

Running head: EMOTION AND TRUST

Feeling and Believing: The Influence of Emotion on Trust

Jennifer R. Dunn and Maurice E. Schweitzer

University of Pennsylvania

Keywords: Emotion, Trust, Anger, Happiness, Familiarity

### Abstract

We report results from five experiments that describe the influence of emotional states on trust. We find that incidental emotions significantly influence trust in unrelated settings. Happiness and gratitude, emotions with positive valence, increase trust, and anger, an emotion with negative valence, decreases trust. Specifically, we find that emotions characterized by other-person control (anger and gratitude) and weak control appraisals (happiness) influence trust significantly more than emotions characterized by personal control (pride and guilt) or situational control (sadness). These findings suggest that emotions may be more likely to be misattributed when the appraisals of the emotion are consistent with the judgment task than when the appraisals of the emotion are inconsistent with the judgment task. Salience of the emotion's cause and target familiarity moderate the relationship between incidental emotions and trust. Emotions do not influence trust when individuals are aware of the source of their emotions or when individuals are very familiar with the trustee.

## Feeling and Believing: The Influence of Emotion on Trust

Trust is essential for effective management, effective government, and effective social systems (Bazerman, 1994; Donaldson 2001). Yet despite its importance, fundamental questions remain about how trust actually operates. While theoretical work has identified a number of factors likely to influence trust (Lewicki & Wiethoff, 2000; Mayer, Davis, & Schoorman, 1995), recent experimental work has begun to challenge commonly held assumptions about trust (Glaeser et al., 2000; Pillutla, Malhotra, & Murnighan, 2003; Schweitzer, Hershey, & Bradlow, 2004).

In this paper, we explore the influence of emotions on trust. This work addresses an important gap in the trust literature. Prior theoretical (see Jones & George, 1998, for an exception) and experimental work has largely ignored the role of emotional states in trust. This omission is striking, because many important trust decisions are made in affect rich contexts. This is true for contexts in which the decision itself is affect rich (e.g., the decision of which nursing home to trust with the care of your parent) as well as contexts in which incidental emotions (e.g., frustration stemming from a prior conference call) influence an otherwise unrelated decision.

## Interpersonal Trust

### *Defining Trust*

Trust has been studied across several disciplines, including economics (Williamson, 1993), sociology (Gambetta, 1988), and psychology (Rotter, 1971). Across these disciplines, different definitions of trust have been developed, and in this paper we define trust by adapting a definition developed by Rousseau, Sitkin, Burt and Camerer (1998) that integrates a multi-disciplinary approach to trust:

*Trust is the willingness to accept vulnerability based upon positive expectations about another's behavior.*

In general, trust can exist between individuals, groups, and institutions, and can represent either a global belief in humanity or a situation-specific and/or trustee-specific attitude (Butler, 1991). In this paper, we focus on dyadic-level interpersonal trust.

### *Expectations of Trustworthiness*

Prior work has conceptualized trust as a product of two factors: an individual's propensity to trust and an individual's expectations about a trustee's future behavior (Mayer et al., 1995). An individual's propensity to trust is one's general willingness to rely upon others in situations where opportunism is possible. Individual characteristics, such as personality and developmental history, influence an individual's propensity to trust (Rotter, 1971; Mayer et al., 1995).

In this paper, we focus on an individual's expectations about a trustee's future behavior. Prior work suggests that expectations of trustworthiness are influenced by trustee attributes, such as ability, integrity, and benevolence (e.g., Butler, 1991; Mayer et al., 1995). These attributes are typically inferred from past experience with the trustee or from information a truster has about the trustee's reputation and intentions (Cook & Wall, 1980; Lewicki & Wiethoff, 2000). What is important to note is that trusters must rely on their *perceptions* of trustee characteristics to gauge trustworthiness. In this paper, we describe how trusters' incidental emotions—emotions unrelated to the trustee—influence these perceptions of trustworthiness.

### Affect-Cognition

Previous research has identified significant links between affective states (moods and emotions) and normatively unrelated judgments (see Forgas & George, 2001; Isen & Baron,

1991 for reviews). The specific relationship between affective states and judgment depends upon a number of important factors, such as the nature of information processing (Forgas, 1995; Hirt et al., 1997) and the criteria used for an evaluation (Martin et al., 1997). While prior research has primarily examined positive and negative moods, researchers have also found that specific emotional states influence unrelated judgments. This work has found that valence alone (i.e., positive/negative feelings) cannot explain the relationship between affective states and unrelated judgments (e.g., Desteno et al., 2000; Keltner, Ellsworth & Edwards, 1993; Tiedens & Linton, 2001).

*Mood Effects on Judgments: Affect as Information and Affect Infusion Models*

A number of mood models have been advanced. For example, Bower (1981) suggests that moods influence judgment through biased retrieval of mood-congruent information from memory; Martin, Ward, Achee, and Wyer (1993) suggest that the relationship between mood and judgment depends upon an individual's interpretation of their own mood; and mood maintenance models suggest that people engage in specific actions because they are motivated to maintain or repair a current mood state (e.g., Isen, Nygren & Ashby, 1988; Manucia, Bauman & Cialdini, 1984).

In this paper, we develop our theoretical framework with respect to the affect-as-information model (Schwarz & Clore, 1988) and the affect infusion model (Forgas, 1995). These two mood models have received substantial empirical support (see Schwarz & Clore, 2003; Forgas, 2001). The affect-as-information model suggests that people often misattribute their mood to the judgment at hand. Specifically, Schwarz and Clore argue that when people make evaluative judgments, they unconsciously ask themselves "how do I feel about (the judgment)?" In responding to this question, a person may use the valence of their unrelated feelings to inform

their judgment. This misattribution process is more likely to occur when the original cause of the mood is not salient. For example, when Schwarz and Clore (1983) asked people to rate their life satisfaction, they found that people provided higher ratings of life satisfaction on sunny days than they did on rainy days. When the authors prompted people to attribute their mood to the weather before making their judgment, however, they found no significant difference in ratings between people who provided ratings on sunny and rainy days. Schwarz (1990) postulates that the affect-as-information heuristic is most likely to influence judgments that are complex or affective in nature (Schwarz, 1990). Notably, in many cases, trust judgments are both complex and affective in nature (Johnson-George & Swap, 1982; McAllister, 1995).

The affect infusion model (Forgas, 1995) identifies the type of cognitive processing required for a judgment task as a key moderator of the relationship between mood and judgment. According to this model, affect will not influence judgment when people engage in either direct access processing (in which they retrieve pre-formed judgments) or motivated thinking. Affect, however, may influence judgment when people use open ended processing strategies, such as heuristic processing or substantive processing. When people engage in heuristic processing, they are likely to make judgments consistent with the affect-as-information model. When people engage in substantive processing, their feelings are likely to influence the way in which they process information (e.g., the type of information people retrieve from memory and the type of new information to which people attend).

The affect infusion model suggests that different types of judgments will be differentially influenced by moods. In this work, we consider how different types of *trust* judgments might be differentially influenced by incidental *emotions*. One factor likely to moderate the relationship between emotions and trust is the familiarity of the trustee. When the truster has little history

with the trustee (e.g., an acquaintance), the truster will use heuristic information processing to form a trust judgment; as a result, trust judgments of unfamiliar trustees will be frequently influenced by the affect-as-information heuristic. When the trustee is well known to the truster, trust judgments are likely to involve either direct access or substantive information processing. A truster may automatically associate a close friend with high levels of trust without thinking of specific evidence that supports or refutes the judgment (direct access processing). In this case, incidental emotions are likely to exert little influence on trust judgments. There may also be cases where trust judgments are formed for familiar people who have acted inconsistently in the past. In such cases, the truster will engage in substantive processing and incidental emotions may influence the information recalled and attended to in forming the judgment. In this paper, we examine the influence of emotion on trust judgments of unfamiliar acquaintances and highly familiar friends. We expect incidental emotions to influence trust judgments of acquaintances more than trust judgments of close friends.

### *Emotions and Judgments*

Most of the affect-cognition literature has explored how moods (positive or negative feelings) influence subsequent judgments. Relatively little research has considered how specific emotions (e.g., guilt) influence subsequent judgments. Unlike moods, emotional states are typically shorter in duration, more intense, and characterized by a number of different cognitive appraisals (Schwarz, 1990; Smith & Ellsworth, 1985). A cognitive appraisal is an assessment that a person makes regarding the current situation he or she faces. For example, an individual assesses the appraisal of valence by determining whether their current situation is positive or negative. Most mood research has contrasted the effects of positive and negative moods.

Emotions are more complex than moods (Smith & Ellsworth, 1985). Emotions can be characterized not only by the primary appraisal of valence, but also by a number of secondary appraisals including perceptions of certainty (e.g., how certain am I about the situation?), required attention and effort (e.g., how much attention do I need to devote to this situation?), and control over the outcome (e.g., to what extent am I, another person, or exogenous factors responsible for this situation?). Although all of these secondary appraisals are important for understanding emotions, prior work has identified the secondary appraisal of control as particularly important in distinguishing emotional states (Ellsworth & Smith, 1988; Frijda, 1993; Izard, 1992; Lazarus, 1991; Smith & Ellsworth, 1985; Weiner, 1993). In this work, we consider distinctions among emotions according to the secondary appraisal of control. For example, the emotions of anger, sadness and guilt are all negative in valence, but differ with respect to the appraisal of control. Anger is characterized by high other-person control, sadness by high situational control, and guilt by high personal control. That is, when assessing a negative situation, people typically feel angry if they perceive another person to be responsible, sad if they perceive non-human factors (e.g., illness or natural disaster) to be responsible, and guilty if they perceive themselves to be responsible.

Prior work has found that emotions with the same valence, but different control appraisals, have different effects on judgment (Bodenhausen, Sheppard & Kramer, 1994; Desteno et al., 2000; Keltner, Ellsworth & Edwards, 1993; Lerner & Keltner, 2001). For example, Lerner and Keltner (2001) found that fear and anger, two emotions with negative valence, had significantly different effects on risk assessments. They found that people feeling angry had more optimistic risk assessments than did people feeling fear, and that different appraisals of control mediated this relationship.



Some scholars have postulated that moods are more likely to influence judgments than are emotions (Schwarz, 1990; Forgas & George, 2001). These scholars have argued that emotions are more likely to be properly attributed to their original cause than are moods. Other work, however, has demonstrated that emotions that have a known, but not salient, cause exert significant influence over unrelated judgments. For example, Gasper and Clore (1998) found that state anxiety from a known cause (upcoming final exams) influenced judgment when the cause of the anxiety was not salient, but did not influence judgment when the cause of the anxiety was highlighted. In many cases, individuals may correctly attribute their emotional state initially, but misattribute it later, when the cause of their emotional feelings is less salient. For example, a manager may become angry during a difficult meeting with a client. Upon leaving the meeting, the manager may still feel angry, but the cause of the anger may no longer be salient. In this example, the manager may misattribute her feelings when judging a subordinate in an unrelated context.

### Overview of Present Research

In this paper, we explored the influence of discrete emotions on unrelated trust judgments. We focused on dyadic-level trust judgments, judgments that reflect feelings and beliefs about another person, and we considered both the valence and the control appraisals of several different emotions: anger, happiness, sadness, gratitude, pride, and guilt.

Consistent with the affect-as-information model (Schwarz & Clore, 1988), we expected misattributed emotions to influence trust in the direction of the emotion's valence. In particular, we expected gratitude and happiness to increase trust and anger to decrease trust. We also expected the salience of the emotion to moderate this relationship. By making the cause of

emotion salient, we expected individuals to attribute their emotional state correctly and not to be influenced by their emotional state.

We also expected the type of information processing required for the trust judgment to moderate the relationship between incidental emotions and trust. Consistent with Forgas' (1995) affect infusion model, we expected familiarity with a trustee to moderate the influence of emotional states on trust. When judging trust in acquaintances, we expect people to use a heuristic information processing strategy and to be influenced by the valence of their emotional state. When judging familiar trustees, however, we expected people to use a direct-access processing strategy, and not to be influenced by the valence of their emotional state.

Trust judgments are made about another person, and in this work we considered the role of control appraisals in moderating the influence of the valence of an emotion on unrelated trust judgments. Emotions are multidimensional constructs, and we expected the secondary appraisals to convey information and to influence the extent to which emotions are misattributed. Schwarz and Clore (1988) postulate that when people make complex, affective judgments they ask themselves, "How do I feel about (the judgment)?" In their experiments, Schwarz and Clore (1988) considered moods, characterized by valence, and they suggest that the mood's valence (positive or negative) influences the response (e.g., "I feel good."). When experiencing an emotion, the answer to the question, "How do I feel about (the judgment)?" may be more complicated. In particular, when individuals answer this question their response may be influenced by both the valence and the secondary appraisals of the emotion. For example, when judging a subordinate a manager's incidental anger (e.g., anger with a client in an unrelated setting) may prompt the manager to develop a response characterized by both the valence and the other-control appraisal of the emotion (e.g., "I have bad feelings about somebody other than

myself.”). If the source of the emotion (the client) is not salient, the manager may consider this negative other-person feeling to be informative in judging the subordinate. Conversely, a manager who feels guilty about something she has done may answer the same question with “I have bad feelings about myself,” and consider her feelings to be less relevant for an other-person judgment. That is, we expected individuals to be more likely to misattribute the valence of an emotion to an unrelated judgment when the dominant secondary appraisal of the emotion is consistent with the judgment task. In our case, we expected incidental emotions with other-person control appraisals (e.g., anger and gratitude) to be more frequently misattributed for judgments about other people than emotions with personal or situational control appraisals (e.g., guilt and sadness, respectively). Our predictions contrast those of a valence-centric model, which would predict that all negative-valence emotions would decrease trust and that all positive-valence emotions would increase trust. We also expected emotions without strong control appraisals (e.g., happiness) to be misattributed, because these emotions lack constraining secondary appraisals of control (e.g., happy feelings may be caused by oneself, another person or a situation).

We conducted five studies to explore the relationship between incidental emotions and trust. In each study, we induced incidental emotions and subsequently measured trust in a specific trustee. In the first study, we considered happiness, sadness and anger – three common emotions that vary in cognitive appraisals of control. In the second study, we ruled-out priming as an explanation for our results. In our third study, we considered four emotions that vary along valence (positive/negative) and control (personal/other) appraisals, and tested whether appraisals of control mediate the relationship between emotion and trust. In the fourth study, we tested whether highlighting the emotion’s cause eliminates the influence of the emotion. Finally, in the

fifth study, we examined the moderating role of familiarity in influencing emotion. In this study, we compared gratitude and anger to a neutral condition for trustees who are either familiar or unfamiliar.

### Study 1

In this study, we consider the influence of happiness, sadness, and anger on trust in an unfamiliar co-worker. These three emotions have different valences, different appraisals of control, and are often used to study the effects of positive and negative moods (e.g., Forgas, 1998; Park & Banaji, 2000). Happiness is an emotion with positive valence, and both sadness and anger are emotions with negative valence. According to Smith and Ellsworth's (1985) analysis, happiness lacks strong appraisals of control, sadness has a strong appraisal of situational control, and anger has a strong appraisal of other-person control.

We expected incidental happiness to increase trust, because happiness is a positive valence emotion with a weak appraisal of control. In particular, because happiness has a weak appraisal of control, we expected the positive valence of happiness to be misattributed to judgment targets. In contrast, we expect incidental sadness to have little influence on trust, because sadness is an emotion with a strong appraisal of *situational* control. As a result, we did not expect the negative valence of sadness to be misattributed to judgments of *another person*. We expected anger to reduce trust, because anger is a negative valence emotion with a strong appraisal of other-person control. Because of the strong appraisal of other-person control, we expected the negative valence of anger to be frequently misattributed to judgments about other people.

### *Methods*

*Participants.* We recruited participants from a large Northeastern train station to complete one of six versions of a survey in exchange for a candy bar. A total of 120 participants, evenly divided across the six conditions, completed the survey. An additional 24 participants started the survey, but were unable to complete it (e.g., they ran out of time and had to catch a train). The average respondent's age was 36.4 ( $SD = 17$ ), and respondents were evenly split between genders (51% male). Most respondents were single (57%), most were employed (79%) and almost two-thirds (64%) had completed at least a four-year college degree.

*Design.* Participants were randomly assigned to one of six versions of the survey from a 2x3 design. We used three different emotion conditions (anger, happiness, sadness) and two order conditions. We manipulated whether or not participants selected a trustee (1) before beginning the emotion induction exercise or (2) after completing the emotion induction exercise. This manipulation enabled us to disentangle the influence emotion might have on the selection of a trustee from the influence emotion had on trust.

*Materials.* Each survey contained two sections that included an emotion induction exercise and a trust inventory. The cover page indicated that the survey included two separate and unrelated studies. The format and font of the two studies also differed to enhance the appearance of independence of the two studies. On the final page of the survey, we collected demographic data regarding age, gender, work experience and education.

*Procedure.* In the emotion induction, participants completed a directed writing task designed to manipulate emotion. This elicitation procedure was developed by Strack, Schwarz, and Gschneidinger (1985) and validated in several studies (see Keltner et al., 1993, Lerner & Keltner, 2001, and Tiedens & Linton, 2001). Our design included three between-subject emotion conditions designed to elicit anger, happiness, or sadness. The emotion induction exercise asked participants to

first “briefly describe three to five things that make you most [angry/sad/happy].” The following page asked participants to “describe in detail the one situation that has made you the most [angry/sad/happy] you have been in your life, and describe it such that a person reading the description would become [angry/sad/happy] just from hearing about the situation.” We used this exercise to induce incidental emotions. These emotions were state emotions unrelated to the subsequent trust judgment task.

For the order manipulation, participants in the *before* condition started the survey by listing the names of three co-workers (or acquaintances if they did not have co-workers) on the cover page of the survey. Next, these participants completed the emotion induction; they were then told to consider the person whom they listed second (of the three people) as the trustee. Participants in the *after* condition started the survey by completing the emotion induction. Next, these participants named a co-worker (or acquaintance) and were then told to consider that person as the trustee.

Participants’ trust was measured by completing a trust inventory for the named trustee. The trust inventory measured expectations of trustworthiness and intentions to trust another person. The attitudinal trust measures we used were adapted from Johnson-George and Swap’s (1982) Specific Interpersonal Trust Scale. In this scale participants evaluated the trustworthiness of a specific trustee. This person was the co-worker or acquaintance that participants identified in a prior section of the survey. The trust inventory we used included 10 items, each with a seven-point scale (1: Not at all likely, 7: Very likely). These items included questions such as the likelihood that a particular co-worker would follow through on a promise to copy a presentation and repay a \$40 loan. Other items in the scale measured intentions to trust the trustee. For example, respondents rated the likelihood that they would give the target an important letter to mail. The trust inventory questions were closely

related,  $\alpha = 0.86$ , and we use a composite measure (an average) of the ten questions for our primary analysis. We listed the items we used in the appendix.

*Emotion manipulation check.* We did not include an emotion manipulation check in the main study, because we were concerned that the manipulation check would reduce the effects of our emotion induction (Keltner, Locke & Audrain, 1993) and arouse suspicion about the experiment's purpose. Instead, we ran a manipulation check on a separate sample of participants from the same train station. We recruited 34 individuals to complete one of three versions of the study (anger, happiness, or sadness induction) in exchange for a candy bar. The pilot study included the same emotion induction writing task we used in the main study. Instead of completing the trust measure, however, participants completed an emotion manipulation check after the induction (similar procedures were used by Lerner & Keltner, 2001 and Williams & Voon, 1999). In the manipulation check, we asked participants to rate the degree to which they were currently experiencing each of 12 different emotions along a 9-point scale (0: not at all, 8: more strongly than ever). The list of emotions included three items to represent anger (angry, mad, irritated), three items to represent happiness (joyful, happy, elated), and three items to represent sadness (gloomy, sad, upset). The scale reliabilities ( $\alpha$ ) for anger, happiness and sadness were 0.78, 0.87, and 0.79, respectively. We found that anger was higher in the angry condition ( $M = 4.69, SD = 1.79$ ) than in the happy condition ( $M = 0.92, SD = 0.46, t(21) = 7.10, p < .001$ ) and the sad condition ( $M = 2.21, SD = 0.81, t(20) = 4.20, p < .01$ ); happiness was higher in the happy condition ( $M = 5.06, SD = 1.97$ ) than in the sad condition ( $M = 2.30, SD = 1.18, t(21) = 4.00, p < .01$ ) and the angry condition ( $M = 2.82, SD = 2.01, t(21) = 2.69, p < .05$ ); and sadness was higher in the sad condition ( $M = 5.03, SD = 1.47$ ) than in the angry condition ( $M = 2.36, SD = 0.62, t(20) = 5.54, p < .001$ ) and the happy condition ( $M =$

0.81,  $SD = 0.26$ ,  $t(21) = 9.80$ ,  $p < .001$ ). Overall, we found that the writing task successfully manipulated participants' emotional states.

### *Results*

We examined the potential influence of demographic variables on our composite trust measure, and found no significant effects for age, gender, education, or work experience. In addition, we did not find any significant interactions between emotion condition and any demographic variables. For our subsequent analysis, we combined data across demographic groups.

In general, participants wrote long and detailed accounts of emotional events in the induction. Representative topics included the birth of a child (happiness), the untimely death of a loved one (sadness), and destructive behavior by a neighbor (anger). Most of the accounts were outside of a work setting (92%) and none of the accounts clearly involved the trustee that the participant subsequently evaluated.<sup>1</sup>

We conducted an ANOVA modeling trust as a function of the emotion condition, the order condition, and an interaction between the two. Supporting our thesis, we found a significant effect of emotion condition on trust,  $F(2, 114) = 40.8$ ,  $p < .001$ . We found no significant effect for order,  $F(1, 114) = 1.73$ , *n.s.*, and no significant effect for the interaction between emotion condition and order,  $F(2, 114) = 0.974$ , *n.s.* These latter, non-significant results suggest that trust in a particular trustee was not influenced by whether the trustee selection was made before or after the emotion induction.

In paired comparisons, we found that trust levels were significantly different across each of the three emotion conditions. Participants in the happy condition were significantly more trusting than were participants in the angry condition, 5.78 ( $SD = 0.83$ ) versus 4.05 ( $SD = 0.93$ ),  $t$



(78) = 8.97,  $p < 0.001$  and significantly more trusting than participants in the sad condition ( $M = 5.06$ ,  $SD = 0.82$ ,  $t(78) = 3.73$ ,  $p < .01$ ). Further, participants in the sad condition were significantly more trusting than were participants in the angry condition,  $t(78) = 5.23$ ,  $p < .001$ .

### *Discussion*

Results from this study demonstrate that incidental emotional states significantly influence trust. Happy participants were significantly more trusting than were sad participants; sad participants were significantly more trusting than were angry participants.

Importantly, we found a significant difference in the effect of emotions on trust for two negative valence emotions. Participants in the angry condition were significantly less trusting than were participants in the sad condition. These results suggest that control appraisals may moderate the influence of emotion valence on trust.

### Study 2

In the second study, we compared the effects of our emotion induction to a priming manipulation. In this study, we recruited a non-overlapping set of 64 participants from the same train station as Study 1 to complete one of four versions of a survey in exchange for a candy bar. The four versions result from a 2(emotion) x 2(manipulation) design. The two emotion conditions were anger and gratitude, emotions with high other-person control appraisals. The manipulation conditions varied whether the respondent completed the emotion induction (the writing task we used in Study 1) or a priming task. In the priming task, we asked participants to think of a time that they had felt an emotion (either very angry at someone or very grateful towards someone). Instead of describing the event we simply asked whether or not the event had immediately come to mind for them. That is, the priming task cued memories of similar events as the emotion induction, but did not require an elaboration of the event that would induce an

emotional state. After the manipulation, participants completed the same trust inventory that we used in Study 1. As in Study 1, we presented the emotion manipulation and the trust rating task as separate studies. After participants had completed the survey, we asked them what they thought the purpose of the two studies was.

### *Results and Discussion*

Results from the second study identified a significant effect for the emotion manipulation, but not for the priming manipulation. In a two-way ANOVA, we find a significant interaction between the emotion and manipulation conditions ( $F(1, 57) = 6.13, p < .05$ ). The difference between anger and gratitude was significant in the emotion induction conditions ( $t(28) = 2.73, p < 0.05$ ), but not in the priming conditions ( $t(29) = 0.15, n.s.$ ). We depict these results in Figure 1. These results suggest that changes in emotional states, rather than mere priming or demand effects, influenced trust judgments. In addition, none of the participants in this study thought the two sections of the study, the manipulation and the trust inventory, were related.

### Study 3

In Study 3, we extended our investigation of the relationship between emotion and trust. In this study, we considered four emotions that differ along both valence and control dimensions (Smith & Ellsworth, 1985): anger (negative valence, other-control), guilt (negative valence, personal control), gratitude (positive valence, other-control), and pride (positive valence, personal control). This approach enabled us to test the moderating role of other-person control more directly than we did in Study 1. In addition, we measured both valence and control appraisals for these four emotion conditions.

### *Methods*

*Participants.* We recruited participants from a large Northeastern train station to complete one of eight versions of a survey. A total of 161 participants completed the survey. Participants were roughly evenly distributed across the conditions. (The number of participants in each condition ranged from 19 to 22.). An additional nine respondents started the survey, but were unable to complete it. The demographic background of participants in this study was similar to that in Study 1. On average participants were 35.1 ( $SD=16$ ) years old, and 46% were male.

*Design.* We used a 4x2 design that included four emotion conditions (anger, guilt, gratitude, and pride) and two order conditions (as in Study 1, we balanced whether or not participants identified the trustee before or after the emotion induction).

*Materials.* Each survey included a directed writing task for the emotion induction, the identification of a co-worker or an acquaintance (counterbalanced before and after the emotion induction), and a trust inventory (that refers to the acquaintance they identified earlier in the survey).

*Procedure.* The emotion induction involved the same directed writing task we used in Study 2. The trust inventory was identical to the one in earlier studies and again we found high scale reliability ( $alpha = 0.85$ ).

At the end of the survey, we measured valence and control appraisals for the emotion-eliciting event. After participants completed both the emotion induction and the trust inventory for the trustee, we asked them to answer six questions about the situation they described in detail in the writing task. Two of the six questions were designed to assess valence (pleasantness and unpleasantness of the event), and the remaining four questions were designed to assess appraisals of control. For example, we asked participants, “To what extent did you feel someone other than

yourself could influence what was happening in the situation?" (1: Not at All, 7: Completely).

We collected demographic information after the appraisal measures. Of the 161 participants, 157 completed this section of the survey.

*Emotion manipulation check.* As in Study 1, we conducted a pilot study to assess the effectiveness of our emotion induction. In the pilot study, we recruited 44 individuals from the train station (who did not participate in the main study) to complete one of four versions of a manipulation check in exchange for a candy bar. The format of this pilot study was very similar to the pilot study we conducted in Study 1; in this study, however, we included a different set of emotions: anger, gratitude, pride and guilt. The list of emotions included three items to represent anger (angry, mad, irritated;  $\alpha = 0.89$ ), two items to represent pride (proud, self-fulfilled;  $\alpha = 0.81$ ), three items to represent guilt (guilty, remorseful, sorry;  $\alpha = 0.83$ ), and three items to represent gratitude (appreciative, grateful, thankful;  $\alpha = 0.85$ ). We report results from this manipulation check in Table 1. We found that the emotion induction task significantly influenced the target emotion in each of the four emotion conditions.

*Appraisal measures.* We examined responses to our appraisal questions to test the consistency between our emotion inductions and Smith and Ellsworth's (1985) characterization of anger (negative valence, other-person control), guilt (negative valence, personal control), pride (positive valence, personal control), and gratitude (positive valence, other-person control). We reverse scored the negative questions and examined answers to the valence and control appraisals separately. For each scale, high scores represent positive valence or high other-person control, and low scores represent negative valence or high personal control. The scale reliabilities for the two valence items ( $\alpha = 0.91$ ) and the four control items ( $\alpha = 0.78$ ) were high.

In ANOVA tests, we find that the valence ( $F(3, 153)=34.1, p <.001$ ) and control ( $F(3, 153)=24.4, p <.001$ ) ratings were significantly different across emotions consistent with Smith and Ellsworth's (1985) conceptualization: anger and gratitude had high other-person control (while pride and guilt had high personal control) and pride and gratitude had positive valence (while anger and guilt had negative valence). We report mean ratings of valence and other-person control for each emotion in Table 2.

### *Results*

We find no significant effects for demographic variables or order. As a result, we collapse our data across demographic and order groups, and we report analysis for the four emotion conditions.

We conducted an ANOVA using trust as the dependent variable and emotion condition as the independent variable. Consistent with our findings in Study 1, incidental emotions influenced trust. We found significant differences in trust across the four emotion conditions ( $F(3, 157)=12.53, p <.001$ ). We hypothesized that gratitude and anger (other-person control emotions) would influence trust more than would pride and guilt (personal control emotions). Our results support these hypotheses. In paired comparisons, we found significant differences in trust ratings between participants in the gratitude and anger conditions,  $M = 5.74$  ( $SD = 0.79$ ) and  $M = 4.47$  ( $SD = 1.28$ ) respectively,  $t(81) = 6.12, p <.001$ . In contrast, we found no significant differences between ratings in the pride and guilt conditions ( $M = 5.12, SD = 0.87$  and  $M = 5.07, SD = 0.70$  respectively,  $t(76) = 0.24, n.s.$ ). In addition, we found that grateful respondents provided significantly higher trust ratings than did proud and guilty respondents ( $t(79) = 2.94, p <.05$  and  $t(77) = 3.14, p <.05$ , respectively) and that angry respondents provided significantly lower trust

ratings than proud and guilty respondents ( $t(81) = 3.13, p < .05$  and  $t(78) = 2.84, p < .05$ , respectively).

We next considered whether other-person control appraisals mediate the influence of emotion on trust (Baron & Kenny, 1986). Because anger and gratitude have opposite effects on trust, the effect of other-person control appraisals would cancel out across the two emotions. To address this concern, we tested mediation of other-person control separately for emotions with the same valence, i.e., we compared gratitude to pride and anger to guilt. A valence-centric approach would predict that gratitude and pride (anger and guilt) would have similar effects on trust; in this analysis, we intended to show that the difference between the effects of gratitude and pride (anger and guilt) on trust can be explained by differences in control appraisals, where stronger appraisals of other-person control led to stronger effects on trust. In our context, full mediation implies that the positive influence of gratitude on trust (compared to pride) is explained by stronger appraisals of other-person control, and that the negative influence of anger on trust (compared to guilt) is explained by stronger appraisals of other-person control.

First, we conducted mediation analysis for the positive valence emotions (gratitude and pride). In our first regression, we used emotion as the independent variable (1 = gratitude, 0 = pride) and the composite trust score as the dependent variable, controlling for valence appraisals. As expected, this relationship was significant ( $b = 0.38, p < .01$ ). In the second regression, we tested the relationship between emotion and appraisals of other-person control (measured by other-person control appraisals and reversed-scored personal control appraisals), again controlling for valence. This relationship was also significant and positive ( $b = 0.49, p < .001$ ), indicating that those in the grateful condition had higher appraisals of other-person control than those in the pride condition. In the final step, we included emotion, valence and other-person

control as independent variables and trust as the dependent variable. Supporting our mediation prediction (Sobel test,  $Z = 2.28$ ,  $p < .05$ ), we found that the path between gratitude and trust was no longer significant ( $b = 0.17$ , *n.s.*) when the direct influence of other-person control was included in the regression ( $b = 0.37$ ,  $p < .05$ ). We conducted an identical set of analysis for the negative valence emotions (anger and guilt). Results from this analysis also identified full mediation ( $Z = 2.14$ ,  $p < .05$ ). We depict the mediation results in Figure 2 and Figure 3.

### *Discussion*

As in Studies 1 and 2, we identified a significant relationship between incidental emotional states and trust. We found that participants in the grateful condition were significantly more trusting than were participants in other conditions, and participants in the anger condition were significantly less trusting than participants in other conditions.

Our results also demonstrate that the other-person control appraisal mediates the relationship between incidental emotions and trust. In this study, we found significant differences in trust between participants in the gratitude and anger conditions (conditions that involve emotions with appraisals of other-person control), but virtually no differences in trust between participants in the pride and guilt conditions (conditions that involve emotions with appraisals of personal control). In the mediation analysis, we found that the influence of positive valence emotions (gratitude and pride) and negative valence emotions (anger and guilt) were both fully mediated by appraisals of other-person control.

### Study 4

In Study 4, we extended our investigation of the mechanism linking emotional states with trust judgments. In this study, we explored the moderating influence of emotion salience. Consistent with the affect-as-information model (Schwarz & Clore, 1988), we predicted that

salient emotions will not impact unrelated judgments. In this study, we also used methods that are very different from those we used in earlier studies. First, we conducted this study in a laboratory setting. Second, every participant in this study evaluated the same trustee. Third, we induced emotions using movie clips rather than a writing task. While the use of film clips limited the types of emotions we could induce, it afforded greater experimental control over the emotion induction.

### *Methods*

*Participants.* A total of 112 undergraduate students completed the study in exchange for course credit. On average, participants were 19 years old ( $SD = 1.07$ ) and about half (48%) were male. From participants' responses, we identified three participants who recognized the interviewee and two who suspected a link between the first and third film clips. We removed all five of these participants from our analysis, and we report results based upon the remaining 107.

*Design.* We randomly assigned participants to one of four treatment conditions from a 2(emotion) x 2(salience) design. We manipulated emotions by showing participants one of two film clips to induce either happiness or anger. Participants viewed these film clips in isolation via computer.

Participants in the happy condition viewed a film clip from a comedy act by Robin Williams (Gross & Levenson, 1995). In this film clip, a comedian discusses drug use and reckless driving (topics unlikely to prime feelings of trust in an unrelated person). Participants in the angry condition viewed a film clip from the movie "Witness," in which teenagers harass an Amish man (Jones & Fox, 1992). In our pilot studies, we found that the anger film clip alone evoked only moderate anger. As a result, we had participants read a short story after viewing the film clip that described real events in which Amish people were harassed and physically



attacked. This story was displayed for a fixed period of time (60 seconds) on the computer screen. (In a pilot study, we determined that 60 seconds was sufficient to read the entire story.) After this period, participants were allowed to progress when they were ready. The average total viewing time for the anger film clip and story (2 min 27 sec) was very similar to the viewing time for the happy film clip (2 min 32 sec).

In the emotion salience conditions, we manipulated whether or not a message appeared after the emotion induction. In the salient condition, a message on the computer screen read, "Prior research has shown that even short film clips like the ones you've seen can influence people's emotions." This message appeared on the screen for 10 seconds. In the non-salient condition, participants viewed a blank screen for 10 seconds.

*Materials.* Participants sat in isolated cubicles, wore headphones, and completed the entire experiment via personal computer. The computer displayed the following sequence of screens: instructions, three film clips, salience message (in the salience conditions, a blank screen otherwise), trust inventory, emotion manipulation check, and post-experiment questions (including demographic measures and thoughts about the experiments' purpose).

*Procedure.* Small groups of participants ( $n = 2$  to 8) arrived at the behavioral laboratory at scheduled intervals and were seated at isolated cubicles. Within a group, participants were assigned to the same emotion condition, but different salience conditions. All participants in a group started the experiment at the same time, and all participants were dismissed from their cubicles at the same time (after the last participant completed the study).

At the start of the experiment, participants were told that they would view three film clips and that after viewing the three film clips they would be asked to answer questions about one of

the clips. Each film clip ran for a set amount of time, and participants were not able to repeat a film clip or answer questions out of sequence.

The first two film clips were common to all participants. The first film clip (2 minutes and 21 seconds long) was an interview with a 20 year old male student. In this film clip, a member of the university's television station (who was off screen) asked 32 questions that the male student answered. The questions had low affective content and low relevance to trust. For example, the interviewer asked, "how often do you go to the grocery store?" Responses were between one word and one sentence long.

The second film clip (56 seconds long) involved a car chase scene from "Bullitt". We included this film clip to obfuscate the link between our first film clip (the interview) and our third film clip (the emotion induction). Martin et al. (1993) and subsequent studies (Halberstadt & Niedenthal, 1997; Hirt et al., 1997) have shown that the "Bullitt" film clip maintains participants' attention, but does not create positive or negative feelings in most participants.

We used the third film clip to induce an emotion. Half of the participants viewed the happy film clip (from Robin Williams Live), and half of the participants viewed the angry film clip (Witness, followed by a short story).

Following the third film clip, half of the participants received the salience message and half viewed a blank screen for 10 seconds. We then asked participants to evaluate the interviewee from the first film clip using the same trust scale we used in studies 1 and 2 ( $\alpha = 0.82$ ). We then asked participants whether or not they recognized the interviewee from the first film clip.

Next, participants completed an emotion manipulation check by rating the extent to which they felt each of 12 common emotions (0: not at all, 8: more than ever; similar to Gross &

Levenson, 1995). We used four of the 12 emotions to measure anger (angry, mad, furious, and irritated), and three of the 12 emotions to measure happiness (amusement, joy, happiness). Both the anger and happiness scales were reliable,  $\alpha = 0.94$  and  $\alpha = 0.92$ , respectively.

We then asked participants what they thought the purpose of the study was. At the conclusion of the experiment we asked demographic questions, debriefed the experiment, and dismissed our participants.

### *Results*

*Manipulation check.* We find that the emotion manipulation significantly influenced anger ( $F(1, 104) = 97.19, p < .001$ ) and happiness ( $F(1, 104) = 89.65, p < .001$ ). Participants were significantly more angry in both the salient ( $M = 4.32, SD = 2.67$ ) and non-salient ( $M = 4.62, SD = 2.86$ ) anger conditions than were participants in the salient ( $M = 0.61, SD = 1.12$ ) and non-salient ( $M = 0.47, SD = 0.66$ ) happiness conditions. Participants were significantly more happy in the salient ( $M = 5.45, SD = 1.76$ ) and non-salient ( $M = 4.86, SD = 2.13$ ) happiness conditions than were participants in the salient ( $M = 1.44, SD = 1.81$ ) and non-salient ( $M = 1.83, SD = 1.89$ ) anger conditions. The salience manipulation did not significantly influence anger ( $F(1, 104) = 0.32, n.s.$ ) or happiness ( $F(1, 104) = 0.68, n.s.$ ).

*Analysis of variance.* We next used analysis of variance to model trust ratings as a function of the emotion and salience manipulations. We find a significant effect for emotion ( $F(1, 104) = 5.07, p < .05$ ) and a significant interaction between emotion and salience ( $F(1, 104) = 4.53, p < .05$ ). We depict this interaction in Figure 4. In the non-salient condition, happy participants ( $M = 5.44, SD = 0.71$ ) were significantly more trusting than were angry participants ( $M = 4.87, SD = 0.83, t(53) = 2.65, p < 0.05$ ). In the salient condition, however, happy

participants ( $M = 5.39$ ,  $SD = 0.72$ ) were not significantly more trusting than were angry participants ( $M = 5.33$ ,  $SD = 0.63$ ,  $t(52) = 0.299$ , *n.s.*).

### *Discussion*

Results from this study extend our understanding of the link between emotional states and trust. We manipulated emotion salience, and find a significant interaction between emotion valence and emotion salience on trust judgments. Consistent with the affect-as-information model, we find that angry participants provided significantly lower trust ratings than happy participants in the non-salient condition, but that angry participants did not provide lower ratings than happy participants in the salient condition.

Our fourth study employed very different methods than those we used in Studies 1 and 3. In our fourth study, we exerted greater experimental control over the experimental setting, the emotion induction, and the trust target. We conducted our fourth study in a behavioral laboratory; we isolated participants from each other, we had them wear headphones, and we had them view film clips on a computer.

### Study 5

In Study 5, we extended our investigation of the relationship between emotion and trust in two important ways. First, we considered the role of familiarity in moderating the relationship between emotion and trust. Unlike the first four studies in which we focused on unfamiliar trustees, such as acquaintances or unfamiliar coworkers, in this study we considered both unfamiliar and familiar trustees. Second, we compared the effects of anger and gratitude to a neutral emotion condition. Our prior studies identify significant differences between emotions, but did not compare the effects of our emotion inductions to a control condition. Like Study 4, this study was conducted in a controlled laboratory setting using undergraduate students.

## *Methods*

*Participants.* We recruited 181 undergraduate students from a large Northeastern university to participate in our study for course credit. A total of 175 participants completed the survey in a laboratory setting. Between 2 and 20 participants completed surveys at one time, and participants were spread out in a room with 80 seats. Participants were roughly evenly distributed across twelve conditions (the number of participants in each condition ranged from 14 to 17). Six additional participants started to complete the survey, but failed to complete both the directed writing task and the trust inventory. On average, participants were 19 ( $SD=1.10$ ) years old, and 38% were male.

*Design.* Participants were randomly assigned to one of twelve conditions. These conditions derive from a 2(familiarity) x 2(order) x 3(emotion) design. Across familiarity conditions, participants rated someone who attended their university who they either knew well or who they did not know well. We restricted trustees to fellow university students that were currently on campus, so that we could use measures of familiarity that could be applied homogeneously across the sample. The order conditions counterbalanced the selection of the trustee with the emotion induction, as we did in Studies 1 and 3. The emotion conditions included anger, gratitude and a neutral emotion condition.

*Materials.* As in Study 3, each survey contained a directed writing task, identification of a trustee and a trust inventory for the trustee. On the last page of the survey we collected demographic information including age, gender, and details about the relationship between the participant and the trustee.

*Procedure.* Our emotion induction procedure was similar to the one we used in Study 2. For the anger and gratitude conditions, we used the same procedures. For the neutral emotion

condition we asked participants to describe the last classroom they had been in so that someone else could picture it perfectly. We used this approach to keep the timing and nature of the task uniform across conditions. We used the same trust inventory as we used in Study 1, except that job-related items were adapted to class contexts; again we found high scale reliability ( $\alpha = 0.89$ ).

We also collected information about participants' relationships with their trustee. With respect to the person they identified, we asked participants questions such as how much time they spent with the individual outside of class, how often they communicated, how much they knew about their interests, and about their common friends. In addition, we asked participants to rate their liking of the trustee and whether they had any romantic interest or involvement with the trustee.

### *Results*

We first examined the influence of the order condition and demographic variables on trust. We found no significant effects. As a result, we collapsed our data across order conditions for our subsequent analyses. We controlled for liking in the analysis. Only three participants indicated any romantic interest or involvement and our results were not affected by their responses.

In an ANOVA, using trust as the dependent variable and emotion and familiarity conditions as independent variables, we found main effects for emotion ( $F(2, 163) = 10.54, p < .001$ ) and familiarity ( $F(1, 163) = 99.60, p < .001$ ), as well as an interaction between emotion and familiarity ( $F(2, 163) = 10.19, p < .001$ ). Because the interaction between emotion and familiarity is significant, we parsed the data into the two familiarity conditions and tested for the influence of emotion on each familiarity condition separately. Supporting our hypothesis, we

found that the emotion condition had a significant effect on trust in the unfamiliar relationship condition ( $F(2, 82) = 18.45, p < .001$ ), but that the emotion condition was not significant in the familiar relationship condition ( $F(2, 87) = 0.37, n.s.$ ). We depict mean responses across conditions in Figure 5. While the high average trust scores for familiar trustees may indicate a ceiling effect, the distributions for angry and grateful responses are nearly identical. A Wilcoxon rank sum test also showed no significant difference between the emotion conditions ( $W^* = 0.59, n.s.$ ).

For the unfamiliar relationship condition, we found that trust for participants in the anger condition was significantly lower than trust in the gratitude ( $M$ s of 4.45 and 5.77,  $t(55) = 6.03, p < .001$ ) and neutral ( $M$ s of 4.45 and 5.06,  $t(54) = 2.77, p < .01$ ) conditions. Furthermore, we found that trust for participants in the gratitude condition was significantly higher than trust in the neutral condition ( $t(55) = 3.27, p < .01$ ).

### *Discussion*

In this study, we identified an important boundary condition for the influence of emotional states on trust. When the trustee was unfamiliar, incidental anger decreased trust and incidental gratitude increased trust. When the trustee was familiar, however, incidental emotions did not influence trust. These findings support our conceptualization of emotional states as information for trust relationships. When relevant information is limited, as it is for acquaintances, judgments of trustworthiness may be informed by an individual's emotional state. When relevant information is not limited, however, as it is for very familiar trustees in commonplace settings, judgments of trustworthiness are *not* likely to be informed by an individual's emotional state; instead, an individual may retrieve a pre-formed trust judgment. Although we found no effects for emotions on judgments of familiar trustees in this study, quite

possibly, emotions could influence judgments of familiar trustees in novel situations or judgments of familiar trustees with whom the truster has a mix of positive and negative experiences.

### General Discussion

This paper describes the relationship between incidental emotional states and trust. Across five studies, we found a substantial and robust relationship between normatively irrelevant, incidental emotions and trust. In Study 1, we found that happy participants were more trusting than sad participants, and that sad participants were more trusting than angry participants. In Study 2, we demonstrated that the effects of incidental emotions on trust were not simply caused by priming. In Study 3, we compared the influence of four emotions on trust. The four emotions were characterized by either positive or negative valence and either appraisals of other-person control (anger and gratitude) or appraisals of personal control (pride and guilt). Supporting our hypotheses, emotions with appraisals of other-person control influenced trust in a manner consistent with the emotion's valence; anger decreased trust and gratitude increased trust. Emotions with personal control influenced trust significantly less than did emotions with other-person control; participants in the gratitude condition were more trusting than were participants in the pride condition, and participants in the anger condition were less trusting than were participants in the guilt condition.

In Studies 4 and 5, we used controlled laboratory settings and identified important moderators of the relationship between incidental emotions and trust. In Study 4, we manipulated the salience of the emotion manipulation. Consistent with the affect-as-information model (Schwarz & Clore, 1988), we found that identifying the source of the incidental emotion eliminated the influence of emotions on trust. In Study 5, we examined the moderating role of



familiarity with the trustee. Consistent with the affect infusion model (Forgas, 1995), which suggests that people engage in different types of processing for different types of judgments, we found that incidental emotions influenced trust significantly more for unfamiliar trustees (e.g., acquaintances) than they did for familiar trustees.

Our work integrates both mood (Forgas, 1995; Schwarz & Clore, 1988) and emotion (Smith & Ellsworth, 1985) models, and our results offer important insight into the relationship between emotion and judgment. Specifically, our findings suggest that emotions are more likely to be misattributed when the appraisals of an emotion are consistent with the nature of the judgment task. Judgments can be characterized along several dimensions, including the object of the judgment (e.g., ourselves, another person, an event) and the metric of the judgment (e.g., favorableness, certainty, amount, causal attribution). In many cases, characteristics of the judgment task will correspond to the cognitive appraisal dimensions of emotions. For example, in judging an employee's performance, the object of the judgment (another person) corresponds to the appraisal dimension of other-person control, and the metric of the judgment (is the performance good or bad) corresponds to the appraisal dimension of valence. We conceptualize the object of the judgment as a *constraining* dimension. This characteristic of the judgment task determines *which* emotions might influence the judgment. We conceptualize the metric of the judgment task as the *evaluative* dimension. This dimension determines the *direction* in which an emotion might influence the judgment.

We expect emotions to be misattributed to judgments when the constraining dimension of the judgment task matches the emotion's corresponding cognitive appraisal. For example, emotions with other-person control appraisals, such as anger, are likely to influence other-person judgments, such as trust. We expect judgments to be influenced in the direction of the emotion's

appraisal along the evaluative dimension. For example, positive-valence emotions are likely to lead to positive judgments and negative-valence emotions are likely to lead to negative judgments. This framework applies to judgments of personal and situational attributes as well. For example, we expect judgments about an individual's own future success to be more strongly affected by pride and guilt (personal-control emotions) than by anger or sadness (other-person and situational control emotions), and we expect pride to lead to more optimistic judgments than guilt. Similarly, we expect risk assessments of natural disasters to be influenced by sadness and hope (situational control emotions) more than by pride or anger, and we expect hope to lead to more optimistic assessments than sadness. Consistent with prior work (Forgas, 1995; Schwarz, 1990), we expect incidental emotions to be most likely to influence complex and affective judgments.

Importantly, the constraining and evaluative dimensions can match emotion appraisals other than the control and valence appraisals. This broader conceptualization is consistent with Keltner et al.'s (1993) work investigating judgments of attributions for an event. Keltner et al. (1993) found that when an event was negative, angry participants were more likely to blame other people for the event than were sad participants. When the event was positive, Keltner et al. (1993) found no difference in attributions across angry and sad participants. We can apply our framework to these results. In this case, control appraisals represent the evaluative dimension (judgments range from low to high other-person control and from low to high situational control) and valence represents the constraining dimension (negative emotions only influenced attribution judgments for negative events).

In addition to offering a new framework for modeling the relationship between incidental emotions and judgment, our work also contributes to the affective-cognition literature by

applying Forgas's (1995) affect infusion model to relationship-dependent processing styles. In particular, we identify target familiarity as an important moderator of the relationship between affect and judgment. We find that incidental emotions influence judgments of others with whom people are already familiar— but not too familiar. Prior interpersonal judgment research has often focused on relationships with fictional characters (Forgas, Bower & Moylan, 1990, Keltner, Ellsworth & Edwards, 1993) and confederates (Forgas, 1998). Our findings suggest that the generalizability of research in interpersonal judgments may be limited by the nature of the relationships that are studied.

Given the importance of trust in economic and social exchanges, as well as the ease with which incidental emotions can be invoked (e.g., by quarrelling with a spouse), results from this work inform a number of practical prescriptions. First, decision makers should avoid making quick trust decisions, and instead, take precautions to make trust judgments over time, based on interactions across multiple contexts.

Second, individuals should recognize that incidental emotions could change the way others judge *their* trustworthiness. Individuals should recognize the importance of socializing with co-workers to develop familiarity (e.g., Schweitzer & Kerr, 2000) and adapt their behavior to the emotions of the people with whom they interact. For example, people hoping to engender trust may be better served by starting off a meeting by asking a co-worker about her weekend fishing trip than about the status of her divorce proceedings. Similarly, if a business associate arrives late to a meeting, angry about a traffic accident, it may be worthwhile to postpone discussions about a new joint-venture. Not only is an angry business associate likely to be less trusting, but recent work has found that people who negotiate with an angry counterpart make

more concessions than people who negotiate with a happy counterpart (van Kleef, De Dreu, & Manstead, 2004).

Third, individuals should take steps to curtail the influence of incidental emotions on their judgment. Results from our work demonstrate that the salience of an emotion's source mitigates the effects of incidental emotions on trust. Prescriptively, individuals should heighten their awareness of the source of their emotions. In some cases, individuals should also work to raise the awareness of the source of others' emotions. This prescriptive advice, however, merits an important caveat. A large number of biases influence our social perceptions (Hinton, 1993), and prior work demonstrates that it is difficult to recognize and adjust for these effects (Wegener & Petty, 1995).

Results from this work also identify a number of important directions for future research. First, in our studies, we guided emotional accounts to fit the typical control appraisals of the emotion. For example, we specifically asked participants to recall a situation in which they felt the most proud of *themselves* or the angriest at *another person*. Future research should explore the influence of emotions with atypical appraisals, such as anger with oneself. Prior work has found that emotions are not strictly bound by their defining cognitive appraisals (Tiedens and Linton, 2001), and we predict that emotions will influence judgments consistent with their actual appraisals (e.g., anger with oneself will influence self-related judgments), rather than the typical appraisals of the emotion.

Prior research suggests that the effects of mood on judgment are likely to be more pervasive than the effects of emotion on judgment (Schwarz, 1990; Forgas & George, 2001). We postulate that this is true because moods have weaker control appraisals than emotions, and moods are therefore more likely to be misattributed to a variety of targets (e.g., another person,

oneself, or an event) than emotions. Similarly, we expect emotions that lack strong control appraisals (such as frustration and anxiety) to influence a wide variety of judgments. Future research is needed to test these predictions.

In this work, familiar trustees were friends. We expect that trust in familiar trustees who are not close friends may be influenced by emotion through the effect of emotion on substantive processing. For example, an angry person may have lower trust in a trustee than a guilty person. The angry person may bias recall and attention towards negative events caused by the trustee while the guilty person recalls negative events caused by him or herself. Future work is needed to further understand how the truster-trustee relationship moderates the effect of emotion on trust.

Future work should also extend results from this work to related investigations. For example, recent work has begun to explore the influence of deception on trust and trust recovery (Schweitzer, Hershey, & Bradlow, 2004). We postulate that emotions, such as anger, play an important moderating role in these processes. Deception may harm trust because it makes people angry with the trustee. Quite possibly, actions that mitigate this anger, even actions that are normatively irrelevant to trust, may help the trustee regain trust.

In other work, Allred, Mallozzi, Matsui, and Raia (1997) demonstrated that anger and compassion directed towards negotiating partners influenced the amount of joint gains negotiators earned and the willingness of negotiators to work with one's partner in the future. While trust was not directly measured in this work, we conjecture that these outcomes are partially due to changes in trust in one's counterpart. More broadly, we believe that in addition to studying the influence of incidental emotions on trust and other judgments, future work should consider the influence of emotions that are directed towards the trustee.

Taken together, our results offer insight into the mechanics of trust, and identify incidental emotions as a robust and important determinant of trust. In many cases, emotions may play an important role in trust judgments precisely because people are unaware of the significant influence their emotional state has on their judgment.

## References

- Allred, K. G., Mallozzi, J. S., Matsui, F. & Raia, C. P. (1997). The influence of anger and compassion on negotiation performance. *Organizational Behavior and Human Decision Processes*, 70, 175-187.
- Baron, B. M. & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51, 1173-1182.
- Bazerman, M. H. (1994). *Judgment in managerial decision making*. New York: Wiley.
- Bodenhausen, G. V., Sheppard, L. A. & Kramer, G. P. (1994). Negative affect and social judgment: The differential impact of anger and sadness. *European Journal of Social Psychology*, 24, 45-62.
- Bower, G. H. (1981). Mood and memory. *American Psychologist*, 36, 129-148.
- Bromiley, P. & Cummings, L. L. (1995). Transaction costs in organizations with trust. In R. J. Bies & B. Sheppard & R. J. Lewicki (Eds.), *Research on negotiations in organizations* (vol. 5, pp. 219-247). Greenwich, CT: JAI.
- Butler, J. (1991). Toward understanding and measuring conditions of trust - evolution of a conditions of trust inventory. *Journal of Management*, 17, 643-663.
- Cook, J. & Wall, T. (1980). New work attitude measures of trust, organizational commitment and personal need non-fulfillment. *Journal of Occupational Psychology*, 53, 39-52.
- DeSteno, D., Petty, R. E., Wegener, D. T. & Rucker, D. D. (2000). Beyond valence in the perception of likelihood: The role of emotion specificity. *Journal of Personality and Social Psychology*, 78, 397-416.

- Donaldson, T. (2001). The ethical wealth of nations. *Journal of Business Ethics, 31*, 25-36.
- Ellsworth, P.C., & Smith, C.A. (1988). From appraisal to emotion: Differences among unpleasant feelings. *Cognition and Emotion, 12*, 271-302.
- Forgas, J. P. (1995). Mood and judgment: The Affect Infusion Model (AIM). *Psychology Bulletin, 117*, 39-66.
- Forgas, J. P. (1998). Asking nicely? The effects of mood on responding to more or less polite requests. *Personality and Social Psychology Bulletin, 24*, 173-185.
- Forgas, J. P. (2001). The Affect Infusion Model (AIM): An integrative theory of mood effects on cognition and judgments. In L.L. Martin and G.L. Clore (Eds), *Theories of mood and cognition: A user's guidebook* (pp. 99-134). Mahwah, NJ: Lawrence Erlbaum.
- Forgas, J. P. & George J. M. (2001). Affective influences on judgments and behavior in organizations: An information processing perspective. *Organizational Behavior And Human Decision Processes, 86*, 3-34.
- Forgas, J. P., Bower, G. H. & Moylan, S. J. (1990). Praise or blame - affective influences on attributions for achievement. *Journal of Personality and Social Psychology, 59*, 809-819.
- Frijda, N.H. (1993). The place of appraisal in emotion. *Cognition and Emotion, 7*, 357-87.
- Gambetta, D. (1988). Can we trust trust? In D. Gambetta (Ed.) *Trust: Making and Breaking Cooperative Relations* (pp. 213-238). New York: Basil Blackwell.
- Gaspar, K. & Clore, G. L. (1998). The persistent use of negative affect by anxious individuals to estimate risk. *Journal of Personality and Social Psychology, 74*, 1350-1363.



- Glaeser, E. L., Laibson, D. I., Scheinkman, J. A. & Soutter, C. L. (2000). Measuring trust. *The Quarterly Journal of Economics*, *115*, 811-846.
- Gross, J. J. & Levenson, R. W. (1995). Emotion elicitation using films. *Cognition and Emotion*, *9*, 87-108.
- Halberstadt, J. B. & Niedenthal, P. M. (1997). Emotional state and the use of stimulus dimensions in judgment. *Journal of Personality and Social Psychology*, *72*, 1017-1033.
- Hinton, P. (1993). The psychology of interpersonal perception. London: Routledge Press.
- Hirt, E., Levine, G. M., McDonald, H. E., Melton, R. J., Martin, L. L. (1997). The role of mood in quantitative and qualitative aspects of performance: Single or multiple mechanisms? *Journal of Experimental Social Psychology*, *33*, 602-629.
- Isen, A. M. & Baron, R. A. (1991). Positive affect as a factor in organizational behavior. In L. Cummings & B.M. Staw (eds.). *Research in Organizational Behavior* (pp. 1-53). Greenwich (Conn.), London: JAI Press.
- Isen, A. M., Nygren, T. E. & Ashby, F. G. (1988). Influence of positive affect on the subjective utility of gains and losses: It is just not worth the risk. *Journal of Personality and Social Psychology*, *55*, 710-717.
- Isen, A. M. & Patrick, R. (1983). The effect of positive feelings on risk taking: When the chips are down. *Organizational Behavior and Human Decision Processes*, *31*, 194-202.
- Izard, C.E. (1992). Basic emotions, relations among emotions and emotion cognition relations. *Psychological Review*, *99*, 561-565.
- Johnson-George, C. & Swap, W. C. (1982). Measurement of specific interpersonal trust: Construction and validation of a scale to assess trust in a specific other. *Journal of Personality and Social Psychology*, *43*, 1306-1317.

Jones, N. A. & Fox, N. A. (1992). Electroencephalogram asymmetry during emotionally evocative films and its relation to positive and negative affectivity. *Brain Cognition*, 20, 280 – 299.

Jones, G. R. & George, J. M. (1998). The experience and evolution of trust: Implications for cooperation and teamwork. *Academy of Management Review*, 23, 531-546.

Keltner, D., Ellsworth, P. C. & Edwards, K. (1993). Beyond simple pessimism: Effects of sadness and anger on social perception. *Journal of Personality and Social Psychology*, 64, 740-752.

Lazarus, R.S. (1991). *Emotion and adaptation*. New York: Oxford University Press.

Lerner, J. S. & Keltner, D. (2000). Beyond valence: Toward a model of emotion-specific influences on judgment and choice. *Cognition and Emotion*, 14, 473-493.

Lerner, J. S. & Keltner, D. (2001). Fear, anger, and risk. *Journal of Personality and Social Psychology*, 81, 146-159

Lewicki, R. J. & Wiethoff, C. (2000). Trust, trust development, and trust repair. In M. Deutsch & P. T. Coleman (Eds.), *Handbook of Conflict Resolution: Theory and Practice*. San Francisco, CA: Jossey-Bass.

Lieberman, J. (1981). *The Litigious Society*. New York: Basic Books.

Manucia, G. K., Baumann, D. J. & Cialdini, R. B. (1984). Mood influences on helping: Direct effects or side effects? *Journal of Personality and Social Psychology*, 46, 357-364.

Martin, L. L., Abend, T. Sedikides, C. & Green, J. D. (1997). How would it feel if...? Mood as input to a role fulfillment evaluation process. *Journal of Personality and Social Psychology*, 73, 242-253.

Martin, L. L., Ward, D. W., Achee, J. W., & Wyer, R. S. (1993). Mood as input - people have to interpret the motivational implications of their moods. *Journal of Personality and Social Psychology, 64*, 317-326.

Mayer, R. C., Davis, J. H. & Schoorman, F. D. (1995). An integrative model of organizational trust. *Academy of Management Review, 20*, 709-734.

McAllister, D. J. (1995). Affect- and cognition-based trust as foundations for interpersonal cooperation in organizations. *Academy of Management Journal, 38*, 24-59.

Park, J. & Banaji, M. R. (2000). Mood and heuristics: The influence of happy and sad states on sensitivity and bias in stereotyping. *Journal of Personality and Social Psychology, 78*, 1005-1023.

Pillutla, M., Malhotra, D. & Murnighan, J. K. (2003). Attributions of trust and the calculus of reciprocity. *Journal of Experimental Social Psychology, 39*, 448-455.

Raghunatham, R. & Pham, M. T. (1999). All negative moods are not equal: Motivational influences of anxiety and sadness on decision making. *Organizational Behavior and Human Decision Processes, 79*, 56-77.

Rotter, J. (1971). Generalized expectancies for interpersonal trust. *American Psychologist, 26*, 443-452.

Rousseau, D. M., Sitkin, S. B., Burt, R. S. & Camerer, C. (1998). Not so different after all: A cross-discipline view of trust. *The Academy of Management Review, 23*, 393-404.

Schwarz, N. (1990). Feelings as information: Informational and motivational functions of affective states. In E. Higgins & R. Sorrentino (Eds.), *Handbook of motivation and cognition: Foundations of social behavior* (vol. 2, pp. 527-561). New York: Guilford.

Schwarz, N. & Clore, G. L. (1983). Mood, misattribution, and judgments of well-being:

Informative and directive functions of affective states. *Journal of Personality and Social Psychology*, 45, 513-523.

Schwarz, N. & Clore, G. L. (1988). How do I feel about it? Informative functions of affective states. In K. Fiedler & J. Forgas (Eds.), *Affect, Cognition, and Social Behavior* (pp. 44-62). Toronto, Canada: Hogrefe.

Schwarz, N. & Clore, G. L. (2003). Mood as information: Twenty years later. *Psychological Inquiry*, 14, 296-303.

Schweitzer, M. E., Hershey, J. & Bradlow, E. (2004). Promises and Lies: Restoring Violated Trust. Working paper, Operations and Information Management, Wharton School, University of Pennsylvania.

Schweitzer, M. E. & Kerr, J. L. (2000). Bargaining under the influence: The role of alcohol in negotiations. *Academy of Management Executive*, 14, 47-57.

Smith, C. A. & Ellsworth, P. C. (1985). Patterns of cognitive appraisal in emotion. *Journal of Personality and Social Psychology*, 48, 813-838.

Strack, F., Schwarz, N. & Gschneidinger, E. (1985). Happiness and reminiscing: The role of time perspective, affect, and mode of thinking. *Journal of Personality and Social Psychology*, 49, 1460-1469.

Tiedens, L. Z. & Linton, S. (2001). Judgment under emotional certainty and uncertainty: The effects of specific emotions on information processing. *Journal of Personality and Social Psychology*, 81, 973-988.

van Kleef, G. A., De Dreu, C. K., & Manstead, A. S. (2004). The interpersonal effects of anger and happiness in negotiations. *Journal of Personality and Social Psychology*, 86, 57-76.

Wegener, D. T. & Petty, R. E. (1995). Flexible correction processes in social judgment: The role of naive theories in corrections for perceived bias. *Journal of Personality and Social Psychology*, 68, 36-51.

Weiner, B. (1993). On sin versus sickness: A theory of perceived responsibility and social motivation. *American Psychologist*, 48, 957-968.

Williams, M. (2001). In whom we trust: Group membership as an affective context for trust development, *Academy of Management Review*, 26, 377-396.

Williams, S. & Voon, Y. W. W. (1999). The effects of mood on managerial risk perceptions: Exploring affect and the dimensions of risk. *Journal of Social Psychology*, 139, 268-287.

Williamson, O. E. (1993). Calculativeness, trust, and economic-organization. *Journal of Law and Economics*, 36, 453-486.

Appendix

Trust inventory (items adapted from Johnson-George & Swap, 1982).

I would give \_\_\_\_\_ an important letter to mail after s/he mentions that s/he is stopping by the post office today.

If \_\_\_\_\_ promised to copy a presentation for me, s/he would follow through.

If \_\_\_\_\_ and I decided to meet for coffee, I would be certain s/he would be there.

I would expect \_\_\_\_\_ to tell me the truth if I asked for him/her for feedback on an idea related to my job.

If \_\_\_\_\_ was late to a meeting, I would guess there was a good reason for the delay.

\_\_\_\_\_ would never intentionally misrepresent my point of view to others.

I would expect \_\_\_\_\_ to pay me back if I loaned him/her \$40.

If \_\_\_\_\_ laughed unexpectedly at something I did or said, I would know s/he was *not* being unkind.

If \_\_\_\_\_ gave me a compliment on my haircut I would believe s/he meant what was said.

If \_\_\_\_\_ borrowed something of value and returned it broken, s/he would offer to pay for the repairs.

## Footnotes

1 For studies 1, 3, and 5, two research assistants, blind to our hypotheses, coded the essays in the emotion induction for occurrence at a work setting and trustee involvement. There was high inter-rater agreement for both measures; for work setting, kappa values were 0.75, 0.73 and 0.86 for studies 1, 3 and 5 respectively. For trustee involvement, kappa values were 0.81, 0.83 and 0.77 for studies 1, 3 and 5. Disagreements were resolved through discussion with the authors. For a small percentage of essays, the raters could not determine whether the setting was at work or not (5%) or whether the trustee was involved or not (4%). Excluding these cases did not impact our results.

Author's Note

Jennifer R. Dunn and Maurice E. Schweitzer, Department of Operations and Information Management, The Wharton School, University of Pennsylvania, Philadelphia, Pennsylvania.

This research was sponsored by a grant from the Zicklin Center for Business Ethics Research. We thank Sigal Barsade, Rachel Croson, Jack Hershey, Howard Kunreuther, Robert Meyer, Nancy Rothbard, Deborah Small, seminar participants at UCLA, Cornell and the University of Pennsylvania, the editor and four anonymous reviewers for helpful comments. We thank Bryan Chao, Catherine Marks, Samantha Rudolph, Lauren Sokolowski, and Liya Wang for assistance in collecting the data.

Correspondence concerning this article should be addressed to Jennifer Dunn, Operations and Information Management Department, The Wharton School, University of Pennsylvania, Jon M. Huntsman Hall, Suite 500, 3730 Walnut St., Philadelphia, PA 19104. Email: [jrdunn@wharton.upenn.edu](mailto:jrdunn@wharton.upenn.edu).



Table 1

*Emotion manipulation check (Study 3)*

Emotion Condition	Self-Reported Emotion			
	<i>Angry</i>	<i>Guilty</i>	<i>Proud</i>	<i>Grateful</i>
Anger (n=11)				
M	4.98 <sub>a</sub>	2.15 <sub>b</sub>	3.15 <sub>b</sub>	2.80 <sub>b</sub>
SD	1.45	2.13	2.00	1.85
Guilt (n=10)				
M	2.20 <sub>b</sub>	4.70 <sub>a</sub>	3.20 <sub>b</sub>	3.05 <sub>b</sub>
SD	1.64	1.73	1.60	1.68
Pride (n=11)				
M	1.50 <sub>b</sub>	1.09 <sub>b</sub>	5.68 <sub>a</sub>	3.91 <sub>b</sub>
SD	1.21	2.03	0.89	1.19
Gratitude (n=10)				
M	2.28 <sub>b</sub>	3.15 <sub>b</sub>	3.85 <sub>b</sub>	6.40 <sub>s</sub>
SD	1.69	1.58	1.23	1.84

Higher numbers indicate stronger emotion. Subscripts should only be interpreted within rows.

Planned contrasts identify significantly higher scores for the expected emotions (indicated by subscripts *a*) than the other emotions (indicated by subscripts *b*) at  $p < .05$ .

Table 2

*Appraisals of Valence and Other-person Control (Study 3)*

Emotion	Valence		Other-Person Control	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Anger	2.54 <sub>a</sub>	1.71	5.18 <sub>a</sub>	1.27
Guilt	2.07 <sub>a</sub>	1.30	3.63 <sub>b</sub>	1.37
Pride	5.54 <sub>b</sub>	1.60	3.77 <sub>b</sub>	1.15
Gratitude	4.57 <sub>b</sub>	2.33	5.24 <sub>a</sub>	1.29

Subscripts should only be interpreted within columns. Means with the same subscript are not significantly different from each other. Means with different subscripts are significantly different at  $p < .001$ .

Figure Captions

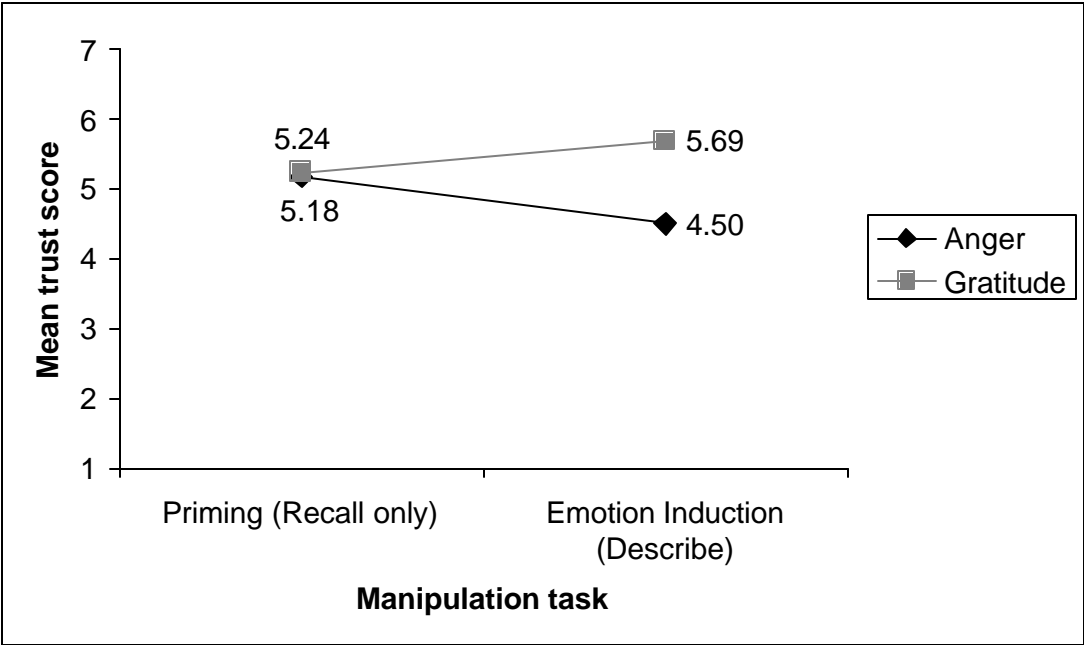
*Figure 1.* Emotional States versus Priming Effects on Trust (Study 2)

*Figure 2.* Mediation Analysis of Other-person Control: Gratitude vs. Pride (Study 3)

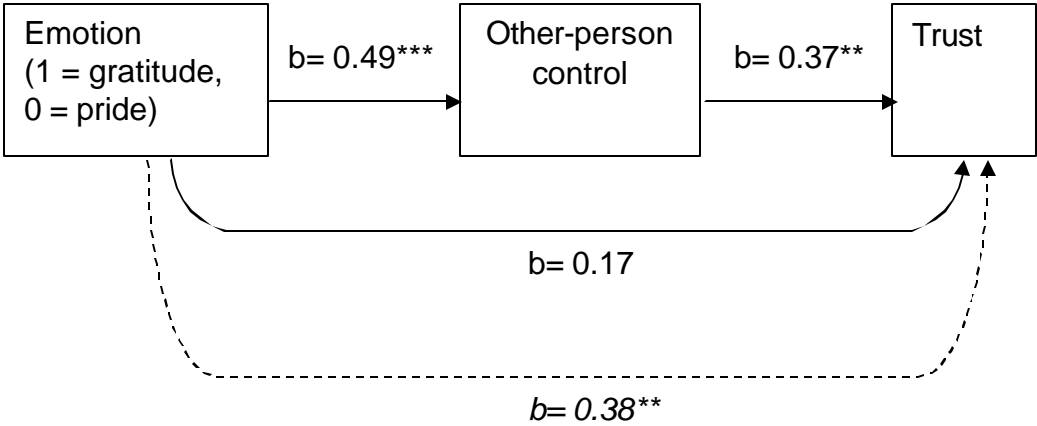
*Figure 3.* Mediation Analysis of Other-person Control: Anger vs. Guilt (Study 3)

*Figure 4.* Emotional States and Trust by Salience of Emotional State (Study 4)

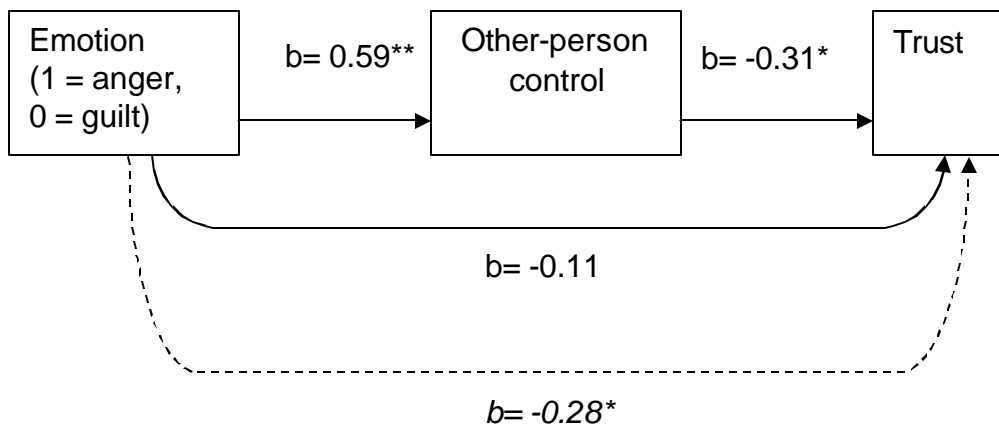
*Figure 5.* Emotion, Familiarity and Trust (Study 5)



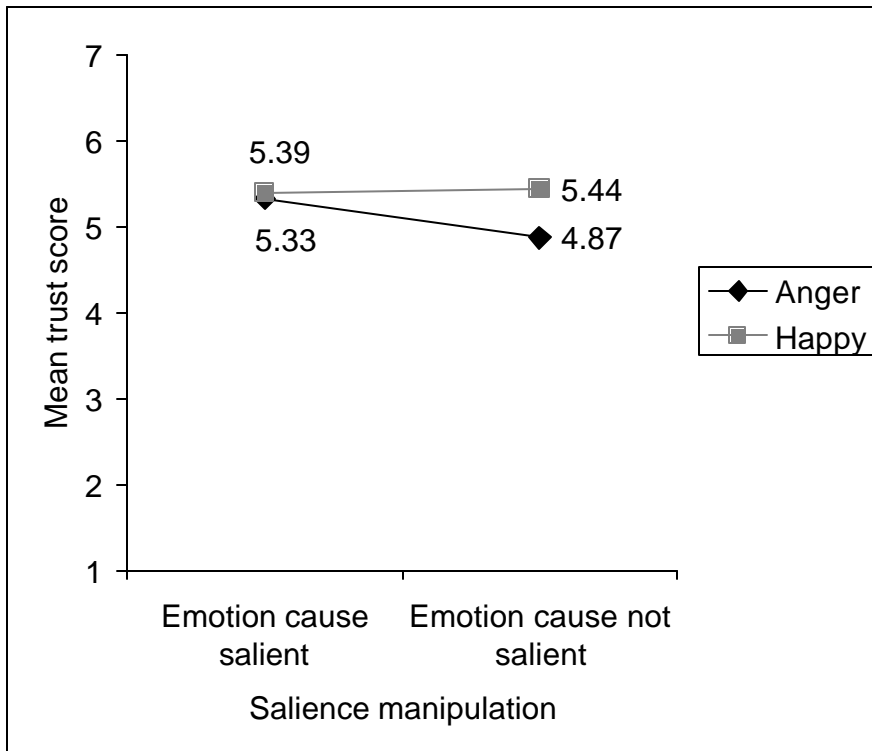
Trust scale ratings range from 1 (least trusting) to 7 (most trusting)



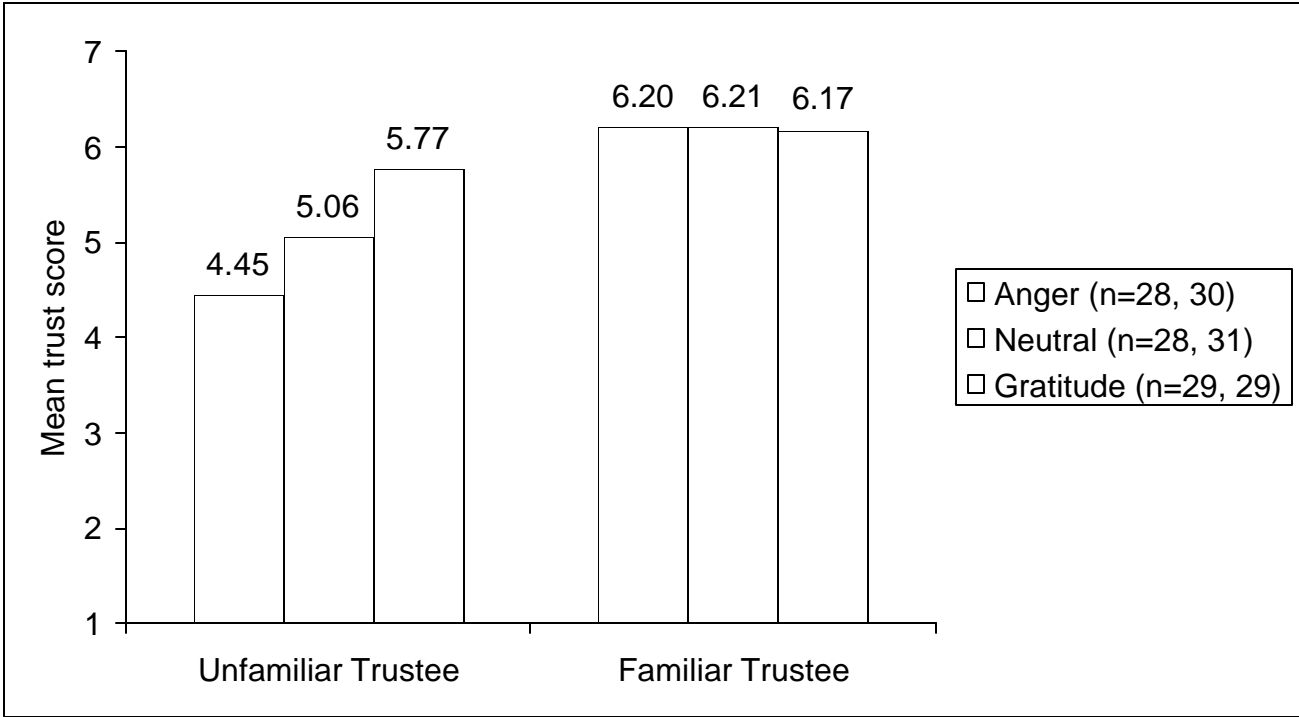
\*\*\*  $p < .001$ , \*\*  $p < .01$ , \*  $p < .05$



\*\*\*  $p < .001$ , \*\*  $p < .01$ , \*  $p < .05$



Trust scale ratings range from 1 (least trusting) to 7 (most trusting)



Trust scale ratings range from 1 (least trusting) to 7 (most trusting)