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# The Persuasive Power of Emotions: Effects of Emotional Expressions on Attitude Formation and Change

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Despite a long-standing interest in the intrapersonal role of affect in persuasion, the interpersonal effects of emotions on persuasion remain poorly understood—how do one person's emotional expressions shape others' attitudes? Drawing on emotions as social information (EASI) theory (Van Kleef, 2009), we hypothesized that people use the emotional expressions of others to inform their own attitudes, but only when they are sufficiently motivated and able to process those expressions. Five experiments support these ideas. Participants reported more positive attitudes about various topics after seeing a source's sad (rather than happy) expressions when topics were negatively framed (e.g., abandoning bobsleighbing from the Olympics). Conversely, participants reported more positive attitudes after seeing happy (rather than sad) expressions when topics were positively framed (e.g., introducing kite surfing at the Olympics). This suggests that participants used the source's emotional expressions as information when forming their own attitudes. Supporting this interpretation, effects were mitigated when participants' information processing was undermined by cognitive load or was chronically low. Moreover, a source's anger expressions engendered negative attitude change when directed at the attitude object and positive change when directed at the recipient's attitude. Effects occurred regardless of whether emotional expressions were manipulated through written words, pictures of facial expressions, film clips containing both facial and vocal emotional expressions, or emoticons. The findings support EASI theory and indicate that emotional expressions are a powerful source of social influence.

*Keywords:* emotion, attitudes, persuasion, interpersonal effects, social influence

The power of emotion in the art of persuasion was acknowledged long before psychology as a science was born. Aristotle, for instance, argued that people's opinions can be manipulated by evoking certain emotions in them and/or by framing arguments in emotional terms (Aristotle, 350 BC/2004). Even though the study of emotion in persuasion thus was off to an early start, scientific understanding of the matter is still far from complete. One key aspect of persuasion in particular that is poorly understood by modern science concerns the *interpersonal* effects of emotions on attitude formation and change. That is, how do one person's emotional expressions influence another's attitudes?

Despite some 80 years of research on attitudes and attitude change (Bohner & Dickel, 2011) and an even longer history of theorizing about emotion (Niedenthal & Brauer, 2012), the effects of emotional expressions on attitude formation and change have received very limited attention. The current lack of understanding is unfortunate both from a theoretical and from an applied point of view, especially if we consider how often people use their emotions to influence other people's attitudes—whether deliberately or inadvertently, in politics or advertising, in close relationships or at work. Social and organizational life is rife with situations in which people influence each other's opinions through their emotional expressions. For instance, when two colleagues discuss an impending organizational change, one colleague's enthusiasm or anger may influence the other's opinion about the change. It is unclear, however, whether emotional expressions indeed influence attitude formation and/or change and, if so, under which circumstances such influence occurs. Here, we investigate the possibility that individuals use others' emotions as information upon which to base their attitudes. Before developing this idea, it is important to consider some definitional issues.

## Attitudes and Emotions: Conceptual Issues

The question of what exactly constitutes an attitude has been the topic of much debate. Most scholars agree that an attitude involves a positive or negative *evaluation* of a particular entity (Eagly & Chaiken, 2007). Possible attitude objects comprise anything a

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person may hold in mind, whether mundane or abstract, including things, people, groups, and ideas (Bohner & Dickel, 2011). Combining elements of several influential accounts, we define attitudes as temporary evaluations that are constructed based on a combination of stored representations of an attitude object (Fazio, 2007; Petty, Briñol, & DeMarree, 2007) and information that is currently at hand (Gawronski & Bodenhausen, 2007; Schwarz, 2007). This working definition explicitly allows for changes in attitudes over time while acknowledging that certain attitudes have a relatively stable basis in a person's memory system, whereas other attitudes vary as a function of contextual cues, including influence attempts (also see Petty & Krosnick's, 1995, notion of attitude strength).

Definitions of emotion also vary widely (Fehr & Russell, 1984), especially in their differential emphasis on various components of emotion. Nevertheless, there is considerable consensus on a number of key aspects. To reflect this general consensus, we define emotions as comparatively short-lived, differentiated, and intense responses to events that are appraised as relevant to a particular concern or goal (Frijda, 1986; Lazarus, 1991), which are directed toward a specific stimulus (e.g., a person, an object, a situation) and are characterized by distinct subjective experiences (Scherer & Tannenbaum, 1986), physiological reactions (Levenson, Ekman, & Friesen, 1990), expressions (Ekman, 1993), and action tendencies (Frijda, Kuipers, & Ter Schure, 1989; Roseman, Wiest, & Swartz, 1994). These qualities differentiate emotions from moods, which are more diffuse, longer lasting feeling states without a clear cause or object. The word *affect* is typically used as an overarching term that encompasses both discrete emotions and diffuse moods (Frijda, 1994).

### Emotion and Persuasion

There is a long history of social-psychological research on the role of affective phenomena in attitudes and persuasion (for reviews, see Crano & Prislin, 2006; Eagly & Chaiken, 1993; Petty, DeSteno, & Rucker, 2001; van der Pligt, Zeelenberg, Van Dijk, De Vries, & Richard, 1998). This research has used various theoretical lenses and empirical approaches to examine how individuals' affective states influence their reactions to persuasive messages (e.g., Chaiken, 1980; Forgas, 1995; Petty & Cacioppo, 1986). Importantly, all of these approaches have focused on the question of how the emotional state of the recipient of a persuasive message influences his or her responses to that message. For instance, research has documented under which conditions persuasive messages that arouse fear in recipients (*fear appeals*; Rogers, 1983) are effective in changing recipients' attitudes (for a review, see Petty, Fabrigar, & Wegener, 2003). Other work has demonstrated that persuasive messages are more effective when the framing of the message matches the emotional state of the recipient (DeSteno, Petty, Rucker, Wegener, & Braverman, 2004; Edwards, 1990; Fabrigar & Petty, 1999).

Although this past research has greatly illuminated the mechanisms and contingencies of the *intrapersonal* effects of affective states on (susceptibility to) persuasion, we are still largely in the dark with respect to the *interpersonal* influence of emotions on attitude formation and change—that is, how a source's emotional expressions influence the attitudes of others who observe those expressions. The paucity of research on this topic is surprising given that many people intuitively adopt emotional strategies when attempting to persuade another (Côté & Hideg, 2011; Van Kleef, Van Doorn, Heerdink, & Koning, 2011). These strategies often

involve more than trying to evoke certain emotions in another person in the hope that these will alter the recipient's views (cf. fear appeals)—people also express emotions themselves when trying to persuade others, whether deliberately or unknowingly. It is unclear, however, whether expressing emotions contributes to or undermines successful persuasion. To address this question, we adopt a social-functional approach to emotions.

### A Social-Functional Approach to Emotion and Persuasion

Inspired by the early writings of Darwin (1872), emotion theorists have increasingly embraced the notion that emotions have important social functions and consequences in that they influence not only the people who experience them but also those who observe them (e.g., Elfenbein, 2007; Hareli & Rafaeli, 2008; Keltner & Haidt, 1999; Parkinson, 1996). According to emotions as social information (EASI) theory (e.g., Van Kleef, 2009; Van Kleef, Homan, & Cheshin, 2012; Van Kleef et al., 2011), these interpersonal effects of emotions are driven in part by the informational value of emotional expressions. Just as emotions provide valuable information to the self (Schwarz & Clore, 1983), emotional expressions provide information to observers, which may influence their cognitions, attitudes, and behavior.

Emotions arise from an individual's appraisal of the situation (Frijda, 1986; Lazarus, 1991). For instance, happiness arises when one has reached a goal (or is making good progress), sadness arises when one faces a loss and experiences low coping potential, and anger arises when one's goals are frustrated and one blames someone else (Smith, Haynes, Lazarus, & Pope, 1993). Because discrete emotions have such distinct appraisal patterns (Roseman et al., 1994), they potentially provide a wealth of information to observers (Hareli & Hess, 2010; Van Kleef, 2009). For instance, emotional expressions convey information about the expresser's feelings (Ekman, 1993), traits (Knutson, 1996), social intentions (Fridlund, 1994), and appraisal of the situation (Klennert, Campos, Sorce, Emde, & Svejda, 1983; Manstead & Fischer, 2001). Individuals can thus distill useful pieces of information from others' emotional expressions, which may inform their attitudes.

Building on the idea that emotional expressions provide information, EASI theory posits that the interpersonal effects of emotional expressions depend on the observer's motivation and ability to process the information conveyed by these expressions (Van Kleef, 2009).<sup>1</sup> Besides various personality characteristics (e.g.,

<sup>1</sup> Notions of information-processing motivation and ability also feature prominently in dual process models of persuasion (see, e.g., Chaiken & Trope, 1999), as well as in Forgas's (1995) affect infusion model and Kruglanski's unimodel (see, e.g., Kruglanski & Thompson, 1999), all of which are situated at the intrapersonal level of analysis (i.e., they illuminate how attitudes, judgments, and behavior are shaped by a person's *own* affective state). It is common in this tradition to view affective influences as peripheral or heuristic cues, and accordingly, some models predict that such influences are diminished as information processing increases. In contrast, EASI theory is situated at the interpersonal level of analysis (i.e., it seeks to explain how one person's attitudes, judgments, and behavior are shaped by the emotional expressions of *others*), conceptualizing emotional expressions as relevant social cues. Accordingly, EASI theory predicts that the impact of emotional expressions increases rather than decreases under heightened information processing. Given the different foci and levels of analysis, the various perspectives are complementary rather than mutually exclusive.

need for cognitive closure, personal need for structure), information processing is determined by situational features (e.g., time pressure, cognitive load; De Dreu & Carnevale, 2003; Kruglanski & Webster, 1996). The deeper individuals' information processing, the more likely they are to incorporate the informational value of other people's emotional expressions into their attitudes.

### The Present Research and Hypotheses

The objective of the present research is to investigate whether, and if so under which conditions, individuals use others' emotions as information when forming their attitudes. Building on EASI theory, we propose that the informational cues that are inherent in a source's emotional expressions in relation to an attitude object can shape an observer's attitudes about that object. Our focus is on the interpersonal effects of happiness, sadness, and anger. We chose to focus on these emotions because they are basic emotions (Ekman, 1992) that represent positive as well as negative valence and high (happiness, anger) as well as low (sadness) arousal, which are fundamental dimensions of emotion according to affect circumplex models (e.g., Russell & Feldman Barrett, 1999). Moreover, expressions of these emotions tend to be recognized with high accuracy (Elfenbein & Ambady, 2002).

Given that positive emotions arise when events are appraised as congruent with an individual's goals and negative emotions arise when events are appraised as incongruent with an individual's goals (Frijda, 1986; Lazarus, 1991), positive and negative emotional expressions may be taken as signaling favorable versus unfavorable situations, respectively (Keltner & Haidt, 1999; Klinnert et al., 1983; Manstead & Fischer, 2001). Through a process of *reverse appraisal* (de Melo, Carnevale, Read, & Gratch, 2014; Hareli & Hess, 2010), observers may infer from another person's positive or negative emotional expressions in relation to a particular object that the object has notable positive or negative qualities that gave rise to the expresser's emotion. Emotional expressions thus provide evaluative information that an observer may incorporate in his or her attitude about the object in relation to which the emotion was expressed (Van Kleef et al., 2011). For instance, one organization member's expressions of happiness about the promotion of a particular employee to the position of team leader may instill a more favorable attitude about that employee in another colleague because the happiness may be interpreted as conveying positive evaluative information about the employee. Conversely, expressions of happiness after the employee *failed* to make the promotion may instill a *less* favorable attitude in the colleague because, in this case, the happiness may be construed as conveying negative evaluative information about the employee. Based on this logic we propose the following:

*Hypothesis 1:* Observers of a source's emotional expressions pertaining to a particular attitude object develop attitudes that are congruent with the evaluative information that is inherent in the source's emotional expression.

This general hypothesis was examined in Experiments 1 and 2, and it formed the basis for the ensuing studies. Building on the idea that emotional expressions convey information, we investigated the potential moderating influence of the observer's information-processing ability and motivation in follow-up studies. Specifi-

cally, we tested the following hypothesis derived from EASI theory:

*Hypothesis 2:* The interpersonal effects of a source's emotional expressions on observers' attitudes are more pronounced to the degree that the observer engages in more thorough information processing.

This hypothesis was tested in Experiments 3 and 5, which focused on the observer's information-processing ability and motivation, respectively. Furthermore, we examined in Experiments 4 and 5 whether the effects postulated under Hypotheses 1 and 2 can result in changes in previously formed attitudes. Finally, across experiments, we aimed to establish the robustness of the effects by examining different attitude objects varying in importance and by using different manipulations of emotional expressions, including verbal expressions (i.e., emotions expressed by means of written words), emoticons, pictures of facial expressions, and film clips containing both facial and vocal emotional displays).

To enhance the credibility of the emotional expression manipulations, our choice of emotions in each study was guided by the fit of the emotions with the situation. Consequently, the first three studies involved comparisons between happiness and sadness, and the last two studies involved comparisons between happiness and anger. In all studies, we used one-tailed *t* tests to examine directional hypotheses and two-tailed *t* tests to explore effects about which we had no directional hypotheses (as indicated in the text).

### Experiment 1

As a first test of the idea that individuals use the emotional expressions of a source as information when forming their own attitudes, we compared the influence of a source's verbal (i.e., written) expressions of happiness and sadness on observers' attitudes. Perhaps the most straightforward approach would be to present participants with the emotional expressions of a source pertaining to an attitude object (e.g., bobsleighbing) and then ask participants about their attitude toward that object. However, such a procedure does not allow one to infer whether any effects of the emotional expression on the participant's attitude are due to the informational value of the emotional expression (our focus in the current research) and/or to emotional contagion (Hatfield, Cacioppo, & Rapson, 1994) and subsequent *affect infusion* (Forgas, 1995). Under the latter account, participants would come to feel the happiness or sadness of the source via emotional contagion, which would result in a more (in the case of happiness) or less (in the case of sadness) favorable attitude. In other words, both accounts would predict the same effect: Expressions of happiness should result in more favorable attitudes than expressions of sadness.

To circumvent this issue, we designed the study such that we could disentangle the impact of informational processes from the potential influence of emotional contagion. Thus, we used a negatively framed scenario (i.e., *banning* bobsleighbing from the Olympic Games). After presenting the emotional reaction of a source regarding the plan to abandon bobsleighbing from the Olympics, we assessed participants' attitudes about bobsleighbing. If any effects of emotional expressions are carried primarily by their informational value, expressions of happiness about the plan to abandon bobsleighbing should lead to a more negative (rather than positive)

attitude about bobsleighbing itself, compared to expressions of sadness. Conversely, if the effect is driven primarily by emotional contagion, we should find that expressions of happiness result in a more positive attitude toward bobsleighbing. We thus tested Hypothesis 1 in the context of a negatively framed scenario. We predicted that a source's expressions of sadness about the plan to abandon bobsleighbing would result in more favorable attitudes about bobsleighbing compared to a source's expressions of happiness.

## Method

**Participants and design.** Participants were recruited via advertisements on a poster wall in the psychology building of the university where the study was run. Forty-three undergraduate students participated in the study (31 women and 12 men). Their average age was 21.19 years ( $SD = 2.37$ ). Participants were randomly assigned to one of two experimental conditions: happy emotional expressions versus sad emotional expressions.<sup>2</sup>

**Procedure.** Upon arrival in the laboratory, participants were seated in front of computers in separate cubicles. All instructions and questions were presented through the computer.

**Attitude object and emotional expression manipulation.** Around the time of the study, plans had been proposed to abandon bobsleighbing from the Olympic Games. This situation served as the context for our study. We used a verbal (i.e., written) manipulation of emotional expression, which was embedded in a newspaper article about bobsleighbing. Such verbal manipulations of emotional expressions have been successfully employed in research on emotions in negotiation, which also revealed that verbal and nonverbal expressions have similar effects (for a review and discussion, see Van Kleef et al., 2011). We modeled the expressions after similar manipulations in past research (e.g., Lelieveld, Van Dijk, Van Beest, & Van Kleef, 2012; Sinaceur & Tiedens, 2006; Van Kleef, De Dreu, & Manstead, 2006).<sup>3</sup>

Participants were instructed to carefully read the following text, and were told that they would be asked some questions about it later on.

The Olympic winter games of 2006 in Turin were a great success. However, there was some commotion about the disciplines that were part of the games. In particular, discussions arose with regard to the viability of bobsleighbing as an Olympic sport. The president of the International Olympic Committee (IOC) observed that relatively few countries are represented in this discipline. The IOC is therefore investigating the possibility of abandoning bobsleighbing from the Olympics, which obviously goes against the interests of the Dutch bobsleighbing team. The representative of the Dutch Olympic Committee (NOC\*NSF), who enjoys considerable popularity among the majority of Dutch Olympic athletes, responded with [joy/sadness] when he heard about the commotion. He is "[happy/sad] that bobsleighbing may lose its status as an Olympic sport," he said in an interview.

**Attitude measures.** Upon reading the newspaper article, participants indicated to what extent various positive and negative adjectives described their opinion about bobsleighbing as an Olympic sport: *positive, unpleasant, good, negative, favorable, bad*. Participants rated the applicability of each adjective by clicking on a 100-mm visual analogue scale (VAS), ranging from 0 (*not applicable*) to 100 (*very applicable*). Because positive and nega-

tive evaluations can vary independently of one another (Cacioppo & Berntson, 1994), we created two separate unipolar scales instead of using a single bipolar scale (see Cacioppo, Gardner, & Berntson, 1997; Kaplan, 1972). One scale tapped into participants' positive evaluations of bobsleighbing (*positive, good, favorable*; Cronbach's  $\alpha = .96$ ), and the other scale measured participants' negative evaluations of bobsleighbing (*unpleasant, negative, bad*;  $\alpha = .87$ ). The two scales were significantly negatively correlated,  $r(43) = -.68, p < .001$ . Because of their sensitivity and continuous nature, VAS measures are frequently used to assess internal states, including physiological and emotional reactions (e.g., pain, fatigue) and attitudes (Van den Berg, Manstead, Van der Pligt, & Wigboldus, 2006). In general, VAS are comparable to Likert-type scales (Jaeschke, Singer, & Guyatt, 1990), but they tend to be superior in terms of sensitivity to change (Grant et al., 1999).

## Results

We conducted repeated-measures analyses to account for potential differential effects of the emotional expression manipulation on the positive and the negative evaluation scales (see Cacioppo et al., 1997). Specifically, we ran a 2 (emotion: happy vs. sad)  $\times$  2 (valence: positive vs. negative evaluation) mixed-model analysis of variance (ANOVA), with repeated measures on the latter factor. This analysis did not yield a significant interaction between emotional expression and valence,  $F(1, 41) = 3.99, p = .052, \eta_p^2 = .09$ , indicating that the emotional expression manipulation did not differentially affect positive versus negative evaluations. Follow-up analysis revealed a significant effect of emotional expression on the positive evaluation scale. In support of Hypothesis 1, participants who read a newspaper article in which a source expressed sadness about plans to remove bobsleighbing from the Olympics reported more positive attitudes toward bobsleighbing ( $M = 68.42, SD = 15.53$ ) than did those who read an article in which a source expressed happiness about plans to abandon bobsleighbing ( $M = 53.56, SD = 30.71$ ),  $t(29.29) = 1.99, p = .028$  (one-tailed),  $d = .64$ . The opposite pattern, albeit nonsignificant, was observed for the negative evaluation scale (sadness:  $M = 20.35, SD = 13.53$ ; happiness:  $M = 30.24, SD = 25.74$ ),  $t(29.95) = 1.57, p = .064$  (one-tailed),  $d = .50$  (degrees of freedom were adjusted to correct for inequality of variances).

<sup>2</sup> In the interest of full transparency, we note that Experiments 1 and 2 were carried out by master's students who also included anger conditions as part of their graduation projects. These conditions were not of interest to us because expressions of anger are less fitting in the context of a loss (i.e., discontinuing bobsleighbing, Lingo, or rebuilding plans) than expressions of sadness according to appraisal theories of emotion (e.g., Frijda, 1986; Lazarus, 1991; Smith, Haynes, Lazarus, & Pope, 1993). Exploratory analyses revealed that, in all cases, the angry condition fell between the sad and happy conditions. Details are available upon request.

<sup>3</sup> Even though we used established and previously validated manipulations in Experiments 1–3, we conducted a separate study among a different student population ( $N = 103$ ) to confirm the effectiveness of the manipulations within the current context. Participants' ratings (on 7-point scales) of the emotional sentences used in Experiment 1 indicated that expressions of happiness were indeed perceived as happier ( $M = 4.91, SD = 1.96$ ) than expressions of sadness ( $M = 1.36, SD = 0.85$ ),  $t(102) = 16.30, p < .001$ , and that expressions of sadness were perceived as sadder ( $M = 5.90, SD = 1.52$ ) than expressions of happiness ( $M = 1.66, SD = 1.24$ ),  $t(102) = 21.15, p < .001$ .

## Discussion

This first experiment provides some evidence that the emotional expressions of a source can influence observers' attitudes, in this case, about bobsleighbing. Given that the scenario was negatively framed (i.e., it mentioned a plan to *drop* bobsleighbing from the Olympics), it is unlikely that the effect of the source's emotional expression was driven by emotional contagion and subsequent affect infusion (Forgas, 1995). If this were the case, we would have observed emotion-congruent effects, with participants reporting more positive attitudes about bobsleighbing after learning about the source's happiness and more negative attitudes after learning about the source's sadness. However, we found the opposite pattern of results, suggesting that the effect is more likely due to the information inherent in the emotional expressions. These results provide initial support for Hypothesis 1.

## Experiment 2

Our objective with Experiment 2 was threefold. First, we were interested to see whether the finding of Experiment 1 would replicate. Second, we wondered whether the effect was driven primarily by expressions of sadness, by expressions of happiness, or by both. We therefore included a control condition in Experiment 2 in which the source expressed no emotions. Third, we investigated whether the effects of emotional expressions generalize across attitude objects. To examine this, we used two different topics to test Hypothesis 1.

## Method

**Participants and design.** As in Study 1, participants were recruited via advertisements in the psychology building. A total of 110 undergraduate students participated for course credit. Nine participants were dropped from the analyses because they had participated in the previous study and thus had already been exposed to the emotional expression manipulation. The final sample thus consisted of 101 participants (86 women, 15 men) with an average age of 20.14 years ( $SD = 2.57$ ). Participants were randomly assigned to one of three emotion expression conditions (happy, sad, or neutral), and they read about one of two topics, as explained below.

**Procedure.** The procedure was similar to that of Experiment 1, with two exceptions: We included a nonemotional control condition, and we examined two different attitude objects.

**Attitude objects and emotional expression manipulation.** We used two new topics for this study, which had been covered in Dutch newspaper articles that had appeared shortly before the study was run. Both articles provided general information and ended with someone commenting on the topic while expressing either happiness, sadness, or no emotion. One story was about the plan to discontinue a Dutch television game show called Lingo:

After 17 years, the traditional half hour of Lingo-watching may come to an end. According to the coordinator of the Dutch TV Channel 1, the show mainly appeals to an older audience and is not sufficiently popular among younger viewers. This statement caused considerable commotion, and at some point even the prime minister got involved in the discussion. A spokesperson of the Dutch Public TV [is happy/is

sad/noted that] the end of the Lingo era is looming. He [is pleased/is sad/observed] that new game shows may take Lingo's place.<sup>4</sup>

The other article was about the proposal to discard plans to rebuild identical replicas of the Twin Towers in New York City:

Five years after the demolition of the Twin Towers in the 9/11 terrorist attacks, it is still unclear what will happen to "ground zero". Some argue for the rebuilding of exact replicas of the famous towers. Others believe that the situation calls for a different and perhaps more modest building plan. Several arguments have been advanced for rebuilding the Twin Towers. Among other things, rebuilding the towers would restore the famous New York City skyline, and it would convey a signal that terrorist attacks will never destroy the free world. Besides that the Twin Towers provided for about 10% of New York's office space, which is in increasing demand. On the other hand, several arguments speak against rebuilding exact replicas of the Twin Towers. Some fear that efforts to rebuild the towers would distract from initiatives to commemorate the victims. In addition, inside sources observed that the towers weren't very practical. Reaching the higher floors required switching elevators, which could take quite some time, and some claimed that heavy winds would cause pens to roll off desks. Yesterday it was decided that the towers will not be rebuilt. A source from the government of New York City expressed [happiness about/sadness about/commented on] this news in an interview. "This decision will greatly influence American history," [he said joyfully/he said sadly/he said].<sup>5</sup>

We used two very different topics to examine the robustness and generalizability of the effect of emotional expressions on attitudes. The Lingo situation was more mundane and primarily relevant to inhabitants of the Netherlands. The Twin Towers issue had greater international significance, but little direct repercussions for our Dutch participants. The articles also differed in that the Lingo case was presented without clear arguments for or against the show, whereas the Twin Towers article described arguments for both positions.

**Attitude measures.** The attitude measures were the same as in Experiment 1. The positive and negative evaluation scales were both reliable ( $\alpha = .87$  and  $.88$ , respectively), and they were significantly negatively correlated,  $r(101) = -.61, p < .001$ .

## Results

As in Experiment 1, we conducted repeated-measures analyses to account for potential differential effects of the emotional expression manipulation on the positive and the negative evaluation

<sup>4</sup> A separate study (see Footnote 3) confirmed that the happy expression pertaining to the Lingo proposal was perceived as happier ( $M = 6.19, SD = 1.18$ ) than the sad expression ( $M = 1.17, SD = 0.56$ ),  $t(102) = 35.49, p < .001$ , and than the neutral expression ( $M = 1.50, SD = 1.12$ ),  $t(102) = 26.54, p < .001$ , and that the sad expression was perceived as sadder ( $M = 6.31, SD = 0.89$ ) than the happy expression ( $M = 1.24, SD = 0.72$ ),  $t(102) = 37.83, p < .001$ , and than the neutral expression ( $M = 1.67, SD = 1.20$ ),  $t(102) = 27.85, p < .001$ .

<sup>5</sup> A separate study (see Footnote 3) confirmed that the happy expression pertaining to the Twin Towers plans was perceived as happier ( $M = 5.95, SD = 1.57$ ) than the sad expression ( $M = 1.16, SD = 0.50$ ),  $t(102) = 27.45, p < .001$ , and than the neutral expression ( $M = 1.62, SD = 1.05$ ),  $t(102) = 22.01, p < .001$ , and that the sad expression was perceived as sadder ( $M = 6.21, SD = 1.15$ ) than the happy expression ( $M = 1.36, SD = 0.82$ ),  $t(102) = 31.93, p < .001$ , and the neutral expression ( $M = 1.97, SD = 1.32$ ),  $t(102) = 22.05, p < .001$ .

scales. In addition, we included topic as a factor to explore whether the effect of emotional expressions differed across attitude objects. Thus we ran a 3 (emotion: happy vs. sad vs. control)  $\times$  2 (attitude object: Lingo vs. Twin Towers)  $\times$  2 (valence: positive vs. negative evaluation) mixed-model ANOVA, with repeated measures on the latter factor.

This analysis revealed an interaction between emotional expression and valence,  $F(2, 95) = 3.96, p = .022, \eta_p^2 = .08$ , indicating that the emotional expression manipulation had differential effects on the positive and negative evaluation scales. The interaction was not qualified by a three-way interaction with attitude object,  $F(2, 95) = 0.84, p = .36$ , nor was there a main effect of attitude object,  $F(2, 95) = 1.42, p = .24$ , or a two-way interaction between emotional expression and attitude object,  $F(2, 95) = 1.30, p = .28$ . This indicates that the effects of emotional expressions on attitudes did not differ as a function of attitude object. We therefore collapsed across the two attitude objects in the remaining analyses.

Follow-up tests revealed that, as in Experiment 1, the emotional expressions of the source had a significant impact on participants' responses on the positive evaluation scale,  $F(2, 95) = 4.79, p = .01, \eta_p^2 = .09$ . The effect on the negative evaluation scale was not statistically significant,  $F(2, 95) = 2.37, p = .10, \eta_p^2 = .05$ . Next, we proceeded to conduct planned comparisons to test the difference between the sad and happy conditions.

In line with Hypothesis 1, planned comparisons on the positive evaluation scale revealed that participants reported significantly more positive attitudes across both attitude objects after reading a newspaper article in which a source had expressed sadness ( $M = 57.20, SD = 17.52$ ) rather than happiness ( $M = 42.86, SD = 19.97$ ) regarding plans to discontinue Lingo or not rebuild the Twin Towers,  $t(98) = 3.04, p = .002$  (one-tailed),  $d = .76$ . The neutral condition fell between the two emotion conditions ( $M = 46.06, SD = 19.26$ ). Exploratory contrast analyses showed that the happy and neutral conditions did not differ significantly from one another,  $t(98) = 0.71, p = .48$  (two-tailed),  $d = .16$ , whereas the sad and neutral conditions did,  $t(98) = 2.33, p = .022$  (two-tailed),  $d = .61$ .

Planned comparisons on the negative evaluation scale showed that participants reported significantly less negative attitudes after reading an article in which a source expressed sadness ( $M = 31.69, SD = 19.65$ ) rather than happiness ( $M = 42.40, SD = 23.74$ ) about the discontinuation plans,  $t(98) = 2.03, p = .023$  (one-tailed),  $d = .49$ . The control condition occupied an intermediate position ( $M = 34.78, SD = 19.63$ ), which did not differ significantly from the happiness condition,  $t(98) = 1.52, p = .13, d = .35$ , or from the sadness condition,  $t(98) = 0.58, p = .56, d = .16$ , according to exploratory (two-tailed) analyses.

## Discussion

These findings further support Hypothesis 1. At the most general level, we replicated the finding that a source's emotional expressions can shape an observer's attitudes. More specifically, we obtained additional evidence that expressions of happiness and sadness have opposite effects on attitude formation. Experiment 2 further demonstrates that the effects of emotional expressions of happiness and sadness generalize across different attitude objects, which increases confidence in the robustness of the effect.

Together, Experiments 1 and 2 provide initial evidence that the interpersonal effects of emotional expressions on attitude formation were driven by the informational value of the emotion rather than by emotional contagion and affect infusion. If the latter process had been dominant, this should have resulted in more favorable attitudes after reading happy rather than sad reactions. However, the opposite was found. This suggests that participants used the emotional expressions of the source as information when developing their own attitudes. In Experiment 3 we set out to further substantiate this informational interpretation.

## Experiment 3

In Experiments 1 and 2, we used verbal manipulations of emotional expressions. To examine the generalizability of our findings to other expressive modalities, we used a nonverbal emotional expression manipulation in Experiment 3. Our main goal with this study was to obtain more direct evidence for our information-processing hypothesis (i.e., Hypothesis 2). If the effects of the source's emotional expressions on participants' attitudes in the previous experiments were indeed due to the informational value of the emotional expressions, then the effect should be attenuated when participants' information-processing capacity is undermined due to a reduction of available cognitive resources. One way to reduce cognitive resources and undermine concomitant information-processing capacity is by inducing cognitive load (Ford & Kruglanski, 1995; Gilbert & Hixon, 1991; Lavie, 2010). Under increasing cognitive load, working memory capacity is reduced (Engle, 2002). As a result, cognitive control and information processing are undermined (Lavie, Hirst, De Fockert, & Viding, 2004). Thus, individuals who are put under high cognitive load should be less likely to engage in thorough processing of a source's emotional expression than individuals who are under lesser load, and as a result, their attitudes should be less affected by the source's emotional expressions. In this study, we used a positively framed situation, namely, the potential introduction of a new sport at the Olympic Games. Given this context and following Hypothesis 2, we predicted that participants would develop more favorable attitudes about the new Olympic sport after being confronted with a happy rather than a sad source, but only (or especially) under low cognitive load.

## Method

**Participants and design.** As in the previous studies, participants were recruited via advertisements. A total of 131 students signed up for the study. One participant was dropped from the sample because he indicated having experience with kite surfing (which was the attitude object in this study). The final sample thus consisted of 130 participants (81 women, 49 men) with a mean age of 22.22 years ( $SD = 4.51$ ), who were randomly assigned to the conditions of a 2 (happiness vs. sadness)  $\times$  2 (high vs. low cognitive load) full-factorial design.

**Procedure.** The procedure differed from the previous experiments in that we employed a nonverbal manipulation of emotional expression, used a different attitude object, and manipulated cognitive load. Our aim with the cognitive load manipulation was to undermine participants' processing of the emotional expression of the source. However, we did not want to undermine their process-

ing of the factual information about the attitude object (kite surfing) because that would confound our manipulation (i.e., we would not be able to tell whether any effect of the cognitive load manipulation was due to the fact that participants processed the emotions of the source less thoroughly and/or processed the factual information that served as the background of the emotional expression manipulation less thoroughly). To avoid this problem, we first presented factual information about kite surfing, subsequently manipulated cognitive load, and then presented the manipulation of the source's emotional expression.

**Attitude object.** Participants first read a slightly adapted version of a newspaper article discussing plans to introduce kite surfing to the Olympic Games, which had appeared in a Dutch newspaper some time before the study was run. The article reported that the International Kiteboarding Organization had started a lobby to introduce kite surfing to the Olympic Games. Then, the article discussed the dangers of the sport, which might stand in the way of the Olympic status. It also mentioned that the IOC had announced that they were thinking about ways to make the Olympic Games more attractive to a younger audience and that kite surfing might appeal to such an audience. Finally, the article stated that the introduction of kite surfing to the Olympics would go at the expense of another discipline.

**Manipulation of cognitive load.** After reading the background information about kite surfing, participants in the high cognitive load condition were instructed to memorize a 10-digit (Dutch) mobile phone number. The phone number was shown on the screen for 10 s. Participants were instructed to memorize the phone number and to keep rehearsing it throughout the experimental session. This task was presented as part of a separate and unrelated study about memory. Participants further learned that they would be prompted to recall the phone number later on in the experiment. Participants in the low cognitive load condition received no instructions to memorize a phone number. Similar manipulations of cognitive load have been successfully used in previous research (DeSteno, Bartlett, Braverman, & Salovey, 2002; Gilbert & Hixon, 1991; Pontari & Schlenker, 2000; Vasquez, 2009).

**Emotional expression manipulation.** After the introduction of the cognitive load manipulation, participants got to see another newspaper article about kite surfing. The factual information in the article was similar to the background information that they had read before, except that it was now presented as part of an interview with "Eric Gibbs, a sports journalist of the Herald Tribune," who had been following the Olympic Games for years.

"Kite surfing is a spectacular sport with a growing number of practitioners," Eric Gibbs explains. "This is why the International Kiteboarding Association (IKA) has filed an application to the IOC to acquire the Olympic status for kite surfing before the Games of 2016. Introducing kite surfing might alter the image of the Olympics, because the discipline appeals to a different audience than many other sports." Might the dangerous nature of the sport form an obstacle? Gibbs: "There are indeed dangers involved in kite surfing. It is called an 'extreme sport' for a reason. This is perhaps why the sport attracts a different group of spectators." There is a limit to the number of sports that can be represented during the Olympics. This means that the introduction of kite surfing would go at the expense of another discipline. Isn't this a problem? "During every Olympic episode the program looks different than in the previous edition," says Gibbs.

"This is a logical consequence of introducing a new discipline to the Games."

The article contained a picture of the sports journalist, who looked either happy or sad. The pictures were taken from the Karolinska Directed Emotional Faces Database (Lundqvist, Flykt, & Öhman, 1998), which is a well-validated and widely used picture set (Goeleven, De Raedt, Leyman, & Verschuere, 2008). We selected a happy and a sad expression of the same male actor, who looked straight into the camera in both cases (see Figure 1). These and other pictures from this database have been used in previous research on the social effects of emotional expressions (e.g., Pietroni, Van Kleef, De Dreu, & Pagliaro, 2008; Van Doorn, Heerdink, & Van Kleef, 2012; Van Kleef, Homan, Beersma, & Van Knippenberg, 2010).<sup>6</sup>

The newspaper article stayed on the screen for 2 min. After the article had disappeared, participants in the high load condition were prompted to enter the telephone number they had memorized. Next, participants indicated their attitudes about kite surfing.

**Attitude measures.** The attitude measures were the same as before. The positive evaluation scale had a reliability of  $\alpha = .80$ , and the negative evaluation scale had a reliability of  $\alpha = .79$ . Both scales were again negatively correlated,  $r(130) = -.64$ ,  $p < .001$ .

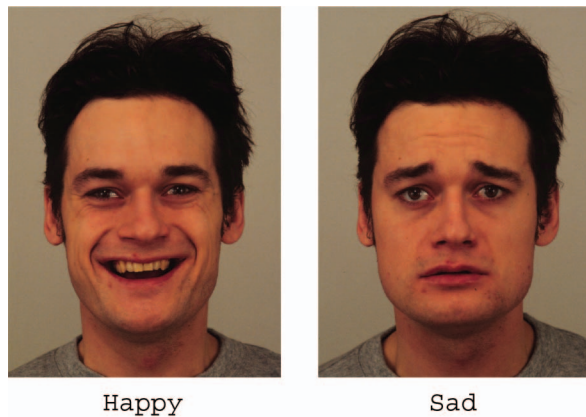
## Results

As in the previous experiments, we conducted repeated-measures analyses to account for potential differences in the effects of our manipulations on the positive and negative evaluation scales. Because previous research has produced some evidence that women are more accurate at detecting nonverbal emotional expressions than men (e.g., Montagne, Kessels, Frigerio, De Haan, & Perrett, 2005), as well as indications that men and women respond differently to nonverbal emotional expressions of same-versus different-sex individuals (e.g., Hofmann, Suvak, & Litz, 2006), we included participant's gender in the analyses to account for such influences. Thus we ran a 2 (emotion: happy vs. sad)  $\times$  2 (cognitive load: low vs. high)  $\times$  2 (participant's sex: male vs. female)  $\times$  2 (valence: positive vs. negative evaluation) mixed-model ANOVA, with repeated measures on the latter factor. This analysis yielded only a significant three-way interaction among emotional expression, cognitive load, and valence,  $F(1, 122) = 4.85$ ,  $p = .03$ ,  $\eta_p^2 = .04$ . There were no effects of gender, and hence, this factor is not discussed further.

The three-way interaction among emotional expression, cognitive load, and valence is graphically depicted in Figure 2. The interaction shows the pattern predicted under Hypothesis 2, with participants reporting more positive (top panel) and less negative (bottom panel) attitudes about kite surfing after seeing a happy rather than a sad facial expression, but only when cognitive load was low rather than high. We conducted simple-effects analyses to probe the two-way interaction between emotional expression and cognitive load on the positive and negative evaluation scales

<sup>6</sup> A separate study (see Footnote 3) confirmed that the happy facial expression was perceived as happier ( $M = 6.50$ ,  $SD = 0.73$ ) than the sad facial expression ( $M = 1.17$ ,  $SD = 0.65$ ),  $t(102) = 52.38$ ,  $p < .001$ , and that the sad expression was perceived as sadder ( $M = 6.32$ ,  $SD = 0.97$ ) than the happy expression ( $M = 1.16$ ,  $SD = 0.50$ ),  $t(102) = 42.09$ ,  $p < .001$ .





*Figure 1.* Validated pictures of facial expressions used to manipulate the source's emotional expression in Experiment 3. These photos are part of the Karolinska Directed Emotional Faces picture set (Lundqvist, Flykt, & Öhman, 1998). The stimulus IDs are AM06HAS (happy) and AM06SAS (sad). Reproduced with permission. See the online article for the color version of this figure.

separately. We found a significant interaction between emotional expression and cognitive load on the positive evaluation scale,  $F(1, 126) = 4.74, p = .031, \eta_p^2 = .04$ , and a nonsignificant (opposite) pattern on the negative evaluation scale,  $F(1, 126) = 3.30, p = .072, \eta_p^2 = .03$ .

We then performed planned comparisons to test whether an expression of happiness resulted in more favorable attitudes toward kite surfing than an expression of sadness in the low cognitive load condition, but not in the high cognitive load condition, as predicted under Hypothesis 2. We tested our directional hypotheses in the low cognitive load condition using one-tailed tests; effects in the high cognitive load condition were explored using two-tailed tests. In line with our prediction, participants under low cognitive load reported more positive attitudes toward kite surfing after seeing an expression of happiness in the article on kite surfing ( $M = 77.12, SD = 11.38$ ) than after seeing an expression of sadness ( $M = 63.13, SD = 16.13$ ),  $t(62) = 3.89, p < .001$  (one-tailed),  $d = 1.02$ . As anticipated, there was no significant difference in the high cognitive load condition (happiness:  $M = 72.32, SD = 15.22$ ; sadness:  $M = 69.85, SD = 16.10$ ),  $t(64) = 0.64, p = .53$  (two-tailed),  $d = .16$ .

The effect of emotional expressions on negative evaluations showed a compatible pattern. As predicted, participants under low cognitive load reported less negative attitudes about kite surfing after seeing an expression of happiness ( $M = 16.10, SD = 9.02$ ) rather than sadness ( $M = 26.02, SD = 16.84$ ),  $t(62) = 2.82, p = .004$  (one-tailed),  $d = .77$ . Again, there was no significant difference in the high cognitive load condition (happiness:  $M = 22.49, SD = 15.42$ ; sadness:  $M = 22.75, SD = 16.69$ ),  $t(64) = 0.07, p = .95$  (two-tailed),  $d = .02$ .

## Discussion

These results replicate and extend those of the previous studies. Under low cognitive load, participants developed more favorable attitudes about kite surfing after seeing a happy rather than a sad emotional expression from a sports journalist in an interview about

kite surfing. This effect was not observed among participants who were put under high cognitive load. In keeping with EASI theory, this study suggests that people only use the emotional expressions of others to inform their attitudes when they have sufficient cognitive resources available, thus supporting Hypothesis 2.

## Experiment 4

In Experiments 1–3, we focused on attitude objects about which our participants most likely did not have strong initial opinions. One could argue, therefore, that the results of these experiments pertain primarily to attitude formation and not so much to attitude change (see Wood, 2000). One aim in Experiment 4 was therefore to see whether emotional expressions can also engender a change in preexisting attitudes. To this end, we chose a topic about which our participants could be expected to have preformed attitudes (namely, Greenpeace) and examined whether the emotional expressions of a source could change those attitudes. Furthermore, we developed an audiovisual manipulation of emotional expression, which was presented as part of a specially designed television news bulletin. In this study, we compared expressions of happiness with expressions of anger (as opposed to sadness) because these fit better within the context, as explained below. Extending Hypothesis 1, we hypothesized that expressions of happiness would fuel positive attitude change, whereas expressions of anger would instigate negative attitude change.

## Method

**Participants and design.** Fifty-five undergraduate students from various disciplines (42 women, 12 men, one unreported;  $M_{\text{age}} = 22.29$  years,  $SD = 6.13$ ) participated. They were recruited via advertisements and randomly assigned to the happy expression condition or the angry expression condition.

### Procedure.

**Premanipulation attitude measure.** At the start of the experiment, participants were asked to indicate their opinion about 10 charities on 100-point slider scales ranging from 1 (*very negative*) to 100 (*very positive*). Embedded within nine other charitable organizations (e.g., Amnesty International, WNF, Unicef, War Child, Doctors Without Borders) was a question about Greenpeace. This item served as the premanipulation measure of attitudes toward Greenpeace. After participants had indicated their opinions about the various charities, they completed a 5-min filler task consisting of several unrelated questionnaires.

**Attitude object and manipulation of emotional expression.** Participants then watched a short television news bulletin on Greenpeace, which was specially designed for the study. We asked participants to pay close attention to the video clip and announced that we would ask questions about it afterward. In the video clip, a voice-over first presented some factual information about Greenpeace, stating the organization's mission and objectives and presenting some examples of the organization's key concerns (e.g., global warming, whaling, nuclear energy) and historical successes. The information was visually supported by video fragments of Greenpeace's past activities. Then, the voice-over presented some information about recent controversies surrounding Greenpeace, which was again supported with video fragments. The voice-over talked about how Greenpeace had recently been spied upon and

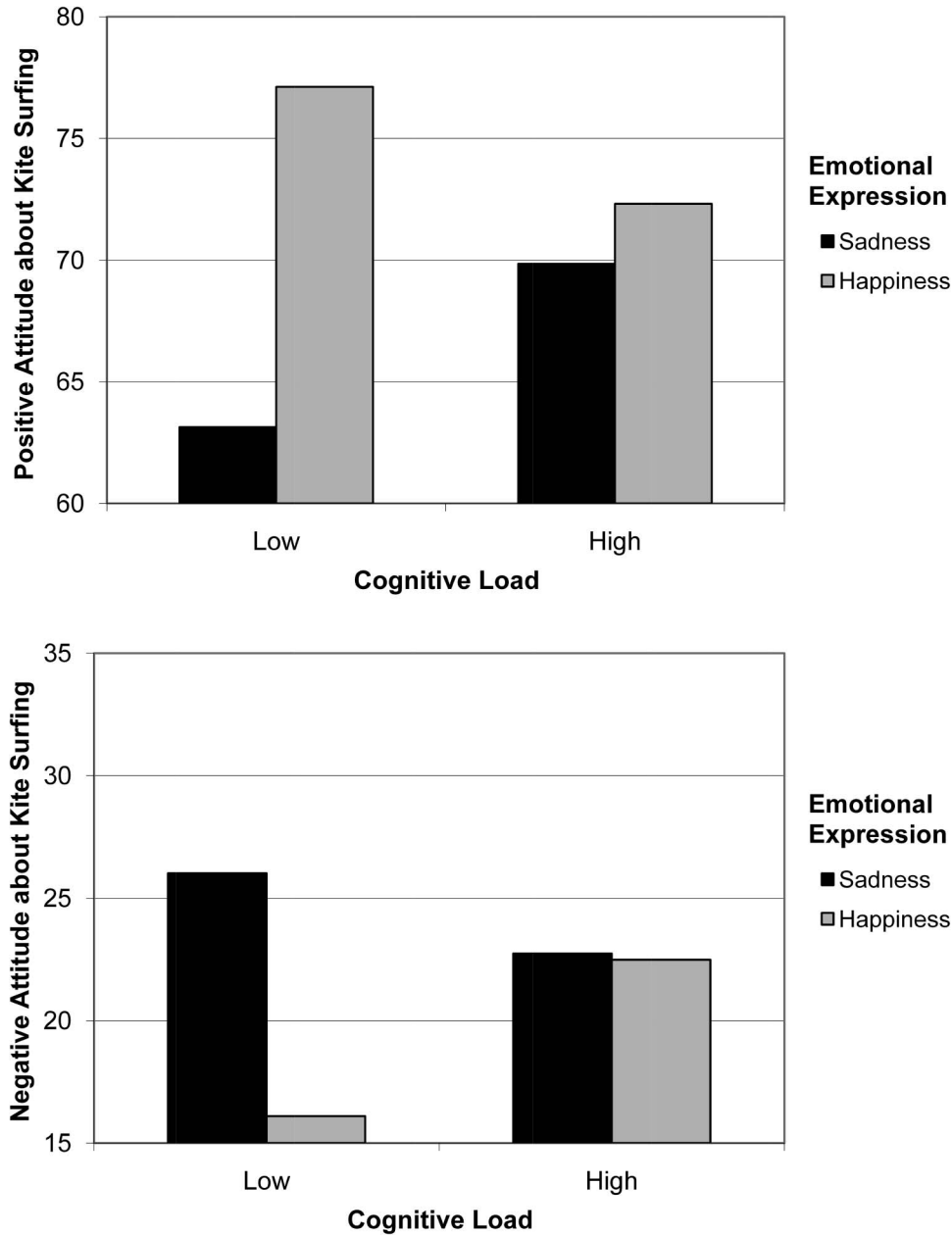


Figure 2. Top: Positivity of attitudes about kite surfing as a function of the emotional expression of a source and cognitive load (Experiment 3). Bottom: Negativity of attitudes about kite surfing as a function of the emotional expression of a source and cognitive load (Experiment 3).

infiltrated by multinationals and how oil companies had frustrated Greenpeace's activities. Then, it mentioned that Greenpeace itself had been accused of spending a disproportionate amount of the income from donations on staff members' salaries and that some journalists suspected that Greenpeace had cut deals with multinationals, agreeing not to taint their reputations in exchange for money. The voice-over concluded by stating that, despite these controversies, the number of Greenpeace members keeps growing steadily.

After presenting this background information about Greenpeace, the news bulletin continued with interviews with people on the

street. First, the reporter (a trained student who had been hired for this purpose) asked a young woman on the street (another student) about her opinion on Greenpeace. She responded politely that she did not know enough about Greenpeace to express an opinion about the organization on television. Next, the reporter interviewed a man in his mid-20s (an actor who had been hired for this purpose). After apparently having shown the background video clip to the actor on the spot, the reporter asked, "How do you feel about Greenpeace?" The actor responded, "How I feel about Greenpeace? Well, I have been following Greenpeace for quite some time. All of this sounds typically Greenpeace to me, exactly

as I know them. Just thinking about Greenpeace makes me really [happy/angry]." The last word was the only part of the text that differed between the two conditions, and the length of the two clips was identical.

In addition to varying the last word of his response, the actor expressed either happiness or anger by means of facial expressions and vocal intonation. In the happy expression condition, the actor looked cheerful, spoke with an enthusiastic, upbeat tone of voice, and smiled frequently. In the angry expression condition, he frowned a lot, spoke with an angry and irritable tone of voice, and looked stern (for similar procedures, see Barsade, 2002; Bono & Iles, 2006; Lewis, 2000; Van Kleef et al., 2009). We decided to focus on anger instead of sadness in this study because the *relational theme* of other-blame that characterizes expressions of anger (Smith et al., 1993) was more compatible with the accusations mentioned in the television bulletin.

**Attitude measures.** The attitude measures were the same as in the previous experiments. Both scales had a reliability of  $\alpha = .93$  in the current sample, and they were again negatively correlated,  $r(55) = -.90, p < .001$ .

**Auxiliary measures.** We included a number of items to examine, for exploratory purposes, whether the effects of the source's emotional expression extend beyond effects on the positivity versus negativity of attitudes about Greenpeace. We included three adjectives to measure to what extent participants felt that the activities of Greenpeace were just (*fair, just, correct*; 1 = *not at all*, 100 = *very much*;  $\alpha = .88$ ), using decontextualized versions of previously used items (see Van Kleef & Côté, 2007). We also included three statements tapping participants' beliefs about global warming, one of Greenpeace's key concerns: "The current increase in temperatures around the world is part of natural long-term fluctuations" (reverse-scored), "Global warming is caused by increasing CO<sub>2</sub> emissions due to industrialization," and "All the fuss about global warming is uncalled for" (reverse-scored; 1 = *strongly disagree*, 100 = *strongly agree*;  $\alpha = .82$ ), which were similar to items that have been used in past research to measure beliefs about anthropogenic climate change (Dunlap, Van Liere, Mertig, & Jones, 2000; Rudman, McLean, & Bunzl, 2013).

**Manipulation check.** Because we used a newly developed emotional expression manipulation in the current study, we included four questions at the end of the experiment to verify whether the actor in the television bulletin had come across as happy versus angry as intended. Participants indicated on 100-point slider scales (1 = *not at all*, 100 = *very much*) to what extent they thought the person had expressed happiness and enthusiasm,  $r(55) = .92, p < .001$ , and anger and irritation,  $r(55) = .94, p < .001$ .

## Results

**Manipulation check.** Participants recalled the source as happier in the happiness condition ( $M = 73.27, SD = 18.97$ ) than in the anger condition ( $M = 18.52, SD = 14.84$ ),  $t(53) = 11.89, p < .001, d = 3.24$ . Conversely, the source was perceived as angrier in the anger condition ( $M = 73.89, SD = 22.59$ ) than in the happiness condition ( $M = 10.95, SD = 10.82$ ),  $t(37.02) = 13.10, p < .001, d = 3.77$  (degrees of freedom in the latter analysis were adjusted for inequality of variances). We conclude that the emotional expressions were perceived as intended.

**Hypothesis test.** Because we wished to examine whether the emotional expressions of a source could influence preexisting attitudes about Greenpeace, we took into account participants' initial attitudes in the main analyses. We did this in two different ways. First, we conducted a 2 (emotion: happy vs. angry)  $\times$  2 (valence: positive vs. negative evaluation) mixed-model analysis of covariance, with repeated measures on the latter factor and initial attitude toward Greenpeace as a covariate. This analysis revealed a significant interaction between emotional expression and valence,  $F(1, 52) = 9.39, p = .003, \eta_p^2 = .15$ , indicating that the emotional expression manipulation had a differential impact on the positive and negative evaluation scales. In line with Hypothesis 1, follow-up tests showed that participants reported more positive attitudes toward Greenpeace after seeing the news bulletin containing happy ( $M = 65.38, SD = 20.90$ ) as opposed to angry expressions ( $M = 61.59, SD = 21.59$ ),  $F(1, 52) = 8.22, p = .006, \eta_p^2 = .14$ . Conversely, participants reported more negative attitudes about Greenpeace after seeing the angry ( $M = 35.37, SD = 22.31$ ) rather than the happy expressions ( $M = 30.64, SD = 24.18$ ),  $F(1, 52) = 7.60, p = .008, \eta_p^2 = .13$ .

Second, we examined the change in attitudes toward Greenpeace more closely by looking at the difference between premanipulation attitudes and postmanipulation attitudes. Given that we measured initial attitudes only with a positive evaluation measure, we could only examine the change in positive attitudes toward Greenpeace as a function of the emotional expression manipulation. The most intuitive and easily interpretable way to visualize such change is by computing the difference between postmanipulation attitudes and premanipulation attitudes so that a positive difference denotes a shift toward a more positive attitude and a negative difference denotes a shift toward a less positive attitude.<sup>7</sup> In line with Hypothesis 1, a *t* test on this difference score revealed that participants' attitudes toward Greenpeace had become more positive after seeing the source's expressions of happiness ( $M = 4.06, SD = 15.06$ ) rather than anger ( $M = -7.11, SD = 12.29$ ),  $t(53) = 3.01, p = .002$  (one-tailed),  $d = .82$ . One-sample *t* tests revealed that the negative attitude change that was engendered by the source's anger was significant ( $M = -7.11, SD = 12.29$ ),  $t(26) = -3.01, p = .006$  (one-tailed),  $d = .58$ , whereas the positive attitude change resulting from the source's happiness ( $M = 4.06, SD = 15.06$ ) was not,  $t(27) = 1.43, p = .08$  (one-tailed),  $d = .27$ .

**Auxiliary analyses.** For exploratory purposes, we examined whether the source's emotional expression had effects beyond the positivity versus negativity of attitudes about Greenpeace. Even though we had no hypothesis about this, it is conceivable that the effects of emotional expressions on attitudes about Greenpeace would spread to influence attitudes that are related in terms of their content, such as beliefs about global warming or perceptions of the justifiability of the types of actions typically performed by Greenpeace. Such spreading could occur, for instance, because people are motivated to hold attitudes that are consistent with one another (Eagly & Chaiken, 1993; Festinger, 1962). To examine this pos-

<sup>7</sup> Logically, a repeated-measures analysis with emotional expression as the independent variable and pre- and postmanipulation attitudes as the repeated-measures factor yielded the same conclusion,  $F(1, 53) = 9.05, p = .004, \eta_p^2 = .15$ .

sibility, we followed the same approach as in the hypothesis tests, including participants' initial attitudes about Greenpeace as a covariate. We found that perceptions of the justifiability of Greenpeace's actions were significantly influenced by the emotional expressions of the source. Participants who had seen expressions of happiness in the television bulletin about Greenpeace deemed Greenpeace's actions more justifiable ( $M = 58.95$ ,  $SD = 20.54$ ) than did those who saw expressions of anger ( $M = 50.47$ ,  $SD = 21.59$ ),  $F(1, 52) = 11.42$ ,  $p = .001$  (two-tailed),  $\eta_p^2 = .18$ . We observed a corresponding yet weaker pattern on the global warming scale: Participants who had been confronted with expressions of happiness reported being somewhat more concerned about global warming ( $M = 59.18$ ,  $SD = 23.04$ ) than those who had been confronted with expressions of anger ( $M = 55.21$ ,  $SD = 22.31$ ), but this effect did not reach statistical significance,  $F(1, 52) = 2.42$ ,  $p = .13$  (two-tailed),  $\eta_p^2 = .04$ .

## Discussion

Using an audiovisual emotional expression manipulation, this experiment extends the preceding studies by addressing the issue of attitude change. In keeping with Hypothesis 1, participants who had watched happy emotional expressions of a source in the context of an interview about Greenpeace changed their attitudes about Greenpeace in a positive direction, whereas participants who had seen angry emotional expressions changed their attitudes in a negative direction. This study thus complements the previous experiments by showing that emotional expressions not only may influence newly formed attitudes but also can change previously held opinions. Exploratory analyses provided some suggestive evidence that the persuasive impact of emotional expressions may carry over to related attitude objects and that such spreading is more manifest for attitude objects that are more closely related to the focal topic (in this case, perceptions of the justifiability of Greenpeace's actions) than for attitude objects that are less closely related (in this case, beliefs about global warming).

## Experiment 5

So far, we have shown that people may use others' emotional expressions pertaining to an attitude object to inform their own attitudes about the topic. The previous experiments do not speak to situations in which someone expresses emotions regarding another person's attitude (as opposed to about the attitude object itself). In our final experiment, we addressed this situation, focusing again on a comparison between happiness and anger.

Based on previous arguments that expressions of negative emotions such as anger serve as a call for adjustment whereas positive emotional expressions serve as a cue to stay the course (e.g., Cacioppo & Gardner, 1999), we reasoned that expressions of anger that are targeted at a person's attitude exert a greater push for attitude change than expressions of happiness. However, building on EASI theory's information-processing postulate and the findings of Experiment 3 (moderation by cognitive load), we expected that this effect would emerge only or especially among individuals with chronically high epistemic motivation—the desire to develop a rich understanding of situations and decision problems and to process all the available information to reach such understanding (Kruglanski, 1989). Thus, extending Hypothesis 2, we predicted

that expressions of anger that are directed at a message recipient's attitude would exert greater attitude change in the direction of the source's position than expressions of happiness, but only (or especially) to the degree that the recipient is motivated to engage in thorough information processing.

## Method

**Participants and design.** A total of 63 participants enrolled in the study, which was part of a compulsory mass testing session among first-year psychology students (approximately 15% of this population were assigned to the current study). We chose this setting to make it credible that participants would be paired with another student (who would be the source of the emotional expression). Still, three participants did not believe that they were paired with someone else, and we therefore excluded them from the sample. The final sample thus consisted of 60 participants (40 women, 20 men;  $M_{\text{age}} = 19.52$  years,  $SD = 1.50$ ). Participants were randomly assigned to one of two experimental conditions: angry versus happy emotional expressions.

**Procedure.** The study was introduced as an investigation of students' opinions about issues relevant to their education. A secondary goal would be to study how decision making is influenced by "online one-shot discussion groups," which we defined as a discussion in which the discussants have the opportunity to write only one statement to express their opinion.

**Measuring epistemic motivation.** Chronic levels of epistemic motivation were assessed using the 11-item Personal Need for Structure questionnaire (Neuberg & Newsom, 1993; Thompson, Naccarato, Parker, & Moskowitz, 2001). Individuals with a high need for structure tend to be less motivated to search for and process new information when making decisions because such incoming information may disrupt their desired state of clarity, structure, and cognitive closure. Accordingly, ample research supports this scale's ability to distinguish among individuals with different chronic levels of information-processing motivation (e.g., Moskowitz, 1993; Rietzschel, De Dreu, & Nijstad, 2007; Thompson et al., 2001; Van Kleef et al., 2009), making it a reliable yet parsimonious measure of epistemic motivation (Neuberg & Newsom, 1993). An example item is "I hate to change my plans at the last minute." Participants indicated their agreement with the statements on 7-point Likert-type scales (1 = *not at all*, 7 = *very much*;  $\alpha = .93$ ; for full scale and psychometric properties, see Neuberg & Newsom, 1993). To facilitate interpretation of the findings, responses were recoded so that higher scores reflect higher epistemic motivation.

**Premanipulation attitude measure.** Upon completion of the information-processing measure, participants were asked to indicate their opinion on a number of student-related issues. Embedded among these items was the attitude object of interest: the percentage of literature that should consist of journal articles instead of books during the first two years of the curriculum. Participants indicated their preference on a scale ranging from 0% to 100%.

**Attitude object and manipulation of emotional expression.** Upon completion of the attitude measures, participants learned that they would participate in a one-shot discussion with another participant. The other participant was in fact simulated by the computer. After a series of computer messages (e.g., "connecting to waiting participants . . ."), which were intended to increase the

perceived reality of the situation, participants read that they had been successfully connected to a discussion partner.

On the next screen, participants saw their own and their partner's opinion on the focal topic, and they were led to believe that their partner also got to see their opinion. The partner's opinion was preprogrammed to differ from the participant's premanipulation attitude. Specifically, if the participant had indicated that less than 50% of the literature should consist of articles (as most participants did), then the partner's attitude was set to 80%; if the participant had indicated that more than 50% of the literature should consist of articles, then the partner's opinion was set to 20%.

Participants then read that their partner, upon having learned about the participant's opinion, would be the first to write a statement in the one-shot discussion. The partner's statement consisted of four arguments arguing for the use of books rather than articles if the partner's attitude had been set to 20% (e.g., "you can keep a book as a reference") or arguing for the use of articles instead of books if the partner's attitude had been set to 80% (e.g., "it's better to read the original than an interpretation"). Depending on the emotional expression condition, the arguments were followed either by a positive statement (e.g., "I see only advantages") and a smiley (☺) or by an angry statement (e.g., "there are only advantages, it's ridiculous if you want to keep using books") with a corresponding angry (☹) emoticon.

**Postmanipulation attitude measure.** After having written a statement to be sent to the discussion partner, participants read that a student body had prepared a proposal concerning the percentage of articles to be used in the first 2 years of the study. The student body proposal was manipulated to be consistent with the discussion partner's opinion on the issue. That is, the student body proposed to increase the percentage to at least 75% if the partner's attitude had been 80% or to decrease it to at most 25% if the partner's attitude had been 20%. Participants learned that their opinion would be used as input for the final decision, and they were asked to cast their vote on the issue. Thus, greater attitude change is reflected in a higher proportion of votes for the proposal.

**Manipulation check.** At the end of the experiment, the manipulation was checked by asking participants to indicate on 7-point scales (1 = *not at all*, 7 = *very much*) to what extent their discussion partner had expressed anger and happiness.

## Results

**Manipulation check.** Participants indicated that their partner had expressed more anger in the angry condition ( $M = 3.23$ ,  $SD = 1.80$ ) than in the happy condition ( $M = 1.10$ ,  $SD = 0.56$ ),  $t(36.04) = 6.25$ ,  $p < .001$ ,  $d = 1.24$  (degrees of freedom were adjusted for inequality of variances). Similarly, they indicated that their partner had shown more happiness in the happy condition ( $M = 3.69$ ,  $SD = 1.77$ ) than in the angry condition ( $M = 2.00$ ,  $SD = 1.46$ ),  $t(58) = 4.04$ ,  $p < .001$ ,  $d = 0.93$ . Thus, the manipulation was successful.

**Hypothesis test.** We used logistic regression to accommodate the binary dependent variable (vote for or against the student body proposal). To assess the effect of emotional expressions on attitude change independent of other causes of social influence, we controlled for the difference between our participants' attitudes and their partners' attitudes. Doing this allowed us to keep constant the

distance that participants would need to cover to cast an affirmative vote. Thus, we calculated the absolute difference between participants' premanipulation attitudes and their partners' attitudes. For instance, a participant who chose 80% on the premanipulation attitude measure and who therefore had a partner favoring 20% received a score of 60.

We then regressed participants' votes on the partner's emotional expression, the participant's epistemic motivation, and their interaction while controlling for the distance between the participant's and the partner's attitudes. The results indicated, unsurprisingly, that the greater the distance between these two attitudes, the lower the likelihood of an affirmative vote ( $B = -0.23$ , Wald's  $z = -3.65$ ,  $p < .001$ ). More important, the effect of the partner's emotional expression on the participant's voting behavior was moderated by the participant's epistemic motivation (see Figure 3). In line with Hypothesis 2, expressions of anger increased the likelihood of affirmative voting (relative to expressions of happiness) to the degree that the participant's epistemic motivation was higher ( $B = 0.69$ , Wald's  $z = 1.81$ ,  $p = .036$ , one-tailed). There were no main effects of emotional expression ( $B = 0.13$ ) and epistemic motivation ( $B = 0.16$ ,  $z_s < 0.47$ ,  $p_s > .64$ ).

## Discussion

This study complements the foregoing experiments by showing that emotional expressions that are directed at a person's attitudes can bring about attitude change, as reflected in voting behavior. Consistent with our theorizing, expressions of anger engendered more positive attitude change than expressions of happiness to the extent that participants' chronic levels of epistemic motivation were higher. This study thus provides further evidence that indi-

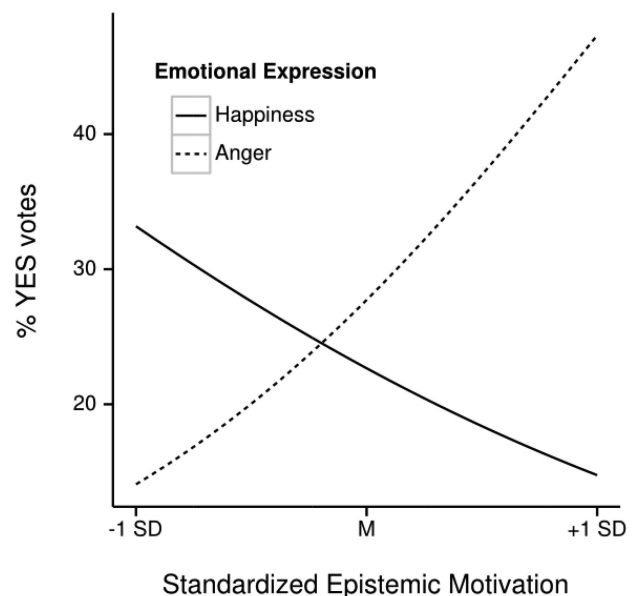


Figure 3. Interaction between partner's emotional expression and participant's epistemic motivation on attitude change (Experiment 5), expressed as the likelihood that the participant votes in favor of a proposal that is counter to his or her premanipulation attitude. The slightly curved lines reflect that a logistic regression was used to accommodate the binary dependent variable.

viduals only use the emotional expressions of others to inform their attitudes when they engage in sufficiently thorough information processing, as determined in this study by participants' dispositional epistemic motivation.

### General Discussion

The question of how emotions shape attitudes and attitude change has long been of interest to social scientists. Although a large body of research has considered how message recipients' affective states influence their susceptibility to persuasive messages (i.e., intrapersonal effects of moods and emotions), the effects of a source's emotional expressions on recipients' attitude formation and change (i.e., interpersonal effects) have surprisingly remained largely unaddressed. Drawing on social-functional perspectives on emotion (e.g., Keltner & Haidt, 1999; Parkinson, 1996) and on EASI theory (Van Kleef, 2009) in particular, we developed and tested the idea that individuals use the evaluative information inherent in others' emotional expressions to inform their own attitudes, but only when they are motivated and able to process this information.

Five experiments support these ideas. Consistent with Hypothesis 1, participants in Experiments 1 and 2 reported more positive attitudes about various topics after seeing a source's sad rather than happy expressions when topics were negatively framed (e.g., discontinuing a television show); conversely, participants reported more positive attitudes after seeing a source's happy rather than sad expressions when topics were positively framed (e.g., introducing a new discipline at the Olympics; Experiment 3). Furthermore, in keeping with our argument that individuals use the emotions of a source as information when forming their own attitudes, effects were mitigated when the participant's information processing was undermined by cognitive load (Experiment 3) or was chronically low (Experiment 5), supporting Hypothesis 2. Moreover, the effects generalized to attitude change. Consistent with our theorizing, a source's expressions of anger engendered negative attitude change when directed at the attitude object (Experiment 4) and positive attitude change when directed at the recipient's attitude (Experiment 5). These effects occurred regardless of whether emotional expressions were manipulated through words (Experiments 1–2), by means of pictures of facial expressions (Experiment 3), via film clips containing both facial and vocal emotional expressions (Experiment 4), or through emoticons (Experiment 5).

### Theoretical Implications

Moving beyond the traditional question of how individuals' moods and emotions affect their own attitudes, the present research illuminates how one person's emotional expressions may affect another's attitudes. Emotions have been associated with peripheral or heuristic information processing in dual process accounts of persuasion (for an overview of such models, see Chaiken & Trope, 1999). The present conclusion that people use the emotional expressions of others to inform their own attitudes suggests that, at least at the interpersonal level of analysis, emotions should not be treated as irrelevant or peripheral cues but should be incorporated in our theorizing as informative social signals that help individuals make sense of social situations (de Melo et al., 2014; Hareli &

Hess, 2010; Keltner & Haidt, 1999; Manstead & Fischer, 2001; Van Kleef et al., 2011) and that inform their attitudes.

This conclusion is underscored by the moderating role of cognitive load in Experiment 3. The presence of cognitive load enhances the influence of automatic processes on judgment and behavior through the inhibition of more deliberative thought processes and conscious analysis (Bargh, 1994; Gilbert & Osborne, 1989). The fact that we only observed effects of a source's emotional expressions under conditions of low rather than high cognitive load thus suggests that emotional expressions require a certain degree of conscious processing in order to exert effects on observers' attitudes. This interpretation is further supported by the moderating role of epistemic motivation that was observed in Experiment 5.

An alternative explanation could be that participants with low information-processing motivation failed to *notice* the source's emotional expressions. We believe that this interpretation is less plausible for two reasons. First, expressions of basic emotions such as happiness, anger, and sadness tend to be reliably detected without conscious effort, with accuracy scores typically around 90% or higher (Elfenbein & Ambady, 2002; Hawk, Van Kleef, Fischer, & Van der Schalk, 2009). This is especially true for validated emotional expressions such as the ones used in Study 3 (Goeleven et al., 2008; Lundqvist et al., 1998). Second, despite documenting effects of information processing on behavioral responses to others' emotional expressions, previous research on the social effects of emotions in other domains (e.g., negotiations, creativity, leadership) has not revealed moderating influences of information-processing motivation or ability on the accuracy of emotion perception (see, e.g., Sinaceur & Tiedens, 2006; Van Kleef, Anastasopoulou, & Nijstad, 2010; Van Kleef, De Dreu, & Manstead, 2004; Van Kleef et al., 2009; Van Kleef, Steinel, & Homan, 2013). That is, there was no evidence in previous research that participants with lower information-processing motivation or ability were less likely to notice others' emotional expressions. Nevertheless, this issue could be examined in greater depth in future research.

One may wonder to what extent the current findings can be accounted for by existing theories on affect and persuasion. First of all, it is important to emphasize that traditional models focus on the influence of the affective state of the *recipient* of a persuasive message on his or her attitudes (i.e., intrapersonal effects of emotion), whereas the current focus was on the impact of the *source's* emotional expressions on the recipient's attitudes (i.e., interpersonal effects of emotion; Van Kleef et al., 2011). This means that existing models can only potentially account for our findings to the degree that the source's emotional expressions reliably instigated similar affective states in the recipient in all of our experiments. This assumption is debatable, however, because the situations studied here vary greatly in the extent to which they are conducive to emotional contagion. Dominant models of emotional contagion hold that contagion is more likely to the degree that mimicry of facial and/or vocal expressions is possible (Hatfield et al., 1994; Hess & Fischer, 2013; Niedenthal, Mermillod, Maringer, & Hess, 2010), which was not the case in Experiments 1 and 2 (which involved written manipulations of emotional expression).

Even if emotional contagion had occurred, traditional intrapersonal models seem unable to account for our combined set of findings. One class of models posits that message recipients'

affective states influence their processing of persuasive arguments (see Côté, 2005a; Schwarz, Bless, & Bohner, 1991; Wegener, Petty, & Smith, 1995). Although such models could potentially explain some of our findings, it is difficult to see how they could account for the findings of Experiments 3 and 4, in which the emotional expressions of the source were presented *after* participants had already read the messages.

Other accounts maintain that the role of a message recipient's affective state in shaping persuasion is determined by the depth of his or her information processing (e.g., Briñol & Petty, 2009; Forgas, 1995). For instance, Briñol and Petty (2009) argued that under high elaboration, information about the source that is presented after the persuasive message determines how people weigh their initial reactions to the message. Under this account, a source's happy facial expressions could be seen as validation of the recipient's initial response to the message (Briñol, Petty, & Barden, 2007). This account would predict that a recipient's initial attitude about a topic influences the direction in which he or she is persuaded by the affective reactions instigated by a happy source—the direction of persuasion should be positive when the source's happiness validates positive initial thoughts and negative when the source's happiness validates negative initial thoughts. Although this model fits some of our data, it cannot account for all of our findings because several of the messages used in the present studies contained both arguments for and against a particular position (i.e., the Twin Towers article in Experiment 2, the kite surfing article in Experiment 3, and the Greenpeace news bulletin in Experiment 4). This makes it troublesome to assume that participants invariably had favorable or unfavorable initial attitudes upon seeing the messages.

For these reasons, we believe that—although certainly relevant to the current research—traditional (intrapersonal) models of affect and persuasion cannot explain our combined set of findings, whereas EASI theory can account for all our findings in a simple and parsimonious framework. There is growing empirical support for EASI theory from other domains of social and organizational psychology, including negotiation (e.g., Sinaceur & Tiedens, 2006; Van Kleef et al., 2004, 2006), leadership (e.g., Sy, Côté, & Saavedra, 2005; Van Kleef et al., 2009), and group decision making (e.g., Heerdink, Van Kleef, Homan, & Fischer, 2013). The current findings contribute to the accumulating body of evidence that emotional expressions provide social cues that exert influence on observers.

In addition, our findings speak to EASI theory's proposition that the effects of emotional expressions are functionally equivalent across expressive modalities (Van Kleef et al., 2011). A basic assumption underlying the theory is that individuals turn to each other's emotional expressions to make sense of ambiguous (social) situations and that such disambiguating information can be gleaned from verbal as well as nonverbal expressions. In line with the functional equivalence hypothesis, the effects observed here occurred regardless of whether emotions were expressed by means of words, through facial expressions, via emoticons, or through a combination of verbal, facial, and paralinguistic emotional cues.

Finally, our findings have theoretical implications for adjacent disciplines. The study of the social functions of emotions is a multidisciplinary area of research that has connections with, for instance, developmental psychology, sociology, and anthropology (Keltner & Haidt, 1999). The current findings may thus open up

new avenues of research in these disciplines, for instance, with regard to the potential influence of emotional expressions in the context of socialization, education, the learning of cultural norms, positive and negative reinforcement, and the perpetuation of social practices and institutions (Hochschild, 1990; Klinnert et al., 1983; Rozin, Haidt, & McCauley, 2008; Shweder, Mahapatra, & Miller, 1987).

## Practical Implications

Research on social influence aims to uncover the processes through which and the circumstances under which individuals come to adapt their attitudes, cognitions, and/or behavior to other individuals (Cialdini & Goldstein, 2004). Besides an interest in fundamental processes, the social influence literature reveals a strong interest in tactics that can be used to influence other people. Some of these strategies capitalize on emotional processes. For instance, fear appeals can be used to frighten people (e.g., by showing pictures of tarred lungs to smokers), which may under particular circumstances help to establish behavioral change (Rogers, 1983). The findings presented here suggest that interpersonal emotional strategies may be added to the social influence toolbox (Van Kleef et al., 2011). This simple notion has interesting practical and professional implications. The persuasive power of emotional expressions could be wielded by managers, lawyers, consultants, mediators, politicians, advertisers, health educators, and other professionals who frequently deal with emotions and/or strive to change people's opinions or behavior, although it remains to be seen whether emotional expressions also have the power to influence firmly held beliefs (see below).

One area in which our findings could be profitably applied is organizational change. Due to globalization, migration, increasingly diverse workforces, and rapidly changing demands and economic situations, companies face the challenge of changing critical aspects of their business, such as the structure of the organization, the composition of their workforce, the products or services they provide, and the procedures and techniques used to produce their goods. Such organizational change is often met with considerable resistance from the work floor (Weick & Quinn, 1999). To the degree that attitudes toward organizational change are similar to other types of attitudes in terms of their relative malleability, the current findings suggest that change managers could capitalize on emotional expressions to create support for organizational change.

More generally, the current insights could be used by managers to influence their employees. Previous research has documented that the emotional expressions of leaders influence followers' impressions of the leader (e.g., Bono & Ilies, 2006; Lewis, 2000) as well as their task performance (e.g., George, 1995; Sy et al., 2005; Van Kleef et al., 2009). It seems plausible, given the current findings, that leaders can also wield the power of their emotional expressions to shape followers' attitudes about organizational issues. Interestingly, besides deliberately using their emotions to influence followers (Fitness, 2000), leaders may unknowingly shape the attitudes of their followers by means of their emotional expressions because a considerable portion of nonverbal behavior happens outside of conscious awareness (Ekman, 1993). Through such subtle influence processes, managers may over time shape the organizational culture and belief system within which they operate.

Finally, our findings may have applied implications in the areas of consumer psychology, customer service, and advertising. There is a widespread awareness among both academics and practitioners that the emotional expressions of customer-service workers may influence customers' satisfaction and purchase intentions, as is reflected in the famous credo of *service with a smile* (Grandey, Fisk, Mattila, Jansen, & Sideman, 2005; Pugh, 2001). Accordingly, employees are often expected to show positive emotions as part of their work role (Hochschild, 1983; Rafaeli & Sutton, 1987). The current findings suggest that the emotional expressions of store employees shape customers' attitudes by signaling evaluative information about the store and/or its products, although the nature of such effects is likely to depend on the apparent object of the emotion. A service employee who walks around smiling may subtly influence customers' attitudes toward the store, whereas an employee who directs his or her emotional expressions specifically toward a product may influence potential customers' attitudes about that particular product. Indeed, a variant of this strategy is commonly used in commercials for cosmetic products, in which an actor typically smiles more vigorously after having used a particular product than before.

### Strengths, Limitations, and Suggestions for Future Research

Although the findings of the five experiments reported here provide converging support for the idea that a source's emotional expressions can influence observers' attitudes, important questions remain to be addressed. One interesting avenue for future research would be to investigate whether emotional expressions have the power to change firmly held attitudes and beliefs. Experiments 4 and 5 provide some initial evidence that emotional expressions have the capacity to modify previously held attitudes (in this case, about Greenpeace and academic education), but the effectiveness of such emotional persuasion may be limited by boundary conditions. It is plausible, for instance, that individuals are less likely to adapt their attitudes in response to another person's emotional expressions when the attitude object is more central to their self-concept or is otherwise resistant to change (see, e.g., Petty & Krosnick, 1995).

A related question concerns the duration or temporal stability of the present effects. Research in other domains indicates that the informational influence of emotional expressions may extend beyond the immediate situation. For instance, a negotiation study showed that impressions of toughness that were conveyed by angry counterparts spilled over to influence later interactions with those counterparts, even if they did not express anger during those later interactions (Van Kleef & De Dreu, 2010). A study on group decision making further showed that the effects of group members' expressions of anger on conformity by deviant group members was still evident 3 weeks after the interaction (Heerdink et al., 2013). The impact of emotional expressions on attitude formation and change may also last beyond the immediate effects demonstrated here, but future research is needed to establish this.

Our focus in this research has been on pure emotional expressions of happiness, sadness, and anger, and this tendency is characteristic of most research on the interpersonal effects of emotions (for rare exceptions, see Filipowicz, Barsade, & Melwani, 2011; Rafaeli & Sutton, 1991; Sinaceur, Adam, Van Kleef, & Galinsky,

2013). However, in everyday life, individuals often experience blends of emotions (Scherer & Tannenbaum, 1986), which may even comprise emotions with a different valence. For instance, individuals reported that they simultaneously experienced happiness and sadness on graduation day (Larsen, McGraw, & Cioppo, 2001). It would be interesting to investigate the effects of such mixed emotional expressions on observers' attitudes. One direction that we believe would be particularly exciting to investigate is the possibility that a source's mixed emotional expressions fuel attitudinal ambivalence in observers, which is characterized by the coexistence of positive and negative dispositions toward an attitude object (Ajzen, 2001; Jonas, Broemer, & Diehl, 2000; Kaplan, 1972; Van Harreveld, Van der Pligt, & De Liver, 2009).

Another interesting direction for future research concerns the potentially differential effects of sincere versus feigned emotional expressions, an issue that is of great theoretical as well as practical relevance. The current findings point to potential emotional strategies that could be used by those who are interested in changing other people's attitudes (e.g., managers, politicians, salespersons, advertisers, health educators). However, emotional expressions that are used deliberately as part of an influence attempt may come across as insincere and manipulative when they do not reflect the person's actual emotional experience (Côté, 2005b; Grandey, 2003). A recent negotiation study indicated that feigned expressions of anger (which do not correspond with the expresser's actual feelings) may backfire because they are perceived as inauthentic, which undermines trust and triggers defensive strategies in observers (Côté, Hideg, & Van Kleef, 2013). It is conceivable that feigned emotional expressions that are used as part of a persuasive message are ineffective for similar reasons.

Finally, it will be important to establish to what extent the current findings generalize across cultures. Previous research on the interpersonal effects of emotions in negotiations has documented reliable cultural differences, especially with regard to negotiators' responses to their counterparts' expressions of anger (Adam, Shirako, & Maddux, 2010; Kopelman & Rosette, 2008). For instance, Adam and colleagues (2010) found that European American participants conceded more to angry than to neutral negotiation opponents (consistent with earlier findings; Sinaceur & Tiedens, 2006; Van Kleef et al., 2004), whereas Asian American participants conceded *less* to angry than to neutral opponents because they deemed expressions of anger inappropriate. As such, the effects of anger expressions on attitude change that we observed in Experiment 5 may be limited to Western cultures.

### Conclusion

Across five experiments, we found evidence that people use the emotional expressions of others as information when forming attitudes about various topics. Expressions of happiness fed into more positive attitudes than expressions of anger or sadness when attitude objects were positively framed (e.g., introducing a new discipline at the Olympic Games), whereas the reverse was found when attitude objects were negatively framed (e.g., canceling a television show). Effects occurred regardless of whether emotions were expressed in words, through facial displays, by means of emoticons, or via a combination of facial, vocal, and verbal cues. Critically, the influence of a source's emotional expressions was



mitigated when the observer had low information-processing motivation or capacity. These findings support EASI theory and attest to the persuasive power of emotional expressions.

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