specific social dilemma situation. That is, in reality, people often engage in further interactions after being involved in a negotiation or other mixed-motive situation such as a social dilemma. To assess also this kind of behavior, participants were asked whether they were willing to have a drink with the other person afterwards (as an indication to what extent participants feel that this person is friendly and trustful, see e.g., Buss & Barnes, 1986). More precisely, we assessed whether group members wanted to visit a bar afterwards. Thus, in Experiment 3, we investigate to what extent the interactive effect between people's verbal and facial expressions influences participants' behavior beyond the social dilemma situation. Beyond the social dilemma game, it is expected that if happiness is displayed, a cooperative in contrast to a self-interested message will more likely lead to meeting up with the other. Because in a situation that goes beyond the dilemma setting it is likely that there will be more than one occasion of meeting the other person, it is expected that if anger is displayed participants are less likely to be influenced by the message that is expressed (as was the case in Experiment 2).

Method

Participants and design

One hundred forty-three undergraduate students (18 men and 125 women) participated for partial course credit. Participants were randomly assigned to a 2 (display: happy vs. angry display) $\times$ 2 (message: cooperative vs. self-interested message) between participants-design.

Procedure

Upon arrival in the laboratory, participants were seated in cubicles containing a chair, a table, and a computer. All further instructions were presented on the computer screen.

Similar to Experiment 2, participants were told that they were going to perform a task together with another person in the laboratory. The same procedure as in Experiment 2 was used, except for the fact that participants were explicitly told that they were going to play only one session together with the other player.

Manipulation of displays. The manipulation of the angry and happy emotion display was the same as in Experiment 2.

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Manipulation of the message. The manipulation of the message was similar to Experiment 2, except that in the cooperative message condition it was specifically made clear that the message now communicated more clearly that the player wanted to improve the collective interest: ''I really want to make the best of it for both of us.'' The self-interested message condition remained the same and read: ''I really want to get the most out of it only for myself.''

Dependent measures. After that participants received the message of the other player, they could decide how many chips they wanted to donate to the other player. Further, it was asked to what extent they considered the other person as trustworthy (i.e., acknowledging the trustworthiness of this person). Then, participants were asked to what extent they wanted to have a drink with the other person after the experiment. Both items were measure on a 7-point scale (ranging from 1 = not at all, to 7 = very much so). Finally, participants were debriefed and thanked for their participation.

Results

Decision behavior

A 2 (displays) × 2 (message) ANOVA on the amount that participants contributed to the other player showed an interaction effect, $F(1, 139) = 9.02$, $p < .005$, $\eta^2 = .02$ (Figure 2). The interaction effect showed that if the other player portrayed a happy display, participants donated more chips when this player communicated a cooperative ($M = 6.79$, $SD = 2.58$) rather than a self-interested message ($M = 1.88$, $SD = 2.32$), $F(1, 139) = 46.23$, $p < .001$, $\eta^2 = .24$. In addition, when the other player portrayed an angry display, participants also donated more chips when a cooperative message ($M = 6.15$, $SD = 3.03$) than a self-interested message ($M = 4.22$, $SD = 3.64$) was communicated, $F(1, 139) = 8.15$, $p = .005$, $\eta^2 = .04$. However, this effect appeared to be less strong than the effect of communication in the happy display condition (see effect sizes).

Trust

A 2 (displays) × 2 (message) ANOVA on the extent that participants trusted the other player showed a main effect for message, $F(1, 139) = 60.98$, $p < .001$, $\eta^2 = .04$, and an interaction effect, $F(1, 139) = 3.83$, $p = .05$, $\eta^2 = .01$. Similar to contribution behavior, the interaction effect showed that if the other player had a happy display, participants had more trust when this player communicated a cooperative ($M = 5.27$, $SD = 1.24$)

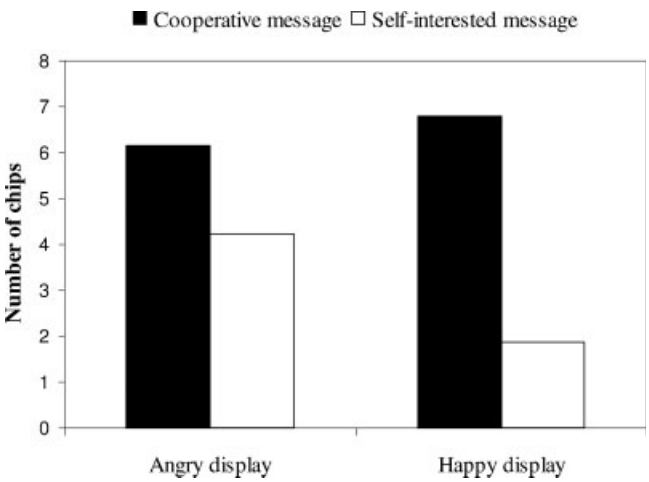


Figure 2. The number of chips that are donated to the other player as a function of the other's emotion display and verbal communication (Experiment 3)

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rather than a self-interested message ($M = 2.94$, $SD = 1.46$), $F(1, 139) = 44.87$, $p < .001$, $\eta^2 = 0.22$. In addition, when the other player portrayed an angry display, participants trusted the other more when a cooperative message ($M = 4.72$, $SD = 1.30$) than a self-interested message ($M = 3.32$, $SD = 1.65$) was communicated, $F(1, 139) = 18.27$, $p < .001$, $\eta^2 = .09$. This effect, however, appeared to be less strong than the effect of communication in the happy display condition (see effect sizes).

Mediation of trust on decision behavior

To check whether trust mediated the interaction between displays and message decision behavior, a series of regression analyses were performed (see Baron & Kenny, 1986). To test for mediation, four steps need to be taken. First, the effects of the independent variables (displays, message, displays x message) on the dependent variable (decision behavior) have to be tested. Second, the effects of the independent variables on the proposed mediator (trust) have to be tested. Third, the mediating variable trust has to significantly influence the dependent variable decision behavior. Fourth, the effect of the independent variable has to be reduced when the mediating variable is added.

To test whether this interaction effect was mediated by trust, a series of regression analyses were performed. First, when decision behavior was regressed onto the independent variables a significant effect for the interaction term was found, $\beta = -.93$, $p < .005$, mirroring the ANOVA results. Next, regressing the mediator trust onto the independent variables showed a significant effect for the interaction, $\beta = -.59$, $p = .05$, which is similar to the ANOVA results. Further, regressing decision behavior onto the independent variables and the mediator showed a significant effect for the mediator, $\beta = .57$, $p < .001$, and revealed that the interaction effect between displays and message was reduced but remained significant, $\beta = -.59$, $p < .05$. A Sobel-test (Sobel, 1982) showed that this reduction was marginally significant, $z = 1.90$, $p < .06$, suggesting that the interactive effect of displays and message on decision behavior can, at least partly, be explained by perceptions of trust.

Going for a drink

A 2 (displays) $\times$ 2 (message) ANOVA on the extent that participants wanted to have a drink with the other player showed a significant interaction, $F(1, 139) = 5.15$, $p < .05$, $\eta^2 = .01$. Further analyses showed that when the other player had a happy facial expression participants were more likely to meet this person when a cooperative ($M = 2.77$, $SD = 1.60$) rather than a self-interested message ($M = 1.64$, $SD = 0.93$) was communicated, $F(1, 139) = 13.48$, $p < .001$, $\eta^2 = .09$. However, when the other player had an angry facial expression no differences were revealed between a cooperative ($M = 1.82$, $SD = 1.28$) or self-interested message ($M = 1.65$, $SD = 1.14$), $F(1, 139) = 0.35$, $p < .56$, $\eta^2 = .00$.

Discussion

Experiment 3 showed that decision behavior was dependent on the interaction between verbal and facial expressions. That is, if happiness was displayed contributions were higher when a cooperative rather than a self-interested message was communicated. Further, when anger was displayed contribution behavior was also higher when a cooperative rather than a self-interested message was expressed, but this finding was less pronounced than when the other person displayed happiness (as the effect-sizes of these effects showed). Moreover, people's perceptions of trustworthiness were affected in a similar way and could be shown to partly mediate decision behavior.

Finally, it was demonstrated that the interaction effect between facial and verbal expressions could also be shown for behavior unrelated to the social dilemma situation. Participants were more likely to meet the other person if this person displayed happiness and expressed a cooperative rather than a self-interested message.

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However, if this person displayed anger the verbal expression was not taken into account for the decision whether to meet this person or not.

GENERAL DISCUSSION

Verbal communication is an efficient way to increase cooperation in a social dilemma situation (Komorita & Parks, 1994). In addition to verbal communication, simple verbal emotional expressions have also been shown to be an important way of communicating intentions and influencing cooperation in negotiations (e.g., Van Kleef et al., 2004a). The present research argued that people may consider verbal communications as exerting influence on cooperation in social dilemmas as a function of the type of emotion displayed. It was indeed demonstrated that verbal communication on people's decision behavior was moderated by the other person's emotion display. People displaying happiness were seen as more honest, reliable, and trustworthy. Further, under these circumstances, their verbal communication was taken more into account as such influencing decision behavior in a social dilemma situation. In contrast, people displaying anger were seen as less honest and trustworthy. As such, under these circumstances, the type of verbal communication was discounted more. In the following paragraphs these findings will be discussed in greater detail.

A first experiment (Experiment 1a and 1b) tested whether the emotion displays of anger and happiness differed in the extent that these displays communicate trustworthiness, reliability, and plausibility. Results indeed showed that happy rather than angry emotion displays were perceived to be friendlier and less aggressive and also were seen as more cooperative and trustworthy, as well as being more supportive. In addition, information given by people who display happiness rather than anger was evaluated as more reliable and plausible.

Building upon these findings, Experiment 2 showed that the message that is communicated only influenced people's decision behavior when a happy rather than an angry display was communicated. More specifically, if the other person displayed happiness, contributions were lower if a self-interested rather than a cooperative message was communicated. However, if an angry display was shown by the other person, the message that was communicated did not influence people's contribution behavior. Yet, in this situation contributions were relatively high overall. This may be due to the fact that group members felt threatened because the other person displaying anger may be perceived as dominant (see Sinaceur & Tiedens 2006). This is consistent with the previous research showing that people concede more easily in negotiations when the opponent expresses anger (Van Kleef et al., 2004a).

In a third experiment it was argued that if the other person displayed anger participants would be less likely to uphold contributions and they were told that only one session would be played with the other player. Hence, communication was expected to influence decision behavior, for both happy and angry displays. Results showed that, as in Experiment 2, if a happy display was presented, verbal communication influenced people's contribution behavior. In addition, if the opponent displayed anger, participant's cooperation was also dependent on the verbal communication (presumably because it was clear that only one session would be played), although this effect was less pronounced than when happiness was displayed. More specifically, in case of an angry display group members contributed more of their endowment when a cooperative rather than a self-interested message was communicated. In addition, it could be shown that perceptions of trust partly mediated the interactive effect exemplifying that trust plays an important role in how people's decision behavior is influenced with regard to facial expressions of emotion and verbal communication. Interestingly, in situations where there was more uncertainty about whether participants would not meet the other person again (such as meeting up outside of the laboratory), it was demonstrated that if the other person displayed anger participants were not influenced by the verbal communication. In contrast, if the other person displayed happiness verbal communication did influence cooperative behavior.

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These results are important because they demonstrate that verbally communicating one's intentions is effective in influencing people's cooperative behavior, but particularly so as a function of facial expressions of emotion. That is, people's emotion displays of anger or happiness convey information about the honesty or sincerity of the other person. Happy displays convey honesty and trust and therefore the verbal message of the one communicating the emotion is taken more seriously and thus influence other's cooperative behavior. In addition, angry displays of people make them seem less trustworthy and therefore their verbal message does not influence other's cooperative behavior much. Yet, angry displays also seem to communicate information about the other being more dominant, and this resulted in relatively high cooperative behavior overall (seemingly overpowering trust information). Yet, as shown in Experiment 3, if it was clear that participants would not going to meet up with the angry person again, cooperation was less pronounced when a self-interested message was expressed suggesting that the threat was reduced.

The finding that facial expressions of emotions convey information about the trustworthiness of one's verbal communication is related to the concept of ''nonverbal leakage'' (Ekman & Friesen, 1969). That is, nonverbal leakage in terms of facial expressions of emotion is assumed to betray the senders' deceptive intentions and true feelings or beliefs, making it more or less likely that verbal communication will be taken into account.

An alternative explanation to our findings is that if emotional displays and verbal communication are congruent this affects people's decision behavior. Because happy displays convey cooperation and angry displays competition (e.g., Hess et al., 2000; Marsh et al., 2005) the congruence of cooperative or competitive intentions would have an important influence on decision behavior. Results do show that people were more cooperative if a verbal message of cooperation and less cooperative if a verbal message of competition was given if the partner signalled a happy display. Yet, this difference between verbal communication (of cooperation or competition) was not found (Experiment 2) if an angry display was signalled. Hence, it seems less likely that congruence of cooperative or competitive intentions explained our findings.

The present findings thus provide convincing evidence that people's facial expressions are a prominent feature in social interaction. For example, emotion displays are often used by service workers, who use angry displays to garner payments (Sutton, 1991) or waitresses who smile more in order to receive larger tips (Tidd & Lochard, 1978). Also, workers manage their emotion displays to adhere to organization rules (Brotheridge & Lee, 2002) and they work on their emotional feelings to really feel the emotions they wish to display in order to be perceived sincere (Tsai & Huang, 2002). The present research therefore adds to this line of research by showing that people's emotion displays moderate the effects of one's verbal statements, demonstrating its significance in social settings. For example, service workers or salespersons may not be so easily believed by what they say if they portray anger in contrast to happiness.

Another strength of the present research was that instead of verbal expressions of emotions we used facial expressions of emotions, because verbal or written expressions of emotions can be perceived as more ambiguous and less reliable (Forgas, 1985). In addition to facial expressions of emotion, we also included verbal expressions because in daily life both forms of communication often go together. As such, our findings also line up nicely with research on verbal expressions of emotions showing that in negotiations (where multiple confrontations are likely) angry expressions of emotions lead people to higher rates of cooperation (Van Kleef et al., 2004a). This is similar to our findings that angry displays lead to relatively high rates of cooperation irrespective of the type of verbal expressions.

Although the role of emotions is shown to be of importance in situations in which individual and collective interests collide, classical economic theories have often ignored the impact of emotions. Only recently, it became clear that people not only follow their self-interest but also are influenced by their emotions in their decisions (see e.g., Lerner, Small, & Loewenstein, 2004). The present research, hence, also adds to the social dilemma research on communication. This line of research showed that communication positively relates to cooperation, and hence, to contribution behavior (see Komorita & Parks, 1994). Our findings show that communication indeed can influence cooperative behavior, but mainly when the facial expression of the

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opponent displays happiness. The present research is among the first to experimentally test the influence of emotion displays on cooperative behavior in social dilemma situations.

The present research mainly focused on male facial displays. However, future research may expand these results by, for example, adding female emotion displays in addition to the male facial expressions that were used in the present studies. Female facial displays may be perceived as more agreeable in contrast to male displays, and possibly also more trustworthy. Another limitation is that a control condition would have provided more understanding of whether angry and happy displays enhance or reduce the influence of verbal communication in comparison to a neutral display. Future research should include such a neutral control condition in order to provide a stricter test of the predictions.

Moreover, we exclusively used the emotions anger and happiness, but human emotions are far richer than only these emotions. Hence, further research is needed on other emotions than anger and happiness, such as disappointment or shame, which may signal other dimensions of trustworthiness and sincerity, possibly differently affecting decision behavior.

In conclusion, people's facial expressions carry important information about the other's intentions and this information moderates the influence of verbal expressions on people's decision behavior. In addition, it can be clear that even in situations in which important decisions have to be taken, people's facial and verbal communication work together and construe a message that influences other's perceptions and social behaviors.

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REFERENCES

Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, *51*, 1173–1182.

Boone, R. T., & Buck, R. (2003). Emotional expressivity and trustworthiness: The role of nonverbal behavior in the evolution of cooperation. *Journal of Nonverbal Behavior*, *27*, 163–182.

Brotheridge, C. M., & Lee, R. T. (2002). Testing a conservation of resources model of the dynamics of emotional labor. *Journal of Occupational Health Psychology*, *7*, 57–67.

Buss, D. M., & Barnes, M. (1986). Preferences in human mate selection. *Journal of Personality and Social Psychology*, *50*, 559–570.

Cacioppo, J. T., Petty, R. E., Losch, M. E., & Kim, H. S. (1986). Electro-myographic activity over facial muscle regions can differentiate the valence and intensity of affective reactions. *Journal of Personality and Social Psychology*, *50*, 260–268.

Conway, M., Di Fazio, R., & Mayman, S. (1999). Judging others' emotions as a function of the others' status. *Social Psychology Quarterly*, *62*, 291–305.

Dawes, R. M., MvTavish, J., & Shaklee, H. (1977). Behavior, communication and assumptions about other people's behavior in a commons dilemma situation. *Journal of Personality and Social Psychology*, *35*, 1–11.

De Cremer, D., Snyder, M., & Dewitte, S. (2001). 'The less I trust, the less I contribute (or not)?' The effects of trust, accountability and self-monitoring in social dilemmas. *European Journal of Social Psychology*, *31*, 93–107.

De Cremer, D., & Tyler, T. R. (2007). The effects of trust and procedural justice on cooperation. *Journal of Applied Psychology*, *92*, 639–649.

Ekman, P. (1997). Should we call it expression or communication. *Innovations in Social Science Research*, *10*, 333–344.

Ekman, P., & Friesen, W. V. (1969). Non-verbal leakage and clues to deception. *Psychiatry*, *32*, 88–106.

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DOI: 10.1002/bdm

Elfenbein, H. A., Marsh, A., & Ambady, N. (2002). Emotional intelligence and the recognition of emotion from the face. In L. Feldman Barrett , & P. Salovey (Eds.), *The wisdom of feelings: Processes underlying emotional intelligence* (pp. 37–59). New York: Guilford.

Forgas, J. P. (1985). *Interpersonal behaviour: The psychology of social interaction*. Sydney: Pergamon Press.

Frank, R. H., Gilovich, T., & Regan, D. T. (1993). The evolution of one-shot cooperation: An experiment. *Ethology and sociobiology 14*, 247–256.

George, J. M., & Bettenhausen, K. (1990). Understanding prosocial behavior, sales performance, and turnover: A group level analysis in a service context. *Journal of Applied Psychology*, *75*, 698–709.

Hess, U., Banse, R., & Kappas, A. (1995). The intensity of facial expression is determined by underlying affective state and social situation. *Journal of personality and social psychology*, *69*, 280–288.

Hess, U., Blairy, S., & Kleck, R. E. (2000). The influence of facial emotion displays, gender, and ethnicity on judgments of dominance and affiliation. *Journal of Nonverbal Behavior*, *24*, 265–283.

Izard, C. E. (1993). Organizational and motivational functions of discrete emotions. In M. Lewis , & J. M. Haviland (Eds.), *Handbook of emotions* (pp. 631–642). New York: Guilford Press.

Keltner, D., & Gross, J. J. (1999). Functionalist accounts of emotions. *Cognition and Emotion*, *13*, 467–480.

Keltner, D., & Haidt, J. (1999). Social functions of emotions at four levels of analysis. *Cognition and Emotion*, *13*, 505–521.

Keltner, D., & Kring, A. (1998). Emotion, social function, and psychopathology. *Review of General Psychology*, *2*, 320–342.

Kerr, N. L., Garst, J., Lewandowski, D. A., & Harris, S. E. (1997). That still, small voice: Commitment to cooperate as an internalized versus social norm. *Personality and Social Psychology Bulletin*, *23*, 1300–1311.

Kerr, N. L., & Kaufman-Gililand, C. M. (1994). Communication, commitment, and cooperation in social dilemmas. *Journal of Personality and Social Psychology*, *66*, 513–529.

Ketelaar, T., Koenig, B., Tost, J., Davis, M., & Russell, D. C. (2006). Inferring personality and behavioral intentions from facial displays of emotion. Unpublished paper, New Mexico State University.

Ketelaar, T., Preston, B., Strosser, G., Davis, M., & Russell, D. C. (2007). EMOTLAB: Software for studying emotional signaling in economic bargaining games. *Behavior Reseach Methods*, *39*, 959–972.

Knutson, B. (1996). Facial expressions of emotion influence interpersonal trait inferences. *Journal of Nonverbal Behavior*, *20*, 165–182.

Komorita, S. S., & Parks, C. D. (1994). *Social dilemmas*. Dubuque, IA: Brown & Benchmark.

Lerner, J. S., Small, D. A., & Loewenstein, G. F. (2004). Heart strings and purse string: Carryover effects of emotions on economic decisions. *Psychological Science*, *15*, 337–341.

Marsh, A. A., Ambady, N., & Kleck, R. E. (2005). The effects of fear and anger facial expressions on approach—and avoidance—related behaviors. *Emotion*, *5*, 119–124.

Masters, R. D., Sullivan, D. G., Lanzettta, J. T., McHugo, G. J., & Englis, B. G. (1986). Facial displays of leaders: Toward an ethology of human politics. *Journal of Social and Biological Structures*, *9*, 319–343.

Matsumoto, D. (1987). The role of facial response in the experience of emotion: More methodological problems and a meta-analysis. *Journal of Personality and Social Psychology*, *52*, 769–774.

Nahm, F. K. D., Perret, A., Amaral, D. G., & Albright, T. D. (1997). How do monkeys look at faces? *Journal of Cognitive Neuroscience*, *9*, 611–623.

Ng, S. H. (2001). Influencing through the power of language. In J. P. Forgas , & K. D. Williams (Eds.), *Social influence: Direct and indirect processes* (pp. 185–197). Philadelphia, PA: Psychology Press.

Orbell, J. M., Van de Kragt, A. J. C., & Dawes, R. M. (1988). Explaining discussion-induced cooperation. *Journal of Personality and Social Psychology*, *54*, 811–819.

Ostrom, E., Walker, J. M., & Gardner, R. (1992). Covenants with and without a sword: Self-governance is possible. *American Political Science Review*, *86*, 404–417.

Parks, C. D., Henager, R. F., & Scamahorn, S. D. (1996). Trust and reactions to messages of intent in social dilemmas. *Journal of Conflict Resolution*, *40*, 134–151.

Parks, C. D., & Hulbert, L. G. (1995). High and low trusters' responses to fear in a payoff matrix. *Journal of Conflict Resolution*, *39*, 718–730.

Pugh, S. D. (2001). Service with a smile: Emotional contagion in the service encounter. *Academy of Management Journal*, *44*, 1018–1027.

Sally, D. (1995). Conversation and cooperation in social dilemmas: A meta-analysis of experiments from 1958 to 1992. *Rationality and Society*, *7*, 58–92.

Shapiro, D. L. (1991). The effects of explanations on negative reactions to deceit. *Administrative Science Quarterly*, *36*, 614–630.

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DOI: 10.1002/bdm

Sinaceur, M., & Tiedens, L. Z. (2006). Get mad and get more than even: The benefits of anger expressions in negotiations. *Journal of Experimental Social Psychology*, *42*, 314–322.
Sobel, M. E. (1982). Asymptotic intervals for indirect effects in structural equations models. In S. Leinhart (Ed.), *Sociological methodology* (pp. 290–312). San Francisco: Jossey-Bass.
Sutton, R. I. (1991). Maintaining norms about expressed emotions: The case of bill collectors. *Administrative Science Quarterly*, *36*, 245–268.
Sy, T., Côté, S., & Saavedra, R. (2005). The contagious leader: Impact of the leader's mood on the mood of group members, group affective tone, and group processes. *Journal of Applied Psychology*, *90*, 295–305.
Tidd, K. L., & Lochard, J. S. (1978). Monetary significance of the affiliative smile: A case for reciprocal altruism. *Bulletin of the Psychonomic Society*, *11*, 344–346.
Todorov, A., Mandisodza, A. N., Goren, A., & Hall, C. C. (2005). Inferences of competence from faces predict election outcomes. *Science*, *308*, 1623–1626.
Tomlinson, E. C., Dineen, B. R., & Lewicki, R. J. (2004). The road to reconciliation: Antecedents of victim willingness to reconcile following a promise. *Journal of Management*, *30*, 165–187.
Tsai, W.-C., & Huang, Y.-M. (2002). Mechanisms linking employee affective delivery and customer behavioral intentions. *Journal of Applied Psychology*, *87*, 1001–1008.
Van Kleef, G. A., De Dreu, C. K. W., & Manstead, A. S. R. (2004a). The interpersonal effects of anger and happiness in negotiations. *Journal of Personality and Social Psychology*, *86*, 57–76.
Van Kleef, G. A., De Dreu, C. K. W., & Manstead, A. S. R. (2004b). The interpersonal effects of emotions in negotiations: A motivated information processing approach. *Journal of Personality and Social Psychology*, *87*, 510–528.
Van Lange, P. A. M. (1999). The pursuit of joint outcomes and equality in outcomes: An integrative model of social value orientation. *Journal of Personality and Social Psychology*, *77*, 337–349.
Whalen, P. J., Rauch, S. L., Etcoff, N. L., McInerney, S. C., Lee, M. B., & Jenike, M. A. (1998). Masked presentations of emotional facial expressions modulate amygdala activity without explicit knowledge. *Journal of Neuroscience*, *18*, 411–418.

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