

## Discrete Emotions and Persuasion: The Role of Emotion-Induced Expectancies

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The authors argue that specific emotions can alter the persuasive impact of messages as a function of the emotional framing of persuasive appeals. Because specific emotions inflate expectancies for events possessing matching emotional overtones (D. DeSteno, R. E. Petty, D. T. Wegener, & D. D. Rucker, 2000), the authors predicted that attempts at persuasion would be more successful when messages were framed with emotional overtones matching the emotional state of the receiver and that these changes would be mediated by emotion-induced biases involving expectancies attached to arguments contained in the messages. Two studies manipulating discrete negative emotional states and message frames (i.e., sadness and anger) confirmed these predictions. The functioning of this emotion-matching bias in parallel with emotion-induced processing differences and the limitations of a valence-based approach to the study of attitude change are also considered.

Required [for persuasion] is a thorough acquaintance with all the emotions with which nature has endowed the human race. . . . For everyone knows that the power of an orator is most manifest in dealing with people's feelings, when he is stirring them to anger or to hatred and resentment, or is calling them back from these same emotions to mildness and compassion.

—Cicero, *De Oratore*

In 55 B.C.E., Marcus Tullius Cicero, echoing the sentiments of even earlier rhetoricians (e.g., Aristotle, *On Rhetoric*), admonished the orators of his day to appreciate the power of specific emotions in the art of persuasion. It was through manipulations of emotions such as anger, despair, and hopeful compassion, many classical orators argued, that opinion could be swayed most effectively. A person who gained mastery both in the evocation of emotion and in the emotional framing of argumentation was believed to be among the most successful practitioners of persuasion (Cicero, *De Oratore*, trans. 2001; Kennedy, 1994).

Appeal to the emotions as sources of leverage in persuasion is a venerable strategy and one that continues to be used by politicians and marketers alike. Candidates, for example, often attempt to raise the ire of their audience against certain policy positions; marketers attempt to evoke disgust among potential customers to help convince them of the need to purchase insecticides or health-related products. Empirical study of the role of emotion in persuasion also represents a venerable, if somewhat temporally shorter, tradition. Since its beginnings, the psychological study of persuasion has examined the roles played by affective states (for reviews, see Eagly & Chaiken, 1993; McGuire, 1969, 1985; Petty, DeSteno, & Rucker, 2001; Petty & Wegener, 1998a). In the psychological literature, however, the study of emotion-based influences has primarily focused on the differential effects of positive and negative mood (typically operationalized as happiness and sadness) on persuasion (Eagly & Chaiken, 1993; McGuire, 1985; Petty et al., 2001; Petty & Wegener, 1998a; Schwarz, Bless, & Bohner, 1991; Schwarz & Clore, 1996).

To our minds, the penchant for focusing study of the role of affective states almost solely on happiness and sadness, though providing many insights into the ways in which affect shapes attitude change, may mask a truer understanding of the potential influence of emotion on persuasion. Indeed, the bifurcation of emotional phenomena into positive versus negative states stands in direct opposition to the view espoused by many classical practitioners of persuasion. It also represents a gross oversimplification of emotional experience; distinctions among negative emotions (e.g., sadness, anger, disgust) and among positive emotions (e.g., gratitude, joy) are lost. If one accepts the growing view that a primary purpose of the emotion system is to engender adaptive responses to distinct situational appraisals through modifications of mental processing, motivation, and physiology (cf. Damasio, 1994; Frijda, 1986; Herrald & Tomaka, 2002; Keltner & Gross,

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1999; LeDoux & Phelps, 2000; Schwarz & Clore, 1996), then it seems probable that distinct emotions should exert some level of differential influence on these phenomena that is not captured through a simple positive–negative dichotomy. Put differently, it seems plausible that the ability to experience distinct emotions should result in their differential influence on many cognitive and motivational processes (cf. Frijda, 1986; Keltner & Gross, 1999). Indeed, it suggests that Cicero may have had it right in stating that specific emotions have distinct effects on persuasion.

In accord with this view, one long-standing area of attitude change research has focused on the role played by a specific emotion in persuasion: the study of fear appeals (Baron, Inman, Kao, & Logan, 1992; Gleicher & Petty, 1992; Janis & Feshbach, 1953; Leventhal, Singer, & Jones, 1965; Rippetoe & Rogers, 1987). This work has demonstrated that increased fear can be associated with more positive attitudes toward policies or behaviors designed to remedy the fear-inducing threat as long as certain conditions are met (e.g., providing specific fear-reducing actions that can be taken; for reviews, see Boister & Mongeau, 1984; Petty, Fabrigar, & Wegener, 2003; Rogers, 1983). The study of fear appeals, however, differs somewhat from the focus of the present research in that it examines the influence of an emotion directly relevant to the attitude topic (e.g., fear caused by the possibility of tooth decay in a message on brushing teeth) on persuasion (Petty et al., 2001; Petty & Wegener, 1998a). In the present article, we examine a more general type of emotion-based bias: the influence of *incidental emotions* (i.e., emotions with no direct connection to the message topic) on persuasion.

The view that incidental discrete emotions may produce distinct effects on persuasion has only begun to be explored systematically (for an early exception, see Weiss & Fine, 1956). To date, these explorations have focused on emotion-induced processing differences. That is, in contrast to the initial view that negative affective states generally enhance message processing relative to positive states (for reviews, see Petty & Wegener, 1998a; Schwarz & Clore, 1996; Schwarz et al., 1991), more recent findings have suggested that not all negative emotions increase the processing effort devoted to the consideration of persuasive appeals.<sup>1</sup> For example, work by Bodenhausen, Sheppard, and Kramer (1994) revealed that anger resulted in an increased impact of peripheral cues in a message, suggesting a reduced level of information processing (Petty & Cacioppo, 1986). Tiedens and Linton (2001) replicated this finding and suggested that such processing differences may stem from the specific appraisal patterns attached to discrete emotions.

In the present article, we identify a separate process by which discrete emotions may differentially shape persuasion: emotion-induced biases in the likelihoods associated with elements of a message. Given the important role played by likelihood estimates, or expectancies, in attitude structure (Albarracín & Wyer, 2001; Fishbein & Ajzen, 1975; McGuire & McGuire, 1991; Petty & Wegener, 1991; for reviews, see Eagly & Chaiken, 1998; Petty & Wegener, 1998a) and recent research demonstrating that the experience of specific emotional states can influence the perceived likelihoods of events matching these states in emotional overtone (DeSteno, Petty, Wegener, & Rucker, 2000), we theorized that matches and mismatches between felt emotions and emotional framings of the specific arguments contained within messages would differentially influence a message's persuasive impact. Put

simply, because individuals use emotions as informational sources about their environment that in turn can shape their expectancies about the likelihoods of specific events mentioned in a persuasive message (cf. Clore, Gasper, & Garvin, 2001; Damasio, 1994; DeSteno, Dasgupta, Bartlett, & Cajdric, in press; DeSteno et al., 2000; Schwarz, 1990; Schwarz & Clore, 1996; Wegener, Petty, & Klein, 1994), emotions should be capable of influencing the impact of message arguments.

### Emotions, Expectancies, and Attitude Structure

Many models of attitude structure highlight the important roles played not only by the desirability of the attributes or outcomes of an attitude object but also by the likelihoods that the object possesses or will result in these attributes or outcomes (Fishbein & Ajzen, 1975; McGuire & McGuire, 1991; Rosenberg, 1956; Wyer, 1970). Indeed, one of the more widely accepted models of attitude structure, Fishbein and Ajzen's (1975) expectancy-value model, explicitly states that one's attitude toward any given object is a direct function of the values one attaches to the object's attributes or outcomes weighted by the likelihood one attaches to the existence or occurrence of each attribute or outcome. That is, individuals' attitudes toward any object are a function of their assessment of the object's positive and negative characteristics weighted by the likelihood that each characteristic exists or will occur. For example, one's attitude toward a presidential candidate may derive from (a) how many of the candidate's policy proposals are viewed positively or negatively and (b) the likelihood that the candidate can bring each proposal to fruition. Of course, this view of attitude structure entails an effortful consideration of the object under scrutiny when forming an initial attitude toward it; in the absence of motivation or ability to consider the relative attributes of an object, attitudes will often be based on simple cues that are salient at the time of consideration (Petty & Cacioppo, 1986; Petty & Wegener, 1998a). In support of this view, research has shown that message-induced changes to the desirabilities or likelihoods associated with an object's attributes can result in corresponding attitude change when individuals devote a relatively high level of effort to thinking (e.g., Lutz, 1975; MacKenzie, 1986; see also Eagly & Chaiken, 1993).

It stands to reason, therefore, that any source of information external to a persuasive message that can bias the likelihood or desirability estimates attached to attributes of an attitude object should be able to affect persuasion. Interestingly, however, study of this issue, with a few exceptions (e.g., Albarracín & Wyer, 2001; Wegener et al., 1994), has been relatively sparse (Petty & Wegener, 1998a). Nonetheless, emotional states, given their intrinsic ties to environmental appraisals and resulting signal values as a source of information (cf. Damasio, 1994; Frijda, 1986; Keltner & Ekman, 2000; Keltner & Gross, 1999; LeDoux, 1996;

<sup>1</sup> It is worth noting that a distinction between negative mood states and negative emotions (e.g., fear, anger, sadness) may play an important role in the determination of how negative affect influences cognitive processing. As Schwarz and Clore (1996) have noted, mood states are more diffuse and of greater duration than experiences of specific emotional states. Accordingly, it is possible that moods may exert effects on cognition that are distinct from those of specific emotions sharing a similar valence with mood states.

LeDoux & Phelps, 2000; Schwarz & Clore, 1996), stand as clear candidates for this role. Indeed, seminal work by Johnson and Tversky (1983) clearly documented the influence of affective states on likelihood judgments. In a series of experiments, they demonstrated that the induction of a positive or negative affective state that was incidental to the judgment at hand nonetheless biased likelihood estimates in a mood-congruent fashion. Negative affect inflated and positive affect deflated likelihood estimates for the occurrence of negatively toned events (e.g., contracting cancer, being hit by lightning). Positive and negative affective states have been shown to bias expectancies in a mood-congruent fashion for positively toned events as well (Mayer, Gaschke, Braverman, & Evans, 1992).

Recently, however, evidence has emerged that the influence of affective states on judgments of likelihood may not occur as a function of simple valence. Previous work, for example, has demonstrated that distinct emotions of the same valence (e.g., sadness and anger) differentially inflate estimates for events possessing emotional overtones that match perceivers' feeling states (DeSteno et al., 2000; see also Lerner & Keltner, 2000, 2001). For example, the experience of anger led people to increase the perceived likelihoods they attached to angering events (e.g., discrimination, traffic jams) but not saddening ones (e.g., death of a loved one, occurrences of childhood illness). Moreover, it was found that the source of this bias stems not from differences in the recall of exemplars of each event from memory but from the use of feeling states as informational cues regarding one's environment. That is, neither the quantity of exemplars recalled nor the ease with which they were retrieved was related to the likelihood bias. However, general beliefs concerning the status of the environment did predict the degree of bias. For example, feelings of anger were interpreted as evidence that participants' environments were angering places in which aggressive or frustrating acts were likely to occur. This reasoning led to an inflation of expectancies for the occurrence of specific angering events.

Extending this finding, we hypothesize that this emotion-induced bias in perceived likelihoods may create emotion-specific biases in message effectiveness. For example, if the arguments posed for the merits of a certain attitude object possess emotional consequences that match the current emotional state of a message recipient, expectancies regarding the likelihoods attached to these consequences should become inflated. If true, then expectancy-value approaches to persuasion would suggest that some message-emotion combinations should be more effective than others (cf. Fishbein & Ajzen, 1975; Petty & Wegener, 1998a). In short, matches between the emotional state and the emotional framing of messages should result in a greater persuasive impact of messages relative to mismatching cases.

Of course, the efficacy of this persuasion technique would be expected to depend on the amount of effort individuals give to considering a persuasive appeal; emotion-biased likelihood estimates regarding the central arguments of a message can only exert an influence to the extent that individuals consider the details of a persuasive message when forming an attitude toward it. If individuals do not process the message carefully, they are less likely to weight the values of the consequences mentioned in the message by their perceived likelihoods, and thus this source of bias should be diminished. Therefore, if Cicero were correct in advocating the importance of the manipulation of specific emotions as a persua-

sion tactic, it could be that the utility of this tactic rests partially on the ability of emotions to alter message-relevant expectancies that, in turn, mediate the impact of persuasive messages.

## The Present Studies

In the present studies, we sought to address the question of whether specific emotions can influence persuasion by producing a change in the perceived likelihoods attached to events mentioned in message arguments. To do so, we used a paradigm in which specific emotions and emotional framings of messages were manipulated together. In this research, we manipulated the emotional frame of the message by including arguments that pointed to consequences that varied in their emotional implications. For example, a sadness frame for a given policy proposal would highlight saddening problems that the proposal was designed to combat; an anger frame would highlight angering problems. In each case, our central prediction was that a match between a specific emotional state and the emotional framing of a message would result in increased persuasion compared with a mismatched case. Given our prediction that differences in persuasion would result from an emotion-induced change in the perceived likelihoods attached to events and their corresponding consequences mentioned in the messages, we also directly measured the expectancies associated with these events in an effort to identify the mediating mechanism empirically.

### Study 1

The goal of this study was to provide an initial examination of the emotion-specificity hypothesis as applied to persuasion. Given the recent demonstration that the influence of feeling states on expectancies functions in an emotion-specific manner (DeSteno et al., 2000), we believed that the effect of receivers' emotional states on their persuasibility in response to emotionally framed messages would demonstrate a high degree of specificity. That is, we hypothesized that increased persuasion would occur under conditions where receivers' emotional states matched rather than mismatched the specific emotional overtones of a message as determined by the emotional consequences of the arguments contained within it.

In the present study, we examined this hypothesis by presenting individuals experiencing either a sad or a neutral state with one of two equally strong versions of a proposal for an increase in their city's sales tax: sadness framed and anger framed. In both versions, the description of the tax increase was identical. The reasons presented for the tax increase, however, varied as a function of emotional framing. In the sadness-framed version, the increase was described as being necessary to combat a series of saddening problems (e.g., the plight of special-needs infants). In the anger-framed version, a series of angering problems in need of remediation (e.g., increasing traffic delays) was listed. After reading these appeals, participants' attitudes toward the tax increase and intent to support it if it appeared on the ballot were assessed.

We also measured participants' expectancies regarding the likelihoods that the listed problems would become worse if not addressed as well as the degree to which each problem made them feel sad or angry. This second measure was included given the importance of both expectancy and value information regarding an object's attributes in determining attitude structure and persuasion

(Fishbein & Ajzen, 1975; cf. Eagly & Chaiken, 1998; Petty & Wegener, 1991, 1998a). In order to make a clear case for emotion-biased expectancies as mediators of persuasion, we needed to determine if similar biases in the emotional values associated with each problem also resulted from the emotion manipulations. That is, although no such bias has been identified, it could be that sadness increases the effectiveness of sadness-framed arguments because the sad consequences seem more saddening rather than more likely. It is useful to note, however, that the existence of a value-based bias is most likely limited by the practical fact that many events that possess clear emotional consequences may already possess highly elevated value estimates. For example, instances of death or illness are usually perceived as highly evocative of sadness by most people and may, consequently, be less malleable in response to transient emotional states.

If emotion specificity does exist in persuasion, we expected to find that the experience of sadness would increase persuasion for the sadness-framed tax proposal only; sad participants' attitudes toward the anger-framed proposal were expected to be similar to those of neutral participants in response to both proposals. Moreover, we expected that persuasion would be mediated by changes in the perceived expectancies attached to the elements of the sadness-framed tax proposal. If, however, emotion specificity does not exist, then sadness should increase persuasion in response to messages possessing any type of negative emotional overtones because of a relatively equal inflation of expectancies for all negative elements (cf. Johnson & Tversky, 1983; Mayer et al., 1992). That is, sadness should result in equal persuasion in response to both message framings as well as in more positive attitudes toward these messages in comparison with attitudes occurring in the neutral state.

Finally, given that the emotion-matching bias we are proposing represents a form of biased processing (i.e., it derives from differential influences on the calculation of expectancy estimates), its occurrence necessitates an effortful consideration of a persuasive message. To increase the probability that participants in all conditions would devote effort to considering the tax appeals, we highlighted the personal relevance of the sales tax through detailing the multiple ways in which the tax would affect their individual purchases (cf. Petty & Cacioppo, 1986; Petty & Wegener, 1998a).

## *Method*

### *Participants*

Sixty-nine undergraduate students at Northeastern University participated in this experiment in partial fulfillment of a course requirement. Participants were randomly assigned to one of four experimental conditions: emotional state (neutral vs. sad) crossed with message framing (sadness framed vs. anger framed).

### *Procedure*

On arriving, participants were seated in individual cubicles each equipped with a personal computer. The experimenter informed them that they would be participating in two separate studies: one designed to examine memory for and opinions about events described in popular media outlets (e.g., magazine articles) and the other to evaluate government policies under consideration. In the ostensible first study, participants were told that they would be asked to read closely an article from a national magazine and then to respond to specific questions involving their memory

for its events and their views of these events. In the supposed second study, participants were told that they would be asked to read a proposal for an increase in the sales tax being considered by the city legislature. They were also provided with information regarding the ways in which this tax increase would affect them (e.g., increased prices of clothing, CDs, restaurant meals). Because this tax was described as affecting virtually every purchase made by the message recipients, the tax could be regarded as reasonably high in personal relevance and could be expected to result in relatively high processing of the message arguments by most participants (Petty & Cacioppo, 1986).

In an effort to assess students' views of this tax proposal, participants were told several questions would be asked of them regarding their attitudes toward it and their assessment of the city problems described in it. The experimenter also informed participants that because the passage of time was necessary between their reading of a magazine article and their completion of a memory test for it (i.e., the first experiment), they would be asked to complete the second experiment in between these two events. In actuality, the magazine articles served as the emotion induction.

Presentation of materials and data collection were accomplished using MediaLab software (Jarvis, 2000). After the experimenter left the room, participants read the magazine article. Immediately after reading it, they were presented with the instructions for the persuasion task, followed by presentation of either a sadness- or anger-framed tax proposal. After reading the proposal, participants completed measures that assessed their attitudes toward the tax increase. Following the attitude measure, participants provided information regarding their perceptions of the estimated likelihoods and values attached to each of the problems highlighted in the proposals, respectively. On completion of these measures, participants responded to a series of questions concerning their emotional reactions to the events described in the first article (i.e., the emotion manipulation check) as well as questions concerning their memories for events described in the article.

We had participants complete the emotion check after the persuasion measure in order to reduce their awareness of the emotional states induced by the articles. Awareness of the manipulation of their emotional states might have resulted in the application of corrective processes to their evaluative judgments (Berkowitz & Troccoli, 1990; DeSteno et al., 2000; Ottati & Isbell, 1996; Schwarz & Clore, 1996; Wegener & Petty, 1997). Given the relatively short time period necessary to complete the persuasion measures (approximately 5 min), we expected that the emotion manipulation check would provide a reasonably accurate assessment of the induced emotional states even in this temporally removed position. After completing the manipulation check, participants answered a series of demographic questions and completed other measures not relevant to the present study. They were then instructed to report to the experimenter in a separate room for debriefing.

### *Manipulations and Measures*

*Emotion manipulation.* Emotion inductions were accomplished by having participants read articles supposedly taken from news magazines (cf. Johnson & Tversky, 1983). The specific induction materials were identical to ones shown in past research to induce states of sadness and neutrality (see DeSteno et al., 2000; Wegener & Petty, 1994). The sadness-induction article described the effects of a natural disaster on a small village in Africa. The neutral-induction article detailed the progress of an urban development project in Chicago. Both articles were of approximately equal length. Participants were instructed to picture vividly the events being described as they read the article.

*Emotion-framed appeals.* Two versions of a proposal for an increase in the city sales tax were constructed (see Appendix for full text of the appeals). Each began with an identical statement acknowledging the existence of general problems in the city, and each ended with an identical statement asking for the reader's support. Emotional framing of the appeal was manipulated through insertion of a list between these two general

statements that detailed three specific problems that funds from the tax increase would be used to address. These problems were selected and pretested to highlight events that would cause either sadness (e.g., suffering of special-needs infants) or anger (e.g., increased traffic delays) on their occurrence. The appeals were also designed such that none of the problems listed shared overt similarities with the events described in the emotion-induction articles. Pretesting confirmed that the different appeals did not differ in overall argument strength or in overall negativity.

**Attitudes.** Attitudes toward the tax proposal were assessed with four questions. Each question took the form of a 7-point (1–7) semantic differential and was phrased as “Do you believe that passing this tax increase would be . . . ?” The respective question scales were anchored by *bad–good*, *harmful–beneficial*, *foolish–wise*, and *negative–positive*, with increasing values implying increasing positivity. The final attitude index consisted of the mean value of these four items (Cronbach’s  $\alpha = .88$ ). In addition, a measure of behavioral intent was included at the end of the attitude measure. Participants were asked to indicate whether they would support the proposal if it were placed on the ballot in the next election; answers were recorded using a dichotomous (i.e., *yes* or *no*) format.

**Expectancy estimates.** Participants rated how likely it was that the three saddening or angering problems contained in the received persuasive appeal would occur more frequently in the near future in the absence of the tax increase. Ratings were made using 7-point scales anchored by 1 (*extremely unlikely*) and 7 (*extremely likely*).

**Value estimates.** Participants rated the value levels of each of the three problems contained in the received persuasive appeal. Given that the persuasive appeals were framed using sadness- or anger-evoking problems, emotional value (i.e., desirability) was assessed by asking participants to report how saddening or how angering the occurrence of each of the problems would be. Saddening questions were used for saddening problems; angering questions were used for angering problems. Responses were recorded using 7-point scales anchored by 1 (*not at all saddening/angering*) and 7 (*extremely saddening/angering*).

**Emotion manipulation check.** To assess the effectiveness of the emotion induction, we used a measure of sadness adapted from DeSteno et al. (2000). This measure required participants to describe their emotional state through rating the degree to which they experienced a number of feeling states. A sadness score was calculated by taking the mean value of ratings for the following subset of adjectives: *sad*, *gloomy*, and *down* (Cronbach’s  $\alpha = .93$ ).

## Results

### Emotion Manipulation

The emotion inductions were successful in producing two groups of participants whose emotional states were characterized by either the presence or absence of sadness. A 2 (emotional state: neutral vs. sad)  $\times$  2 (message frame: saddening vs. angering) analysis of variance (ANOVA) revealed only the presence of a main effect of induction condition,  $F(1, 65) = 75.39, p < .001$  ( $d = 2.08$ ).<sup>2</sup> As expected, participants in the sadness-induction group reported a higher level of sadness ( $M = 5.13$ ) than did those in the neutral-induction group ( $M = 2.75$ ), regardless of message-framing condition.

### Attitudes

In accord with expectations, a 2 (emotional state: neutral vs. sad)  $\times$  2 (message frame: saddening vs. angering) ANOVA revealed that the only reliable difference in attitudes toward the proposal occurred as a function of the interaction between emotional state and message frame,  $F(1, 65) = 5.73, p = .02$  ( $d =$

0.58).<sup>3</sup> As depicted in Figure 1, sad participants were more in favor of the sadness-framed tax increase than were neutral participants,  $t(33) = 2.80, p < .01$  ( $d = 0.94$ ). However, emotional states did not differentially influence attitudes in response to the anger-framed message ( $t < 1$ ). Therefore, as predicted, more favorable attitudes only emerged for sad participants who were exposed to a sadness-framed message. Tukey honestly significant difference multiple comparisons revealed that attitudes in this condition differed from that in each of the other conditions ( $ps \leq .06$ ); no other mean differences emerged.

### Behavioral Intentions

If the increase in positive attitudes toward the tax proposal were the result of an effortful analysis of the arguments in the proposal, we would expect that responses on the voting behavioral intent measure would evidence a similar interaction between emotional state and message frame (Petty, Haugtvedt, & Smith, 1995). In accord with this prediction, sad participants were more likely to indicate that they would vote for the sadness-framed tax proposal ( $f_{yes} = 11, f_{no} = 7$ ) than were neutral participants ( $f_{yes} = 5, f_{no} = 13$ );  $\chi^2(1, N = 36) = 4.05, p = .04$  (Cramer’s  $V = 0.34$ ). Interestingly, this pattern appeared reversed among those who received the mismatched anger-framed tax proposal (sad  $f_{yes} = 5, f_{no} = 11$ ; neutral  $f_{yes} = 11, f_{no} = 6$ );  $\chi^2(1, N = 33) = 3.69, p = .06$  (Cramer’s  $V = 0.34$ ). In order to demonstrate clearly that the effects of emotional state on voting intent differed as a function of message framing, we submitted the data to a 2 (voting intent)  $\times$  2 (message frame)  $\times$  2 (emotional state) log-linear analysis. The predicted three-way association corresponded to the saturated model. Removal of the three-way association term resulted in a significant decrement in model fit,  $LR(1, N = 69) = 7.89, p < .01$ , thereby demonstrating the moderation of the relation between message framing and behavioral intent by emotional state.

### Mediational Analyses

Although we expected differences in perceived likelihoods to mediate the effect of sadness on attitudes, we also examined the possibility that mediation may have resulted from sadness-induced differences in value estimates associated with the events in the message. Each set of analyses was conducted separately as a function of the framing of the message. That is, for both expectancy and value mediation analyses, we examined the effects of sadness separately for the differently framed messages.

**Expectancies.** Figure 2 presents the relevant parameter estimates for the expectancy mediation analysis with respect to the sadness-framed tax proposal. Mirroring the preceding analyses, participants’ degrees of sadness, as indexed by their scores on the sadness scale of the manipulation check, influenced persuasion in response to the sadness-framed message when it represented the

<sup>2</sup> Effect sizes for all 1-degree-of-freedom comparisons are expressed using Cohen’s  $d$  (Abelson & Prentice, 1997).

<sup>3</sup> Analyses also revealed a marginal main effect of emotion,  $F(1, 65) = 3.72, p = .06$ , such that sad participants evidenced more persuasion than did neutral participants. However, this effect was qualified by the predicted interaction. Both effects are present because, as expected, the sad emotion/saddening frame condition led to greater persuasion than the others.

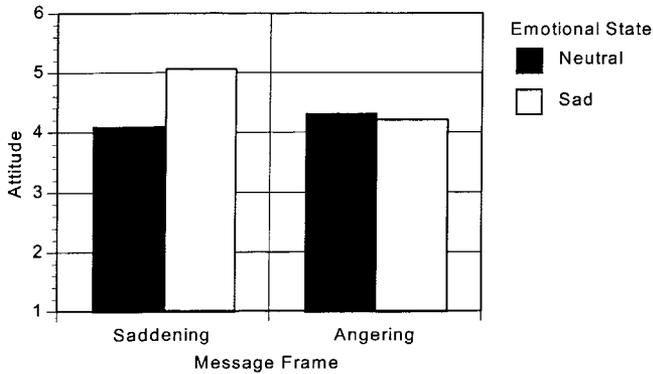


Figure 1. Attitude as a function of emotional state and message frame.

sole predictor in the model; increased sadness led to more positive attitudes toward the sadness-framed tax proposal. Increased sadness also resulted in heightened expectancies involving the worsening of the problems mentioned in the sadness-framed proposal. Expectancies, moreover, were associated with more favorable attitudes toward the tax increase. Of most import, a simultaneous regression revealed that increased expectancies resulted in greater positivity toward the tax proposal even when controlling for the influence of experienced sadness on attitudes; however, the direct effect of sadness on attitudes became negligible. Thus, sadness exerted an indirect influence on persuasion through its effects on expectancies (Sobel test = 1.85,  $p = .06$ ). Variability in sadness showed no predictive ability beyond this indirect effect, thereby demonstrating full mediation through the proposed mediator (cf. Kenny, Kashy, & Bolger, 1998).

In the case of the anger-framed tax proposal, the picture was quite different. Increased sadness predicted neither attitudes toward the tax proposal nor biases in expectancies involving the angering problems contained within it. As one would expect, heightened expectancies that the listed problems would grow were associated with increased positivity toward the tax proposal,  $r(29) = .57$ ,  $p = .001$ , but this association was not affected by the presence of sadness.

**Values.** As demonstrated by the previous analyses, increased sadness was associated with more favorable attitudes toward the sadness-framed tax proposal. Sadness, however, was not associated with beliefs regarding the saddening qualities, or values, of the listed problems,  $r(34) = .24$ ,  $p = .20$ . That is, increased sadness did not result in perceptions that the listed problems would evoke more sadness on their occurrence. Moreover, variability in this value measure was not associated with the positivity of attitudes toward the tax proposal,  $r(34) = .22$ ,  $p = .20$ . Given this pattern of covariation, it seems clear that the influence of sadness on persuasion in response to the sadness-framed proposal was not mediated by any biases in the values attached to the elements of the proposal. Moreover, as noted above, sadness did not affect attitudes toward the anger-framed appeal; therefore, no mediational argument could be made. However, it is informative to note that sadness did not bias value estimates for problems contained in the anger-framed appeal, and value estimates did not influence resulting attitudes.

## Discussion

The findings of Study 1 clearly demonstrate that the effect of emotion on persuasion in response to emotionally framed messages is not a simple function of valence. Rather, persuasion and increases in corresponding behavioral intent only occurred when the emotional framing of the message matched the phenomenological state of the recipient. More specifically, sadness increased persuasion only for the sadness-framed version of the tax proposal. Sad individuals formed less favorable attitudes in response to the anger-framed proposal; neutral individuals formed less favorable attitudes toward both the sadness- and anger-framed proposals.

With regard to the mediating mechanisms underlying attitudes, we found that sadness exerted its influence through biasing the expectancies attached to claims made in the sadness-framed appeal (cf. DeSteno et al., 2000; see also Wegener et al., 1994). For example, the more sad a participant felt, the more likely he or she believed it to be that the suffering of senior citizens from a lack of funds to heat their homes was on the rise and, consequently, the more positive an attitude he or she held toward a tax proposal designed to remedy this situation.

Given the importance of both expectancies and values attached to the attributes of an attitude object (cf. Fishbein & Ajzen, 1975), we also examined the possibility that emotion-matching effects in persuasion might reflect emotion-induced biases of the values attached to the problems described in the sadness-framed tax proposal. Analyses revealed no support for this prediction; increased sadness was not associated with sentiments that the listed events were more saddening. Consequently, alterations in expectancies appear to underlie the present effect.

It should be noted again, however, that the lack of evidence suggesting covariation between values and both emotional states and attitudes might stem from a restriction in range of the value scores. In order to manipulate the emotional framing of the tax appeal, the arguments of each appeal were selected so as to be highly representative of events that would evoke anger or sadness. That is, the arguments, by definition, were highly undesirable (i.e., very saddening or angering). In comparison, the expectancies attached to the elements were not so constrained. If events with weaker emotional overtones were used, the variability of the value scores would, most likely, have been less restricted and therefore freer to covary with the other measures. Use of such events, however, would interfere with the emotional framing of the messages; the events would necessarily have to be less evocative of a specific emotion.

It is also important to reiterate that motivation to process was heightened in the present study through highlighting the personal

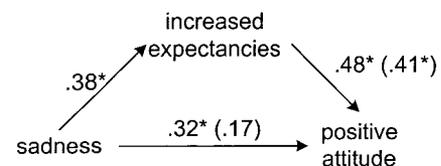


Figure 2. Emotion-relevant expectancies as mediators of emotion-induced attitude change in response to the sadness-framed message. Coefficients in parentheses represent parameter estimates for a regression model containing both predictors. Asterisks indicate parameter estimates that differ from zero at  $p < .05$ .

relevance of the proposed tax increase. As noted, the occurrence of the matching bias is predicated on an effortful consideration of the contents of a message. Consequently, the role of experienced emotion vis-à-vis emotional framing of the message in influencing attitudes can be expected to change as processing is reduced.

## Study 2

In order to make a strong case for the existence of emotion-specific effects on attitudes as a function of message framing, it is necessary to show not only that the presence of a single negative emotion produces differential attitude change in response to persuasive appeals possessing distinct negative emotional overtones but also that this specificity exists across experienced emotions of the same valence. To accomplish this goal, we designed Study 2 to serve as a replication and extension of Study 1. In the present study, we used a similar paradigm to examine the influence of emotion on message impact, this time fully crossing emotional state with message framing. Participants were made to experience either sadness or anger and then presented with either a sadness- or anger-framed tax proposal.

We believed that anger, like sadness, would function in accordance with specificity constraints. That is, we expected that a match between one's emotional state and the emotional overtones of a persuasive message would lead to increased persuasion. Once again, we also expected that persuasion would be mediated by emotion-induced biases in the expectancies attached to attributes of the message.

One additional factor warranted consideration, however. In Study 1, we placed all participants in a high-elaboration context by using an issue of relatively high personal relevance. This was done because prior research has clearly shown that a person's mood state biases the processing of message arguments mostly when thinking is high (Petty, Schumann, Richman, & Strathman, 1993; Wegener et al., 1994; see also Forgas, 1995). However, no prior research has examined the importance of elaboration in persuasion situations involving the biasing effects of specific emotions. Thus, in Study 2, we included a measure of the extent to which people chronically engage in thinking—the *need for cognition* (NC; Cacioppo & Petty, 1982)—to examine this issue. Our expectation was that specific emotions would influence expectancies and attitudes through the matching bias primarily for individuals high in the propensity to think. Such effects would be attenuated or absent for individuals low in this propensity, because these individuals would not effortfully consider the implications, and therein the likelihoods, attached to the events described in the messages.

A second reason that we included an assessment of processing motivation was that prior research has shown that anger often induces less information processing relative to sadness (Bodenhausen et al., 1994; Tiedens & Linton, 2001). This fact could potentially complicate interpretation of our study by introducing an additional effect of emotion that might act to moderate the occurrence of the matching bias. Prior work on NC has demonstrated that although situational variables can have a large impact on individuals low in NC, individuals high in NC are relatively immune to these situational variations (see Cacioppo, Petty, Feinstein, & Jarvis, 1996). For example, in one study, increasing the surprise value of a message enhanced the extent of processing for individuals low in NC but not for those high in this need (S. M.

Smith & Petty, 1996); high-NC individuals processed the information in an effortful fashion regardless of its surprise value. In another study, an untrustworthy source enhanced the extent of message processing for those low in NC but did not alter the high processing level among those high in NC (Priester & Petty, 1995). Thus, we expected high-NC individuals to engage in a high amount of thinking about the message regardless of the emotion induced; the effort of low-NC individuals, however, could be expected to be more malleable in response to contextual factors such as individuals' emotional states or the personal relevance of the message. If emotions bias thinking primarily under high-elaboration conditions, as suggested by past research, then high-NC individuals provide fertile ground for testing our emotion-matching hypothesis. Moreover, the attenuation or absence of the matching bias under conditions of lower processing would serve to identify an expected boundary condition for this bias.

## Method

### Participants

Eighty-seven undergraduate students at Ohio State University participated in this experiment in partial fulfillment of a course requirement. Participants were randomly assigned to one of four experimental conditions: emotional state (sad vs. angry) crossed with message framing (sadness framed vs. anger framed).

### Procedure

The procedure of Study 2 was identical to that of Study 1 with the following exceptions: (a) The emotion manipulations evoked sadness or anger as opposed to sadness or neutrality, (b) the details of the tax proposal were modified slightly, (c) value estimates were not collected because they had no impact in Study 1, and (d) participants completed an emotion manipulation check assessing both sadness and anger followed by the Need for Cognition Scale (Cacioppo, Petty, & Kao, 1984).

### Manipulations and Measures

*Emotion manipulation.* Emotion inductions were again accomplished by having participants read articles supposedly taken from news magazines (cf. Johnson & Tversky, 1983). The sadness-induction article was identical to that used in Study 1. The anger-induction article described an anti-American protest in the Middle East. Both inductions have been used successfully in prior research to produce distinct states of sadness and anger (DeSteno et al., 2000).

*Emotion-framed appeals.* Although the basic structure and manipulation of the emotional framing of the tax appeals were similar to that of Study 1, minor alterations were made with respect to a change in the location of the tax increase from the city of Boston to the state of Ohio (participants in this study were residents of Ohio; see Appendix for full text of the messages).

*Attitude.* The attitude (Cronbach's  $\alpha = .94$ ) and associated behavioral intention measures were identical to those used in Study 1.

*Expectancy estimates.* Expectancies for the sadness- and anger-relevant problems were assessed in the same way as in Study 1.

*Emotion manipulation check.* The emotion manipulation check consisted of two subscales. The Sadness subscale was identical to that used in Study 1 (Cronbach's  $\alpha = .85$ ). The Anger subscale consisted of the following adjectives: *angry*, *annoyed*, *frustrated*, and *irritated* (Cronbach's  $\alpha = .88$ ). Sadness and Anger scores were computed as the mean values of the respective items.

*Processing effort.* Participants were assigned to either the high or low default processing condition on the basis of a median split of the NC distribution, with those scoring at the median ( $Mdn = 60, f = 6$ ) removed ( $M = 60.00, SD = 12.87, Cronbach's \alpha = .91$ ).

## Results

### Emotion Manipulation

The emotion inductions produced two groups of participants whose emotional states were characterized by either sadness or anger. As expected, a 2 (emotional state: sad vs. angry)  $\times$  2 (message frame: saddening vs. angering)  $\times$  2 (NC: low vs. high)  $\times$  2 (emotion scale: sadness vs. anger) mixed ANOVA revealed only the presence of an Emotional State  $\times$  Emotion Scale interaction,  $F(1, 77) = 37.87, p < .001 (d = 1.94)$ . Participants in the sadness-induction group reported a higher level of sadness ( $M = 4.33$ ) than of anger ( $M = 3.11$ ),  $t(39) = 5.67, p < .001 (d = 0.88)$ , whereas participants in the anger-induction group did the reverse ( $M_{sadness} = 3.42, M_{anger} = 4.10$ ),  $t(40) = 3.16, p = .003 (d = 0.50)$ .

### Attitudes

As expected, a 2 (emotional state)  $\times$  2 (message frame)  $\times$  2 (NC) ANOVA confirmed that NC moderated the interaction between emotional state and message frame,  $F(1, 73) = 3.70, p = .05 (d = 0.86)$ .<sup>4</sup> As depicted in Figure 3, a match between emotional state and the emotional framing of messages resulted in a symmetric increase in attitude favorability among high-NC individuals,  $F(1, 38) = 9.06, p = .005 (d = 1.34)$ . Sad individuals high in NC were more favorable toward the sadness-framed proposal than were their angry counterparts,  $t(21) = 2.17, p = .04 (d = 0.90)$ , but angry individuals high in NC were more favorable toward the anger-framed proposal than were their sad counterparts,  $t(17) = 2.16, p = .04 (d = 1.27)$ . However, no matching effect emerged for those who were low in NC ( $F < 1$ ); rather, anger simply led to greater rejection of both messages than did sadness,  $F(1, 35) = 6.29, p = .02 (d = 0.86)$ .<sup>5</sup> Given that the symmetric matching effect on persuasion was confined, as expected, to the high-NC groups, all further analyses involve participants in these conditions only.

### Behavioral Intentions

As in Study 1, we also examined the influence of a match between emotional state and message frame on participants' intent to vote in support of the tax increase should it appear on the ballot. Log-linear analyses on high-NC participants revealed the existence of a three-way association among the variables; removal of the three-way association from the saturated model resulted in a significant decrement in fit,  $\Delta LR(1, N = 42) = 4.68, p = .03$ . Mirroring Study 1, sad participants were more likely to vote in support of the sadness-framed ( $f_{yes} = 7, f_{no} = 5$ ) as opposed to the anger-framed ( $f_{yes} = 3, f_{no} = 8$ ) message; the reverse pattern emerged among angry participants (sadness framed,  $f_{yes} = 3, f_{no} = 8$ ; anger framed,  $f_{yes} = 5, f_{no} = 3$ ).<sup>6</sup>

### Mediational Analyses

Consistent with Study 1, we expected to find that the influence of emotional states on persuasion stemmed from emotion-induced

biases in expectancies concerning the claims contained in the persuasive appeals. Separate mediation analyses were run for the sadness-framed and the anger-framed tax proposals. Parameter estimates for these analyses are presented in Figure 4.

<sup>4</sup> We also examined the moderating role of NC by treating it as a continuous variable in order to ensure that results stemming from a dichotomous grouping on NC do not reflect methodological artifacts (MacCallum, Zhang, Preacher, & Rucker, 2002). Here, attitude was regressed on emotion condition, message frame, NC, and the associated two- and three-way interaction terms. The use of NC as a continuously scaled factor places more parametric restrictions on the model, which can, consequently, result in increased sensitivity to the presence of outliers along a continuum defined by the joint effects of the predictor variables. That is, single deviant points that occupy unique coordinates on the NC continuum can exert great leverage on slope estimates. Such outliers can easily obscure the normative pattern of the data resulting from the simultaneous influence of these variables when samples are relatively small (McClelland, 2000). Therefore, we first tested for deviant points using the deleted studentized residuals for the regression equation (McClelland, 2000). Six data points met the criterion of being deviant from the normative pattern. The majority of these outliers represented data from participants with somewhat problematic scores on one or more of the predictor variables (e.g., emotion manipulation scores that did not suggest successful emotion manipulation, extreme NC scores). Removal of these outliers resulted in the confirmation of the three-way interaction found using the dichotomized NC grouping ( $\beta = .19, p = .08$ ). Reanalysis using the ANOVA framework with this reduced sample served to strengthen the reported three-way interaction pattern,  $F(1, 67) = 6.76, p = .01$ , though as noted in the text, it was also significant with all participants included.

<sup>5</sup> As noted previously, anger has been shown to reduce processing effort relative to sadness (Bodenhausen et al., 1994; Tiedens & Linton, 2001). Therefore, given the known plasticity in processing levels among low-NC individuals in response to situational influences (Cacioppo et al., 1996), one might expect that low-NC angry participants would devote less effort to consideration of the tax appeal than would low-NC sad participants. That is, even though the personal relevance of the message may have increased the default processing level among low-NC participants, anger may have functioned as a counterforce on processing level in comparison with sadness. The result would be a greater divergence from the pattern of the matching bias among low-NC angry participants in comparison with their sad counterparts. This pattern was confirmed in the current study. Although differences in NC resulted in qualitatively different patterns of persuasion among angry individuals,  $F(1, 37) = 3.68, p = .06$ , no such differences occurred among sad individuals. That is, the pattern of the matching bias among sad low NCs, although not being nearly as strong as that among sad high NCs (i.e., the simple effect of message frame was not significant for low NCs), did not deviate as greatly as that between high and low angry NCs. Because sad low NCs were most likely processing the tax message because of its high personal relevance to a greater degree than were angry low NCs, because of the effect of anger on thinking, the matching bias tended to remain to a greater extent for sad low NCs in comparison with angry low NCs. In this way, emotions can be seen to exert two separate effects on persuasion (i.e., effects on processing level and biased processing in accord with the matching bias under conditions of more effortful thought), with effects on processing level helping to determine the strength of the matching bias.

<sup>6</sup> Because of the decreased sample sizes resulting from a focus on high-NC individuals, chi-square tests within each of the individual message conditions did not reach statistical significance. However, meta-analytic examination of the two analyses confirmed the existence of the matching bias on voting intent (Stouffer's  $Z = 2.14, p = .02$ ).

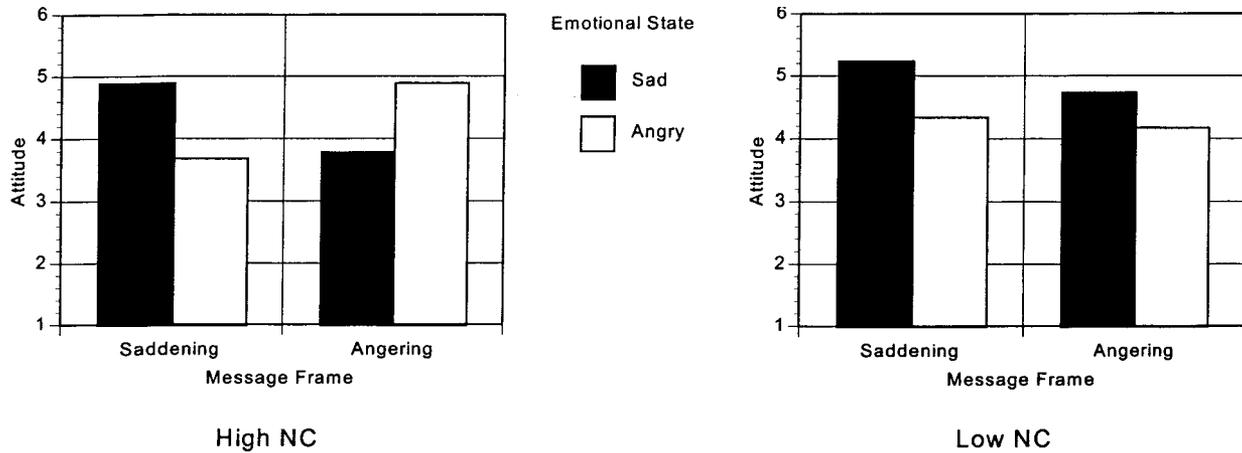


Figure 3. Attitude as a function of emotional state, message frame, and dispositional processing level. NC = need for cognition.

Among high-NC participants who received the sadness-framed message, increased sadness resulted in more favorable attitudes toward the tax increase. Increased sadness also predicted heightened expectancies that the problems mentioned in the proposal would increase if not addressed. When both sadness and expectancies were included as predictors, the regression model revealed that sadness had no causal efficacy beyond that mediated by its influence on expectancies. That is, heightened sadness led to more persuasion in response to the sadness-framed tax appeal because of its biasing of perceptions concerning the likelihoods of events possessing saddening emotional overtones (Sobel test = 1.77,  $p = .08$ ).

A similar picture emerged from analyses involving the anger-framed message. Increased anger resulted in increased positive attitudes toward the anger-framed tax proposal and in increased perceptions that the angering events would become more likely

without the tax hike. A simultaneous regression including both predictors revealed that the causal effect of anger on attitudes was mediated by the influence of anger on expectancies for events with angering overtones (Sobel test = 1.69,  $p = .09$ ). A meta-analysis of the respective Sobel tests for the sadness- and anger-framed mediation analyses using the Stouffer procedure (see Wolf, 1986) confirmed that the more favorable attitudes resulting from a match between participants' emotional states and message frames stemmed from an emotion-induced increase in expectancies concerning the relevant events associated with each message frame ( $Z = 2.44$ ,  $p = .01$ ). Emotions had no direct effect on attitudes once the indirect route through expectancies was included in the model, thereby demonstrating complete mediation.

Discussion

Study 2 provides an important extension of Study 1. Favorable attitudes were formed not only when a sad emotional state was matched with messages about the saddening consequences of inaction but also when angry emotions were matched with messages about the angering consequences of inaction. Put simply, the bias is sensitive to both differences in the emotional framing of messages and the emotional state of message recipients. Of importance, this emotional matching effect was greatest for individuals high in the propensity to think, thus confirming the expected boundary condition for occurrence of this bias.

With regard to the mechanism underlying the matching effect, we again found evidence that message impact was increased because of emotion-induced biases in expectancies associated with the consequences presented in the message arguments. That is, the more angry (sad) people felt, the more likely they believed it to be that the angering (saddening) events described in the tax proposal were likely to increase in the future and, therefore, the more positive became their attitudes toward a tax increase designed to address these problems.

General Discussion

The presented studies provide a clear demonstration of the importance of moving beyond a solely valence-focused under-

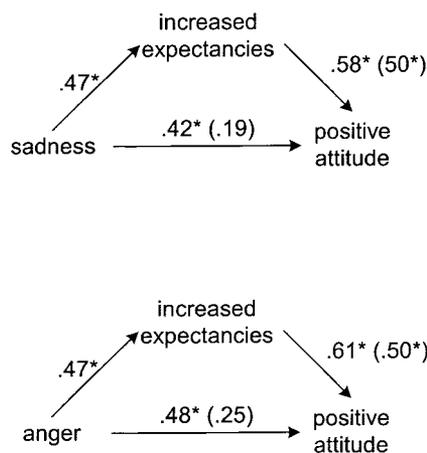


Figure 4. Emotion-relevant expectancies as mediators of emotion-induced attitude change in response to the sadness- and anger-framed messages. Coefficients in parentheses represent parameter estimates for a regression model containing both predictors. Asterisks indicate parameter estimates that differ from zero at  $p < .05$ .

standing of the role of emotion in attitude change. In so doing, the current experiments provide additional findings to the nascent corpus of work demonstrating the fact that, and processes by which, specific emotional states can influence persuasion (Bodenhause et al., 1994; DeSteno et al., 2000; Tiedens & Linton, 2001). In particular, these two studies identify a new bias linking the emotions of recipients with the emotional framing of messages in producing attitude change. Specifically, the current studies demonstrate that a match between an extant emotional state and the emotional consequences mentioned in a message facilitates the development of favorable attitudes, provided that the recipient devotes some degree of effort to consideration of the arguments contained in the appeal. The nature of this matching, moreover, is highly specific. That is, matches between states and message frames based on valence alone are not sufficient to engage the bias. Rather, the matching must occur according to more narrowly defined criteria; frames that match phenomenological states with respect to discrete emotion classifications produce the most persuasion. The specificity inherent in this bias stems from its mediating mechanism: emotion-induced biases in expectancies. That is, the experience of a discrete emotion results in increased expectancies of the existence or occurrence of events or attributes possessing matching emotional overtones. This alteration in expectancies for elements of a persuasive message subsequently leads to the message being more convincing (cf. Fishbein & Ajzen, 1975; McGuire & McGuire, 1991).

The idea that matches between receiver, message, and/or source characteristics can enhance persuasion is not a new one, however. For several decades, it has been known that matching the content of a persuasive message to the functional basis of a receiver's attitude (e.g., value-expressive function, social adjustive function) can influence its impact (Katz, 1960; Petty & Wegener, 1998a, 1998b; M. B. Smith, Bruner, & White, 1956; Snyder & DeBono, 1989). Much research has also suggested that even simple matches in similarities (e.g., social group membership) between sources and receivers can influence persuasion (Brock, 1965; Fleming & Petty, 2000; Mackie, Worth, & Asuncion, 1990). The current findings extend this broad framework of match-based influences on persuasion by not only providing evidence of a new matching bias involving emotions but also by identifying the mediating process by which this bias occurs. The second point is of great import, for only recently have concerted efforts been made to uncover empirically the processes by which matching effects exert their influence (e.g., biased processing, Lavine & Snyder, 1996; increased message scrutiny, Petty & Wegener, 1998b).

At the heart of the present bias is the use of emotional states as signals concerning the characteristics of one's environment. In accord with much emotion research demonstrating that these states function to provide information and appropriate goals designed to increase adaptive responding to the challenges posed by the immediate situation (Damasio, 1994; Frijda, 1986; Keltner & Gross, 1999; LeDoux, 1996; Schwarz & Clore, 1996), emotions were used in the present case to gauge the likelihoods associated with certain aspects of persuasive messages.<sup>7</sup> In the absence of clear information regarding such likelihood estimates, the current findings suggest that individuals turn to their emotions as a source of information. The presence of anger during reception of a political campaign message, for example, will increase receivers' expectancies regarding the occurrence of anger events. Given that

anger signals an appraisal of conflict, competition, and/or aggression (Frijda, 1986; Lerner & Dodge, 2000), if the candidate argues that one of her principal priorities will involve increasing police patrols to deal with crime (an angering event), angry receivers should be more persuaded to vote for her given their increased expectancies for the occurrence of crime. The exact phrasing of the arguments, however, could be expected to play an important role with respect to the efficacy of the matching technique. If the candidate, for example, stated that crime had been diminished by previous tax hikes and that a new tax increase would reduce it even further, the presence of anger might work against the desired end. In this case, individuals would focus on likelihoods concerning the reduction of crime; anger, in this case, would be expected to decrease such estimates and, thereby, decrease the impact of the candidate's message. In addition, message impact would not be enhanced for individuals experiencing any other negative emotion; sadness and disgust, for example, signal different situational appraisals even though they share a negative valence with anger.

Given this perspective, discovery of the emotion-matching bias may also provide a window into understanding the efficacy of fear appeals. The dominant view in this area has been that the effectiveness of fear appeals hinges on the extent to which messages convince individuals that the threatening consequences are likely to occur (Rogers, 1983; Petty & Wegener, 1998a). Indeed, recent work on this topic by Das, de Wit, and Stroebe (2003) has demonstrated that increasing perceived vulnerabilities to a threat contained in a fear appeal was associated with increased negative affect and persuasion. We suspect that the causal relation between message content and fear may be bidirectional. That is, an initial level of fear may develop in response to a certain message and may then act to increase subjective fear through increasing perceptions of vulnerability (cf. DeSteno et al., 2000). For example, someone may initially feel some degree of anxiety concerning the likelihood that he will experience heart disease as he reads a public service announcement regarding heart health. As he continues to consider the message, this sense of fear may serve to inflate his perceived likelihood of succumbing to heart disease. Such increased expectancies may then motivate him to be even more receptive to the message. This view of the function of fear in threat appeals is notable for two reasons. First, it suggests that fear appeals may function much like any other persuasive technique involving altered expectancies; to the extent that perceived likelihoods associated with the attributes of an attitude object change, persuasion will follow (Petty & Wegener, 1998a). Second, it suggests that the fear experienced at the time of message reception need not be derived from the appeal itself; that is, any incidental experience of fear could be expected to increase persuasion in response to a threatening message.

### *Limitations and Caveats*

Five caveats to the functioning of this bias deserve attention, however. As emphasized by the elaboration likelihood model of

<sup>7</sup> The degree to which an adaptive response will occur as a function of emotion depends, of course, on whether the emotion is integral or incidental to the judgment at hand.

persuasion, emotions often play multiple roles in the persuasion process (Petty & Cacioppo, 1986; Petty et al., 1993, 2001; Petty & Wegener, 1998a). For example, anger not only can bias the processing of information related to expectancies but can also directly influence the level of elaboration with which a message is considered. In Study 2, among individuals who devoted relatively higher effort toward processing the persuasive appeal, anger-biased expectancies led to greater acceptance of an anger-framed message; however, among those who processed less effortfully, no such bias appeared. Thus, unless other personal or situational factors (e.g., NC) induce angry people to engage in greater consideration of a message, the pairing of evoked anger with an anger-framed message has the potential to backfire because of an anger-based reduction in processing effort. That is, the simple presence of anger may sometimes prevent effortful consideration of a message, and without such consideration, anger may not have the opportunity to bias expectancies attached to the message arguments.

The second caveat to the emotion-specific expectancy bias also has the potential to result in opposing effects. In our initial identification of the effects of specific emotions on expectancies (DeSteno et al., 2000), we demonstrated that heightened emotional states did not invariably lead to the inflation of likelihood estimates. Rather, when participants were suspicious that emotions might bias their judgments and they had the ability to combat this bias, they were shown to engage in correction resulting in inverse effects of emotion on likelihood estimates. Thus, any situational or dispositional variables that might enhance suspicion, ability, or motivation to counteract emotion-induced biases on expectancies could function to reduce or remove any potential benefits to persuasion provided by the matching of emotional states with emotional framings of messages (cf. DeSteno & Braverman, 2002; Wegener & Petty, 1997).

Thirdly, it is important to note that because the effectiveness of the bias rests on an emotion-induced inflation of the likelihoods associated with specific events or attributes of the message, one must assume that these elements can be viewed as providing a relatively strong argument for the attitude object. If this is not the case, persuasion may not be enhanced even though likelihoods are biased upward. For example, if we had presented participants with the argument that a tax increase is needed to hire more animal control officers because many children's pets are running away and need to be retrieved (a saddening but weak argument), it is unlikely that sad individuals would have shown increased persuasion. For the majority of people, loss of children's pets, though a sad event, may not represent a viable rationale for a tax increase.

Fourthly, as with many emotion-based biases, the functioning of the emotion-matching bias on persuasion may be limited to conditions in which strongly held attitudes or beliefs are not at issue (cf. Petty & Wegener, 1998a). In the present studies, participants probably had little confidence in their knowledge concerning the exact likelihoods or frequencies attached to the specific events listed in the tax appeals. Given that it is in the absence of clear knowledge that emotions often act to fill in the blanks, the use of feeling states as sources of information in the present paradigm is to be expected (Schwarz & Clore, 1996). It is not certain, however, that this bias would function in cases where the persuasive appeals referenced events or attributes about which individuals felt confident in their knowledge. In such cases, direct knowledge or evaluations would most likely be used. Individuals would be unlikely

to be influenced by their feeling states when considering their attitudes because of either (a) a sense of certainty regarding the likelihoods attached to the object's attributes or (b) the presence of a highly accessible attitude that precludes the need to form a new one on the basis of possibly biased expectancies associated with the object's attributes.

Finally, we used a very specific definition of emotional framing. We manipulated the emotional tone for a given attitude object by presenting different attributes associated with it. For the anger frame, we presented attributes that were angering; for the sadness frame, we presented attributes that were saddening. Although the strength of the messages was matched on the basis of the different framings, this procedure differs from a separate kind of emotional framing that would be based solely on characteristics distinct from the object's attributes. One could imagine presenting the same persuasive message for a tax appeal while manipulating the emotional overtones of the message through other means. For example, if the audience is angry, the orator might engage in nonverbal behaviors that are associated with anger while delivering the message. In this case, matching would be based on characteristics of the receiver and source as opposed to characteristics of the receiver and message. At present, whether such different types of emotion matching influence persuasion remains an open question but one worthy of further investigation.

### Coda

These caveats notwithstanding, identification of this discrete emotion bias on attitudes opens a new arena in which to examine the interplay of emotional and cognitive processes. It presents a mechanism by which specific emotional states may interact with other elements of the environment in influencing evaluations, and in so doing, provides a new window to look through when examining the use of discrete emotions by practitioners of persuasion. Viewing a politician railing against tax increases or citing the needs of sick children while discussing a health insurance policy is an experience familiar to many. The present findings provide one technique for studying the effectiveness of such emotional evocations on attempts at persuasion. They also provide much room for further exploration of conscious or unconscious motivational processes related to persuasion. For example, many orators or media outlets differ dramatically in the emotions they evoke. An interesting question, then, revolves around whether individuals choose to attend to certain orators or media outlets because their typical presentations match individuals' emotional states. Moreover, is it the case that more successful practitioners of persuasion constantly modify their messages to match the emotional states of their audiences? Each of these open questions holds important consequences for understanding the roles of discrete emotions in persuasion. At present, however, we can answer the basic question with which this inquiry began. It seems that the classical position advocating the efficacy of manipulations of discrete emotions to engender persuasion is correct. Cicero, it appears, had it right all along, even if he did not exactly understand the mechanisms or limiting conditions underlying his advocated technique.

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(Appendix follows)

## Appendix

## Sadness- and Anger-Framed Messages in Study 1

## Sadness-Framed Message in Study 1

While we are proud of the city of Boston, we feel that more can be done to make it a better place to live. It is our view that many Boston programs are currently underfunded, leading to a series of negative results. For example, it is our view that if funding to city-run medical clinics is not increased, the rising number of special-needs infants (e.g., HIV-infected babies) remanded to public guardianship will not receive adequate attention and care. Staff shortages will result in many babies suffering in isolation for many hours per day, craving contact, warmth, and affection. We also believe that if state aid to the low-income elderly is not increased, many seniors will die alone every winter, freezing to death, because they cannot afford to heat their homes. Finally, we feel that if funds are not increased for the fire and emergency medical departments, greater numbers of people will lose their homes and/or lives because there simply aren't enough emergency vehicles to meet present needs. Funds from an increase in the sales tax will be used to address these problems. We hope that we can count on your support.

## Anger-Framed Message in Study 1

While we are proud of the city of Boston, we feel that more can be done to make it a better place to live. It is our view that many Boston programs

are currently underfunded, leading to a series of negative results. For example, it is our view that if funding to hire more local Medicare and HMO inspectors is not approved, more individuals will wrongly take advantage of these government-controlled health care systems by submitting fraudulent claims which negatively impact the care and resources available for people with true health problems. We also believe that if funds for highway construction are not increased, the size and scope of traffic delays on Boston highways will grow, leading many people to be delayed for even greater periods of time. Finally, we feel that if funds are not increased for police training, more criminals will escape prison because of legal technicalities resulting from police errors in the gathering and handling of evidence. Funds from an increase in the sales tax will be used to address these problems. We hope that we can count on your support.

*Note.* Messages used in Study 2 were identical except for the changing of information related to locale. In Study 2, the proposals advocated the raising of the state sales tax in Ohio.

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