Appraisal Theory and Social Appraisals:
How an Event’s Social Context Triggers Emotions

by

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ABSTRACT

Appraisal theory (e.g., Arnold, 1960; Frijda, 1986; Lazarus, 1991; Scherer, 1984a) describes the cognitive process by which individuals evaluate environmental stimuli relevant for individual well-being and trigger emotions that ready the body for action. Manstead & Fischer (2001) recently argued that individuals also make social appraisals that take into account the thoughts, feelings, and actions of other persons in response to an emotional situation. Similarly, we consider appraisals that take into account the social context of which the individual is a part.

From research in psychology and anthropology, three social appraisals emerge in addition to the individual appraisal of situations: Status Seeking, Reciprocity Striving, and Group Identity Seeking. Our hypotheses address emotions these social appraisals should trigger. We submit that individuals should experience emotional responses to the social context of interactions in addition to stimuli that affect them as individuals only.

In an experiment that measures emotional responses in scenarios of social situations, we find support for social appraisals. The status seeking condition shows that status signals can trigger pride, and withholding them triggers negative emotions. The reciprocity condition shows that violating expectations of mutual fairness and returning favors triggers anger. The group identity seeking condition suggests that events that happen not only to ourselves, but also to peers, influence our emotions provided there exists a sense of identity with the group.

In the workplace, emotions can act as strong motivators that can influence how productive people are. Thus, understanding social appraisals offers managers an additional dimension of managing groups.

Keywords: appraisal theory, social appraisals, emotions, motivation, experiment.
INTRODUCTION

How would you feel in the following situation? You play a simple card game with a group of people you have never met before and will probably never see again. When you win, they clap and cheer for you. Most people would feel happy. But why? You do not know these people, so there is no need for you to show gratitude that they cheered for you. You have made no monetary or otherwise tangible gains. You will probably never see these people again, so there is no need for you to be polite. In reality, there is nothing in it for you, neither now nor in the future, yet you still feel happy. In this paper we present evidence suggesting that you feel happy because your social appraisal regarding status seeking triggered the happiness emotion. Even though you received no tangible reward for winning, i.e., something that might improve your individual well-being, you received status from your current peers. Because status has been evolutionarily adaptive for your well-being, it makes you happy. We present evidence there are four general social appraisals by which the human mind evaluates stimuli and triggers emotions. These appraisals and subsequent emotions help us humans navigate our social world.

We hypothesize that social appraisals trigger emotions in addition to those triggered by appraisals that only consider the well-being of the individual alone. We find that in some cases the additional emotions triggered by social appraisals are more of the same emotions that we would expect to be triggered by individual appraisals. In other cases, we find that social appraisals trigger different emotions than those expected to be triggered by individual appraisals. The implication is that by understanding the mechanisms underlying emotions, managers have an additional tool for influencing and motivating their employees, beyond personal incentives and direct pressure.

After reviewing the literature that supports our hypotheses, we describe our study and present its results. We then discuss the meaning of these results, uncover some problems that can be explored through future research, and conclude with key management implications.
APPRAISAL THEORY AND SOCIAL APPRAISALS

Appraisal theory (Arnold, 1960; Frijda, 1986; Lazarus, 1991; Roseman, 1984; Scherer, 1984a, 1988; Smith & Ellsworth, 1985) describes the cognitive process individuals use to evaluate environmental stimuli that are relevant for individual well-being. Through this process, stimuli trigger emotions that ready the body for action. According to Roseman & Smith (2001: 6-11), appraisal theories embody the following assumptions: 1) emotions are differentiated by appraisals; 2) differences in appraisal can account for individual and temporal differences in emotional response; 3) all situations to which the same appraisal pattern is assigned will evoke the same emotion; 4) appraisals precede and elicit emotions; 5) the appraisal process makes it likely that emotions will be appropriate responses to the situations in which they occur; 6) conflicting, involuntary, or inappropriate appraisal may account for irrational aspects of emotion; and 7) changes in appraisal may account for developmentally and clinically induced changes in emotions. Other tenets of appraisal theory are that appraisals are not entirely conscious, and that they are automated short-cuts that are useful on average, but may also be triggered inappropriately, e.g., when careful consideration would suggest alternative reactions.

Roughly speaking, the appraisal process works like this: we perceive a stimulus and evaluate it according to our internalized goals. Appraisals compare our current state to that of our desired goal state and trigger the emotions appropriate for readying the body for action. The emotions triggered are those that have proven evolutionarily adaptive for reconciling whatever discrepancy may exist between our current and desired states.

Scherer (1988) argued convincingly that the various versions of appraisal theory in the literature were highly convergent. As such, any of several versions (e.g., Frijda, 1986; Ortony, Clore & Collins, 1988; Roseman, 1984; Smith & Ellsworth, 1985) can be used as a basis for discussion of appraisal theory with the assumption that it encompasses the basic
ideas of other versions. Because we find it the most operational, we base our research on Scherer’s (1984b, 1988, 1997) version of appraisal theory. Specifically, we focus on his stimulus evaluation checks (SECs) as the mechanism by which humans systematically and sequentially appraise stimuli (Figure 1).

![Diagram of Appraisal Filters](image)

**Figure 1: Appraisal Filters**

The first SEC is Novelty: whether a stimulus is a change in the existing pattern of stimulation, or expected. If a stimulus is expected, the individual’s state remains the same; if the stimulus is unexpected, the individual registers surprise, in which case the body is made ready to attend to the stimulus. The second SEC is the degree to which the individual evaluates the stimulus as unpleasant. If unpleasantness is low, the individual evaluates the stimulus as positive and the body is readied for approach behavior, i.e., happiness is triggered. If unpleasantness is high, the individual evaluates the stimulus as negative and the body is readied for avoidance behavior, i.e., fear is triggered. Regardless, the evaluation process continues.

The third SEC is the degree to which the stimulus hinders or obstructs the individual’s attainment of its expected state at that moment. At this point, the individual may evaluate the
stimulus as hindering its physical well-being. This evaluation triggers physical disgust and thus elimination of a noxious stimulus. If the stimulus obstructs meeting the goal state at a more cognitive level, the individual continues to evaluate the stimulus.

The fourth SEC is Coping Potential, which determines the causation of the stimulus and the individual’s ability to cope with it. If the stimulus is external and positive, the individual will continue registering happiness (assuming that positive valence also means reasonable ability to cope) and approach. Similarly, if the stimulus is external and negative, the individual will register fear, anger, sadness or disgust, depending on its simultaneous evaluation of coping ability. If coping ability is very low, i.e., the individual is in unavoidable physical danger, the individual registers fear and the body is readied for flight. If the coping ability is low, but perhaps not physically urgent, the individual registers sadness. If coping ability is high, the individual registers anger and the body is readied for fighting. The individual may register cognitive disgust instead of or as well as any of these other emotions depending on the fifth evaluation. If the stimulus is caused internally, the individual will feel pride if it is positive, and either shame or guilt (or a combination thereof) if it is negative. The individual distinguishes between these two based on the next SEC.

This fifth evaluation is Incompatibility with Standards: the degree to which the stimulus conforms to the individual’s expectations of external morals or norms, and internal standards or self-concept. If an externally-caused stimulus is at a low level of compatibility with both types of standards, the individual will register anger or cognitive disgust. If an internally-caused stimulus is at a low level of compatibility with both types of standards, the individual may register shame and guilt. However, incompatibility with social norms (immorality) distinguishes guilt from shame. If the individual feels that something it has done is immoral, it registers guilt, whereas it may register shame whether the stimulus is immoral or not. Finally, an internally-caused positive stimulus, especially one that is conducive to the
individual’s goal state, will trigger pride when it also compatible with the individual’s self-concept.

We want to make clear that the process described above is a highly simplified representation. It depicts only the points at which emotions are distinguished from each other. This means that the appraisal combinations described have been identified as distinguishing factors for the emotions triggered. In reality, any emotion might be triggered at any time, based on the individual’s combination of evaluations at any given moment. This process occurs for myriad stimulus events that take place in parallel and evolve over time. As such, triggering emotions is a complex and constantly shifting process during which several emotions may be triggered at once and may be combined. In short, despite appraisal’s fundamental algorithmic process to triggering emotions, appraisals are holistic and often ambiguous. Thus, the process is actually quite noisy.

As mentioned above, appraisals compare our current state to that of our desired goal state and trigger the emotions appropriate for readying the body for action. The various forms of appraisal theory all operate under the added assumption that individuals set goals considering the well-being of the individual alone. Therefore, appraisals based on these goals also refer to their state as lone individuals. However, Manstead & Fischer (2001: 223) recently argued that we also make social appraisals that take into account the thoughts, feelings, and actions of other persons in response to an emotional situation. Similarly, our study considers appraisals that take into account the social context of which the individual is a part. Although our concept of social appraisal is broader than Manstead & Fisher’s (2001) definition, we adopt their term because it captures the essence of what we desire to study. We use the idea of social appraisals to extend appraisal theory into individuals’ social realms. We submit that, in addition to appraising stimuli in regard to ourselves as individuals, we also

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1 Referred to as individual appraisals throughout this paper
appraise stimuli in regard to the social context in which we are a part. Therefore, we should experience emotional responses to stimuli in social interactions in addition to those that affect us as individuals only.

That the social environment affects human appraisal and emotional response is not an altogether new concept. In his relational models theory Fiske (1992; 2000) discusses four sociological patterns that all people use to navigate social interactions: one, Market Pricing, corresponds to seeking individual advantage, the other three correspond to social appraisals. Though he describes the manifestation of these models predominantly behaviorally, Fiske theorizes the behavioral patterns relational models comprise are determined by a combination of culture and what he calls evolved proclivities. He later suggests that these proclivities may well be emotions, and identifies this idea as an important research agenda (Fiske, 2002).

This pattern of four basic groups—one individual need and three social interaction needs—appears in other parts of the management literature as well. Schein (1988) discusses Identity, Control & Influence, Needs & Goals, and Acceptance & Intimacy as four problems people encounter when entering groups. Lawrence & Nohria (2002) describe four basic drives—to acquire, to bond, to learn, and to defend—as those behind all human choices. Heckert et al. (2000) developed a Needs Assessment Questionnaire that measures the strength of each of four basic needs: Achievement, Affiliation, Autonomy, and Dominance. Finally, Francolini & Loree (2004) discuss four basic forms of trust that also roughly correspond to Fiske’s relational models: relational-based, institutional-based, deterrence-based, and calculus-based. While these references are by no means conclusive, together they imply that there is some substance to the notion of four basic propensities that guide human behavior.

From research in psychology and anthropology, the same pattern of one individual and three social appraisals emerge: Resource Striving (individual), Status Seeking, Reciprocity
Striving, and Group Identity Seeking (Figure 2). These social appraisals roughly, and coincidentally, correspond to Fiske’s (1992; 2000) relational models. Because they are active in the process of triggering emotions, they may well represent the evolved proclivities of relational models theory (Fiske, 2000). We theorize that these appraisals compare our current state to our goal state to reliably trigger emotions that have proven evolutionarily adaptive for coping with the needs for cooperation in groups, as well as with the need for competition within groups to ensure individual success.

![Figure 2: Social appraisals](image)

**Resource striving**

Resource striving is the evaluation of the individual’s own situation. It is broadly acknowledged and observed across the social sciences that people seek to maximize their own benefits. Individual appraisal theory has shown that resource striving has an emotional side. This emotional aspect is also revealed by observation: it often causes us to deviate from economic rationality by compelling us to satisfy current cravings at the expense of long-term interest. While such visceral factors (Lowenstein, 1996) serve us well on average, they may also lead to myopic behavior.

**Status seeking**

Frank (1985) was the first to argue that fundamental goals to have more than those who surround us create a ratcheting effect in which we run harder to stand still. In addition to

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2 The theory behind these social appraisals is summarized in Loch, Schneider, and Galunic (2003).
being able to amass more survival-enhancing, tangible resources, people with status have more latitude in what is considered acceptable behavior in groups, such as conforming to group norms (Ridgeway, 1978; Ridgeway & Johnson, 1990). However, research has shown that people strive for status as an end in itself, not necessarily due to the spoils that tend to accompany it (Huberman, Loch, and Önçüler, 2003). As such, status is a valued resource, the striving for which makes people work harder. Again, in itself a label of high status does nothing to improve our individual well-being. However, since it provides definite survival benefits to us as members of larger society, it, too, has become a hard-wired goal against which we appraise environmental stimuli.

**Reciprocity striving**

The reciprocity norm has long been discussed as important to human survival (e.g., Gouldner, 1960). Anthropological evidence (Axelrod & Hamilton, 1981; Sober & Wilson, 1998) has also shown how altruism can thrive even in the presence of opportunists and thus become a fundamental survival goal with evolutionary time. Technically, this relationship is called reciprocal altruism and has been shown to take effect in many species from birds to primates (Trivers, 1971). Cosmides and Tooby (1992) provide systematic and convincing evidence that, indeed, humans have a cognitive mechanism for detecting cheaters which, in turn, has allowed reciprocity to develop as a fundamental social goal. For example, Uzzi (1996) showed how repeated interactions allowed contract-based relationships to evolve into relationships in which the goals have changed from economic ones to desires to please the other parties. In such situations, our fundamental striving for reciprocity may trigger emotions that allow for this transformation, i.e., “I do business with you not because a contract tells me I’ll get $X if I do, but rather because working with you makes me happy.” Finally, Uhl-Bien & Maslyn (2003) showed that lack of reciprocity between individuals in a group may lower the performance of the entire group. In short, we need each other in order to
survive, thus helping those in our social groups as evolved as a hard-wired goal against which we appraise stimuli.

**Group identity seeking**

The need to belong has also shown to be a powerful determinant of emotional patterns, and linked to effects on human health and well-being (Baumeister & Leary, 1995). Individuals use formal and informal social groups to define themselves (Turner, 1982). In intergroup conflict situations, group members internalize their group membership as an aspect of their self-concept (Tajfel & Turner, 1986) so that they react to threats to the group as if they were threats to themselves as individuals (Devos et al., 2002). Extended beyond threatening situations, this result implies that a stimulus that affects anyone in our social group will trigger an emotional response even if the stimulus does not affect us directly as individuals. This response is known as empathy, which tends to lead to helping behavior (Sober & Wilson, 1998). Of course, we need the help and care of others to survive. Thus, the importance of maintaining strong relational bonds with those in our social groups has evolved into a hard-wired goal against which we appraise stimuli.

**HYPOTHESES**

Appraisal theory was developed with the individual in mind only. We extend the theory into the social realm. We developed our hypotheses addressing emotions that would be triggered in specific situations based on social interactions. We hypothesize that additional emotions—beyond those from individual appraisals—will be triggered when social appraisals are involved. Note that we are not testing whether an emotion becomes stronger or different in some way. Rather, we are testing whether social appraisals add emotions in the predicted direction.

For each of the three social appraisals, we consider conditions for both positive and negative contexts, plus a difference between manipulation and control conditions, giving us a
total of six hypotheses. In all cases, we assume the stimulus is novel enough to arouse attention, and that observers will interpret the scenarios with the valence we intend.

We predict that when people receive indications of status from others they will feel happiness and pride. Indications of admiration such as nods of approval, smiles, and words and gestures of appreciation are generally pleasant signals. Appraisals of status received will therefore trigger happiness. The key connection of appraisals to emotion is the comparison of the current state to the goal state. Since status is an inherent goal, stimuli that are appraised as conducive to achieving status also trigger happiness. Additionally, if the stimulus is internally caused, and compatible with people’s self-concept, they will feel pride. Thus, assuming novelty and pleasantness,

**Hypothesis 1a (H1a):** Stimuli that confirm status achievement will trigger happiness and, if the stimulus is internally caused and compatible with self-concept, pride, in addition to emotions triggered by individual appraisals.

Likewise, when people perceive others as removing status they will feel sadness, anger, and shame. Indications of disapproval such as shaking the head, rolling the eyes, and words of disappointment are generally negative signals. Regarding status seeking, stimuli that are appraised as hindering achieving or keeping status will trigger sadness, if people appraise it as difficult to cope with, and anger if people appraise it as possible to cope with but incompatible with their self-concept or societal norms. Additionally, if the stimulus is internally caused, and incompatible with people’s self-concept they will feel shame. Thus, assuming novelty and unpleasantness,

**Hypothesis 1b (H1b):** Stimuli that hinder status achievement will trigger sadness, if coping ability is low, and anger, if coping ability is high. If the stimulus is also internally caused, it will trigger shame, if incompatible with self-concept, and
guilt, if incompatible with societal norms, all in addition to emotions triggered by individual appraisals.

We also predict that stimuli appraised as having adequate reciprocity will trigger happiness. When someone does something for you it is generally perceived as positive, but particularly so if you have already done something for them. This situation is highly conducive to reciprocity striving. Therefore, assuming novelty and pleasantness,

Hypothesis 2a (H2a): Stimuli that confirm reciprocity will trigger happiness in addition to emotions triggered by individual appraisals.

Conversely, stimuli appraised as having inadequate reciprocity will trigger sadness or anger. When you have helped others but they do not return the favor, it is generally considered unpleasant. Stimuli that are appraised as hindering achieving a reciprocal relationship will trigger sadness, if people appraise it as difficult to cope with, and anger, if people appraise it as possible to cope with but incompatible with their self-concept or societal norms. Therefore, assuming novelty and unpleasantness,

Hypothesis 2b (H2b): Stimuli that hinder reciprocity will trigger sadness, if coping ability is low, and anger if coping ability is high, in addition to emotions triggered by individual appraisals.

Finally, we predict that when an event happens to other members of a group with which people identify, it triggers the same emotions in people as observers as it would if it affected them directly. Positive events such as winning a game, being applauded, or congratulated on a job well-done are generally regarded as pleasant. Appraisals of a positive event occurring to an in-group member will therefore trigger happiness. Additionally, if the stimulus is internally caused, and compatible with people’s self-concept, they will feel pride. Thus, assuming novelty and pleasantness,

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3 An in-group member is any fellow member of a group with which an individual identifies. An out-group member is anyone who is not a member of the in-group.
Hypothesis 3a (H3a): Positive stimuli that occur to others in a group with which people identify will trigger happiness and, if the stimulus is internally caused and compatible with self-concept, pride, in addition to emotions triggered by individual appraisals.

Similarly, negative events such as being threatened or reprimanded, slipping and falling, or experiencing a tragic loss, are generally regarded as unpleasant. Appraisals of a negative event occurring to an in-group member will therefore trigger the same negative emotions in people as observers as they would if the stimulus affected them directly. If the event is traumatic enough it will trigger fear, regardless of any other appraisals. When negative events happen to in-group members, group identity seeking appraises the event as if it were affecting the individual directly. As such, it triggers emotions comparing the empathic current state of people to their goal states. Even when not happening to people directly, stimuli that affect other in-group members will trigger sadness if people appraise it as difficult to cope with, and anger if people appraise it as possible to cope with but incompatible with the other’s self-concept or societal norms. Additionally, if people appraise the stimulus is internally caused (again, within the other in-group member), and incompatible with the other’s self-concept they will feel shame. Therefore, assuming novelty and unpleasantness,

Hypothesis 3b (H3b): Negative stimuli that occur to others in a group with which people identify will trigger fear in observing individuals. Similarly, stimuli that occur to others in a group with which people identify will trigger sadness, if coping ability is appraised as low, anger, if coping ability is appraised as high, and shame, if the stimulus is internally caused and incompatible with self-concept by observing individuals, all in addition to emotions triggered by individual appraisals.
Note that we hypothesize this last social appraisal to work differently from the others. Instead of appraising an event that occurs directly to an individual, appraisals made regarding group identity seeking trigger emotions meant to cope with an event that is happening to someone else as if it were happening directly to the individual.

**EXPERIMENTAL DESIGN AND METHODOLOGY**

**Variables**

Our experimental design was a series of 2 (context) × 2 (condition) comparisons for each of the three social appraisals: Status Seeking, Reciprocity Striving, and Group Identity Seeking. Our independent variables were the four scenario types written for each of the three appraisals: positive context-control condition, positive context-manipulation condition, negative context-control condition, and negative context-manipulation condition. There were 12 separate stories in all.\(^4\) In the positive conditions, something positive happened to the actor or group member. In the negative conditions, something negative happened. In the manipulation conditions the actor was involved with others to elicit the social appraisal being tested. In the control condition, there was some social contact, but not the interaction required to elicit the social appraisal being tested. All scenarios are in Appendix A.

The use of scenarios to test for emotions has been successfully validated elsewhere (McGraw, 1987; Roseman, 1991; Scherer, 1999; Smith & Lazarus, 1993; Weiner, Graham, & Chandler, 1982; Wilson & O’Gorman, 2003). To test our hypotheses we had to write our own scenarios to ensure that first, subjects faced believable situations in which they neither knew the people around them, nor would they be likely to encounter them again. This detail is important for excluding the possibility of rationally investing in future returns from relationships. Second, we had to ensure that if something was exchanged, it had no real

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\(^4\) Scenarios were pretested to be sure they elicited appropriate and sufficiently strong emotions to be able to test for significant differences in intensity between conditions.
monetary value nor anything that might improve the person’s immediate well-being. This detail is important to exclude resource striving as a motivation.

Each appraisal was tested separately, which facilitated testing without affecting the results, as we did not compare responses between the three different appraisals. We tested for differences in responses between scenarios within any one appraisal. In effect, we carried out three separate experiments, one for each social appraisal. For each appraisal, all four scenarios were tested simultaneously using random assignment of conditions.

Our dependent variables were eight emotions, the intensity of which we measured for each participant. Although there are myriad emotions and combinations thereof, for the sake of parsimony we had to narrow our focus to eight so-called basic emotions: happiness, anger, guilt, disgust, pride, shame, fear, and sadness. Because we base our theory on Scherer’s (1997) appraisal theory, we included the seven emotions he tests for in his research. We added pride because it is shown elsewhere (Scherer, 1988) to be an emotion triggered by self-caused positive events, a case that is relevant to our research question.

After reading a scenario, subjects responded on a five-point Likert-type scale (in which 1 signified not at all and 5 signified very much) as to how intensely they would feel each of the eight emotions if they had actually participated in the given scenario. To check for any systematic differences by demographic group, we collected control data on sex, age, whether people were native French speakers, and, if not, at what age they began learning French.

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5 Although there is a debate regarding whether basic emotions even exist, regardless of which emotions they are, this set of eight is widely used in appraisal theories. For further discussion of this topic please see Ekman (1984), Derryberry & Rothbart (1984), Ortony & Turner (1990), and Zachar & Bartlett (2001).
Subjects

Participants were recruited off the street near a university in central Paris. While the vast majority of participants were native French-speaking students aged 18-25, various ages (range 18-75) and nationalities (21 native languages other than French) were represented.

Instruments

As described above, recruiters brought participants to the research lab where they completed the task. The instrument consisted of a booklet, in French, with explicit instructions for completing the task, a scenario to read, a grid on which to mark responses, and a series of demographic questions to answer. A sample booklet is in Appendix B. After completing the booklet, participants were debriefed, given a hot drink and a small pastry as remuneration, and dismissed.

RESULTS

All scenarios

We checked the response set for each emotion for normality. The nature of the experiment led the responses to skew right to a degree that we could not normalize using the usual transformations. Therefore, we used the non-parametric Mann-Whitney test. Instead of comparing cell means to determine significant difference between two data sets, the Mann-Whitney uses cell medians to check for significant differences between data sets. This test is more robust to severe skewing than ANOVAs, which assume normality.

Status seeking

The status seeking condition had 164 subjects. Of these, 61 (37.2%) were male, 22 (13.4%) were non-native French speakers. The average age of learning French for non-native French speakers was 9.4 years, and the average age overall was 21.5 years. We found no

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6 The booklet and scenarios were originally written in English then translated into French by a native French speaker with translating experience. The booklet was then given to other native French speakers to test that it was readable and made sense to native French speakers.

7 There is a natural tendency for women to agree to participate in studies more than men, at least at the lab we used, if not in general.
systematic differences between males and females, or between native and non-native French speakers for any of the four scenarios.

For the positive scenarios, we found no significant difference between the manipulation and control conditions for happiness (p = .125) (Table 1). However, there was a significant difference between the manipulation and control conditions for pride (p = .046). Thus, H1a is supported for pride but not for happiness.

TABLE 1: Significance for relevant emotions in the status seeking experiment

<table>
<thead>
<tr>
<th>Condition</th>
<th>Emotion</th>
<th>Happy</th>
<th>Anger</th>
<th>Guilt</th>
<th>Disgust</th>
<th>Pride</th>
<th>Shame</th>
<th>Sad</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive-Manipulation</td>
<td>Mean</td>
<td>2.98</td>
<td>1.07</td>
<td>1.12</td>
<td>1.10</td>
<td>3.10</td>
<td>1.31</td>
<td>1.17</td>
</tr>
<tr>
<td>(Knowing the answer and receiving approval)</td>
<td>Median</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>0.046</td>
<td></td>
</tr>
<tr>
<td>Positive-Control</td>
<td>Mean</td>
<td>2.61</td>
<td>1.05</td>
<td>1.15</td>
<td>1.02</td>
<td>2.56</td>
<td>1.17</td>
<td>1.20</td>
</tr>
<tr>
<td>(Knowing the answer)</td>
<td>Median</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Negative-Manipulation</td>
<td>Mean</td>
<td>1.68</td>
<td>1.59</td>
<td>1.90</td>
<td>1.68</td>
<td>1.61</td>
<td>1.73</td>
<td>1.61</td>
</tr>
<tr>
<td>(Not knowing the answer and receiving disapproval)</td>
<td>Median</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>p</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.035</td>
</tr>
<tr>
<td>Negative-Control</td>
<td>Mean</td>
<td>1.98</td>
<td>1.10</td>
<td>1.54</td>
<td>1.12</td>
<td>1.41</td>
<td>1.49</td>
<td>1.27</td>
</tr>
<tr>
<td>(Not knowing the answer)</td>
<td>Median</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

p values are only listed for significant differences (p ≤ 0.050) between manipulation and control conditions. These cells are shaded.

There are no significant differences between the manipulation and control conditions for Fear.

Positive and negative scenarios were not analyzed. For a complete data comparison see Appendix C.

For the negative scenarios, we found no significant differences between the manipulation and control conditions for guilt (p = .062) and shame (p = .146). However, there was a significant difference between the manipulation and control conditions for anger (p = .003) and sadness (p = .050). In addition, there was an unexpected difference between the manipulation and control conditions for disgust (p = .010). Thus, H1b is supported for anger and sadness, but not for guilt and shame. The unexpected significant difference for disgust was surprising, but not inexplicable. We will discuss possible reasons for these results and their implications for further research in the Discussion section.

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8 For ease of reporting we include only those data that correspond to our hypotheses. For complete results see Appendix C.
Reciprocity striving

The reciprocity striving condition had 128 subjects. Of these, 61 (47.7%) were male, 21 (16.4%) were non-native French speakers. The average age of learning French for non-native French speakers was 11.9 years, and the average age overall was 22.6 years. There were sex and native language differences for a few scenarios, but they do not affect our conclusions. For more details, please see Appendix D.

For the positive scenarios, we found no significant difference between the manipulation and control conditions for happiness (p = .263) (Table 2). Thus, we do not find support for H2a. For the negative scenarios, we did find a significant difference between the manipulation and control conditions for anger (p = .035), but not sadness (p = .484). Thus, H2b is partially supported.

TABLE 2: Significance for relevant emotions in the reciprocity striving experiment

<table>
<thead>
<tr>
<th>Condition</th>
<th>Emotion</th>
<th>Happiness</th>
<th>Anger</th>
<th>Sadness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive-Manipulation</td>
<td></td>
<td>Mean</td>
<td>2.72</td>
<td>1.03</td>
</tr>
<tr>
<td>(Reciprocity fulfilled as</td>
<td></td>
<td>Median</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>expected)</td>
<td></td>
<td>p</td>
<td>1.03</td>
<td>1.13</td>
</tr>
<tr>
<td>Positive-Control</td>
<td></td>
<td>Mean</td>
<td>2.47</td>
<td>1.06</td>
</tr>
<tr>
<td>(Question answered without</td>
<td></td>
<td>Median</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>previous favor)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Negative-Manipulation</td>
<td></td>
<td>Mean</td>
<td>1.06</td>
<td>3.47</td>
</tr>
<tr>
<td>(Reciprocity norm unexpectedly</td>
<td></td>
<td>Median</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>violated)</td>
<td></td>
<td>p</td>
<td>0.035</td>
<td>2.16</td>
</tr>
<tr>
<td>Negative-Control</td>
<td></td>
<td>Mean</td>
<td>1.16</td>
<td>2.91</td>
</tr>
<tr>
<td>(Question ignored without</td>
<td></td>
<td>Median</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>previous favor)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

p values are only listed for significant differences (p ≤ 0.050) between manipulation and control conditions. These cells are shaded.

There are no significant differences between the manipulation and control conditions for Guilt, Disgust, Pride, Shame, and Fear.

Positive and negative scenarios were not analyzed. For a complete data comparison see Appendix C.

Group identity seeking

The group identity seeking condition had 132 subjects. Of these, 56 (42.4%) were male, 24 (18.2%) were non-native French speakers. The average age of learning French for non-native French speakers was 11.6 years, and the average age overall was 24.4 years. We
did find that females were more likely to feel guilt than males for the negative-manipulation scenario, but since guilt was not relevant to our hypothesis, we did not see the need to pursue this result further (Appendix D).

For the positive scenarios, we found significant differences between the manipulation and control conditions for both happiness (p = .000) and pride (p = .000) (Table 3). Thus, H3a is strongly supported. For the negative scenarios, we found no significant difference between the manipulation and control conditions for sadness (p = .527). However, we did find a significant difference between the manipulation and control conditions for shame (p = .012) and for anger (p = .022). Thus, H3b is supported for shame, but not sadness. The unexpected significant difference for anger was surprising, but not inexplicable. We will discuss possible reasons for these results and their implications for further research in the Discussion section.

### TABLE 3: Significance for relevant emotions in the group identity seeking experiment

<table>
<thead>
<tr>
<th>Condition</th>
<th>Emotion</th>
<th>Happiness</th>
<th>Anger</th>
<th>Pride</th>
<th>Shame</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Positive-Manipulation</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(In-group member wins covetted prize)</td>
<td>Mean</td>
<td>2.91</td>
<td>1.38</td>
<td>2.31</td>
<td>1.06</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>p</td>
<td>0.000</td>
<td></td>
<td>0.000</td>
<td></td>
</tr>
<tr>
<td><strong>Positive-Control</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Out-group member wins covetted prize)</td>
<td>Mean</td>
<td>1.82</td>
<td>1.45</td>
<td>1.18</td>
<td>1.15</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td><strong>Negative-Manipulation</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(In-group member spills beer on self)</td>
<td>Mean</td>
<td>1.33</td>
<td>1.39</td>
<td>1.24</td>
<td>2.09</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>p</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Negative-Control</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Out-group member spills beer on self)</td>
<td>Mean</td>
<td>1.25</td>
<td>1.06</td>
<td>1.06</td>
<td>1.41</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>p</td>
<td></td>
<td></td>
<td>0.022</td>
<td></td>
</tr>
</tbody>
</table>

p values are only listed for significant differences (p ≤ 0.050) between manipulation and control conditions. There are no significant differences between the manipulation and control conditions for Guilt, Disgust, Fear, and Sadness.

Positive and negative scenarios were not analyzed. For a complete data comparison see Appendix C.

**DISCUSSION**

Most of our hypotheses received at least partial support. In the cases that did not have supporting results, and those with significant results for unpredicted emotions, there are
plausible interpretations of the scenarios that would explain the results. The findings are explicable in light of the fact that appraisals are noisy and often ambiguous. We will now discuss each of our findings in more detail.

**Status seeking**

As H1a states, we expected to see a significant increase in both happiness and pride when people are given status by their peers, reflecting the pleasant nature of the other passengers’ approval signal. In our experiment, pride is significantly enhanced by the status signal, but not happiness. This result is consistent with our theory if subjects interpreted the situation in the following, plausible, way. In both conditions, subjects are happy about knowing the answer (happiness is significantly higher in the positive conditions than in the negative ones). The approval signal from the other passengers triggers the realization, “I have achieved something positive.” This signal makes salient to the subject the internally-caused nature of the positive event, which triggers pride. Thus the interpretation of the situation clearly influences the appraisal process, as we have emphasized in our initial discussion of appraisal theory.

H1b states that we expected to see significant increases in guilt, shame and anger when subjects receive a negative status indication from peers. The absence of guilt and shame is, again, consistent with our theory if subjects adopted a reasonable interpretation of the scenario: there is no norm that says you have to know the answer to a tricky puzzle question. Thus, as there is no violation of social expectations, there is no guilt or shame.

The significant increases in anger and sadness are also consistent with our theory. Anger increases because status seems to be taken away from us, and we have the ability to cope with this situation. The increase in anger indicates that subjects felt they had coping ability, and therefore anger is readying the body to get status back. By the same token, they also evaluated the situation as unchangeable, which triggered sadness because there was
nothing that could be done to keep from losing status (noting that sadness did not differ between the manipulation and control conditions). Indeed, many subjects reported both anger and sadness, which, again, illustrates how noisy and simultaneous the appraisal process is.

The significant increase in disgust in the presence of a negative status signal is consistent with the absence of guilt and shame. If there is nothing wrong in not knowing the answer to the puzzle, the other passengers are violating a norm by showing disapproval. Others’ unjustified norm violation triggers an emotion of cognitive disgust. Since contempt was not a response option, participants substituted it with disgust in the cognitive rather than physical sense. Again, appraisals can be complex and highly sensitive to interpretations of the situation.

**Reciprocity striving**

The absence of added happiness from positive reciprocity fulfillment (H2a) is surprising at first glance. However, it is consistent with findings by Cosmides & Tooby (1992; Cosmides, 1989) and Gigerenzer & Hug (1992). These psychologists have found evidence of a psychological mechanism, which they call a cheating module, that shows high sensitivity to situations that imply cheating by one party in a social contract. These scientists hypothesize that detections of cheating—even subtle or hidden instances of it—trigger anger and a desire to retaliate. However, because reciprocity fulfillment is expected, this condition does not enhance happiness. Rather, reciprocity fulfillment causes actors to like the other party. In this sense, then, our findings are consistent with an asymmetric reciprocity effect. In future studies we will examine this mechanism further.

As we hypothesized in H2b, unfulfilled reciprocity triggers anger but not sadness. This result is also consistent with the explanation described above. If we consider that, on the

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9 Although disgust, in its strict definition, is a visceral avoidance response to noxious or poisonous substances, what we call cognitive disgust is an avoidance reaction to reproachable behavior, i.e., figurative noxiousness, similar to contempt. See Figure 1.
whole, subjects felt they had the ability to cope with the situation, it would explain why only one of the two emotions was significantly different.

**Group identity seeking**

The support for H3a suggests that group identity seeking causes people to feel the same positive emotions (happiness and pride) when they merely observe someone in the group with which they identify experience a positive event. Individual appraisal theory would suggest that if the positive event did not happen directly to people, they would not react because the event is irrelevant to their own well-being. Indeed, that is what the results of the control condition, in which the winner is not a member of the observer’s in-group, show. In the manipulation condition, in which the winner is a member of the observer’s in-group, subjects feel the same (assumed) emotions as the person to whom the event actually happens. This implies that some other mechanism is in effect when a social element is involved in the event. We claim this mechanism is the group identity seeking social appraisal.

The support for H3b is partial at first glance, but again, plausible scenario interpretations make the results fully consistent with our theory. First, if subjects interpreted the event as easy to cope with, they would not feel sadness. Second, that the actor spills his beer all over his clothes is unpleasant, but also clumsy. Both the actor and the observer can easily interpret it as being self-inflicted. Someone who self-causes a negative event out of clumsiness feels anger and shame. The observer also feels these emotions if the actor is a fellow member of a group to which the observer identifies, but not otherwise.

**Issues for Future Research**

As we have mentioned throughout our discussion, the appraisal process is noisy and highly sensitive to the subjects’ interpretations of the scenarios. Because social situations are open to differing interpretations by different subjects, building scenarios that trigger specific emotions to a measurable degree is an elaborate task. More scenarios and broader testing are
needed to allow or disregard specific interpretations systematically. Refining our scenarios thusly will help us confirm and further hone our understanding of how interpretations of a situation influence the appraisal process.

A second issue is that thinking about hypothetical emotions is different from feeling real emotions. In future research we will distract subjects from thinking about their emotions and measure only how they actually feel. In addition, measuring feelings is different from measuring emotions. In physiological terms, emotions are active long before we actually feel them. In future research we will measure the actual emotions via subtle physiological indicators rather than self-reported feelings.

Beyond these methodological issues, is the question of how the social appraisal process influences competitive and cooperative behavior. In future research we hope to show how appraisals work as an integrated system to influence group behavior, and thus performance.

**MANAGEMENT IMPLICATIONS**

This study has attempted to extend cognitive appraisal theory from emotions triggered by events that happen to the individual, to emotions triggered by events that also concern the social context of which the individual is a part. Understanding individual appraisals and emotions has high management relevance, as the success of the popular book, *Emotional Intelligence* (Goleman, 1995), attests. Understanding social appraisals is of similar managerial relevance.

Emotions influence individual behavior. As such, they have strong implications for the performance of individuals. On the one hand, fear encourages withdrawal and freezing up, and anger may lead to unconstructively aggressive behavior. These emotions and their subsequent behaviors evolved as means to avoid harmful stimuli. Of course, when triggered accidentally or inappropriately, these reactions are dysfunctional. On the other hand, happiness and pride evolved to encourage approach behavior. They urge us to continue doing
what it takes to experience positive stimuli. In the workplace, they act as strong motivators that lead people to work harder. One part of individual emotional intelligence is the ability to influence or manage your own emotions to foster a motivated and constructive state of mind (Huy, 2002). A second part is to be able to do the same with those in your social group. It is not enough to understand the mechanisms that trigger individuals’ emotions. It is also necessary to understand how these mechanisms work within people’s social context.

In this paper we take a first step at being able to predict how employees’ social environment triggers specific emotions. Status and approval, reciprocity fulfillment, and the well-being of fellow group members tend to act as intrinsic goal states. Approval or status, not only from superiors (in which case one could view the reaction as rational calculation of future benefits), but also from peers and even outsiders or strangers, can trigger pride, and thus increased motivation. Similarly, withholding approval and status may trigger negative emotions and thus decrease motivation. As such, even subtle symbols of status or changes thereof may have profound influence on employee productivity.

The reciprocity condition of our study shows that fulfilling expectations of mutual fairness and returning favors, not only between managers and members of their staff, but also among group members, triggers certain emotions. The results explain how not following norms within a peer group triggers anger among members, which can reduce performance. This reaction implies that for managers, managing relationships among peers is as important as managing direct subordinate relationships.

The third condition of our study suggests that, provided a common sense of group identity exists, events that happen not only to individuals, but also to peers, can influence emotions, and thus motivation. In other words, a positive event happening to group member X triggers happiness and motivation in group member Y as well. This result underscores the importance of cultivating strong identity within a group. More important, however, it shows
that managers may motivate all group members via association, rather than having to motivate each member individually.

In addition to providing support for the existence of social appraisals, the results of this study imply, as discussed in the introduction, that cognitive appraisals are multi-layered and that multiple appraisals proceed in parallel. The same event may trigger several emotions via different appraisal paths and types. Using the example in the previous paragraph, Y may feel the same happiness as X but only provided this positive event does not threaten Y’s status or violate Y’s expectation of some reciprocation between Y and X, e.g., Y’s thinking, “Before X accepted this nice surprise, he should have publicly praised me.” What may seem at first like a simple individually-experienced event may actually have multiple repercussions on various employees.

The managerial implication is that managers may influence the emotional state of an entire group by acting towards only one or a few members. Note that this prediction is different from network theory, in which contagion relies on individuals’ active influencing through the channels of their relationships. With social appraisals and emotions, it is simply observation and empathy between group members that influences their behavior. As such, emotions triggered by social appraisals may be at the source of emotional contagion (Barsade, 2002; Hatfield, Cacioppo, & Rapson, 1993) among group members.

In summary, understanding social appraisals offers managers an additional dimension of managing groups. Rather than managing only on one-on-one relationships between managers and individual employees, managers can also influence social approval symbols (status), reciprocity feelings among group members, and events to a few individuals that influence the entire group through identity. The brilliant conductor teases performance out of the orchestra not merely by directing individuals, but also by establishing group identity and reciprocal encouragement among all the musicians.
APPENDIX A

Scenarios in English

Status seeking, Positive-Manipulation
You are on the train sitting among strangers. The person next to you is doing a crossword puzzle. The person reads a clue out loud and asks you if you know the answer. You do and say it. As you look up you notice others around you nodding admiringly. Your stop is next and you get off the train.

Status seeking, Positive-Control
You are on the train sitting among strangers. The person next to you is doing a crossword puzzle. The person reads a clue out loud and asks you if you know the answer. You do and say it. Your stop is next and you get off the train.

Status seeking, Negative-Control
You are on the train sitting among strangers. The person next to you is doing a crossword puzzle. The person reads a clue out loud and asks you if you know the answer. You don’t and say so. Your stop is next and you get off the train.

Status seeking, Negative-Manipulation
You are on the train sitting among strangers. The person next to you is doing a crossword puzzle. The person reads a clue out loud and asks you if you know the answer. You don’t and say so. As you look up you notice others around you rolling their eyes disappointedly. Your stop is next and you get off the train.

Reciprocity striving, Positive-Manipulation
As you are exiting the metro station a stranger asks you for a cigarette and you comply. Just then you realize you do not know which direction to turn when you reach the sidewalk. You ask the stranger for directions and the person politely gives you them. The two of you then go your separate ways.

Reciprocity striving, Positive-Control
As you are exiting the metro station you realize you do not know which direction to turn when you reach the sidewalk. You ask a stranger for directions and the person politely gives you them. The two of you then go your separate ways.

Reciprocity striving, Negative-Control
As you are exiting the metro station you realize you do not know which direction to turn when you reach the sidewalk. You ask a stranger for directions but the person ignores you and walks away.

Reciprocity striving, Negative-Manipulation
As you are exiting the metro station a stranger asks you for a cigarette and you comply. Just then you realize you do not know which direction to turn when you reach the sidewalk. You ask the stranger for directions but the person ignores you and walks away.
Group identity seeking, Positive-Manipulation
You are part of a fan club that supports your local football team. People in the group always dress up in the team’s colors, sit in the same section at games, and cheer together for the team. At one game, as you are waiting in line by yourself at the food stand, the announcer broadcasts the results of the stadium lottery. You then see that a member of your fan club (whom you do not know but can recognize by clothing in the team colors) is the winner.

Group identity seeking, Positive-Control
You are at a football game with friends. As you are waiting in line by yourself at the food stand, the announcer broadcasts the results of the stadium lottery. You then see that someone you do not know is the winner.

Group identity seeking, Negative-Control
You are at a football game with friends. As you are waiting in line by yourself at the food stand, you see someone you do not know spill his beer all over his clothes.

Group identity seeking, Negative-Manipulation
You are part of a fan club that supports your local football team. People in the group always dress up in the team’s colors, sit in the same section at games, and cheer together for the team. At one game, as you are waiting in line by yourself at the food stand, you see a member of your fan club (whom you do not know but can recognize by clothing in the team colors) spill his beer all over his clothes.
APPENDIX B

Response booklet in English

Please read the following instructions carefully. If you have any questions please ask the experimenter.

We ask you to:
Read the short scenario while vividly imagining yourself as the “You” character.
It is very important that you read the whole scenario from start to finish. Please do not skim it.
When you have finished reading the scenario and imagining yourself in it, think of how you would feel if you really were the “You” character.

After reading the scenario:
Look at the list of emotions below and, for each one, circle the number that represents the intensity you would feel that emotion at the end of the scenario if you had actually been in the story. A 1 indicates that you would not feel the emotion at all. A 5 indicates you would feel the emotion very much.

Be honest but spend only a few seconds on each emotion. Do not think too much; your first instinct is usually the most accurate.
There are no right or wrong answers. We are only interested in the emotions you would feel if you were in the situation described in the scenario.

Here is the scenario:
[One of the 12 scenarios would go here.]

Now, circle the number that represents the intensity that you would feel at the end of the scenario for each emotion listed.

<table>
<thead>
<tr>
<th>Emotion</th>
<th>Not at all</th>
<th>A little</th>
<th>Somewhat</th>
<th>A lot</th>
<th>Very much</th>
</tr>
</thead>
<tbody>
<tr>
<td>Happiness</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Anger</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Guilt</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Disgust</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Pride</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Shame</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Fear</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Sadness</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

Note: In French the emotions are alphabetical.

When you have finished, turn to the next page.
Please respond to the following short questions. When you have finished answering the questions, please give the answer booklet to the experimenter.

The two following questions are only for capturing the demographic data of our participant pool. Your responses will in no way be linked with your name; your answers will remain anonymous.

What is your age? ______________

What is your sex? (circle one)  Female  Male

Is French your native language? (circle one)  Yes  No

If your response was No:
   What is your native language? ______________
   At what age did you begin learning French? __________

In your opinion, what was the objective of this study? Please write at least one sentence.

______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________

Thank you for your participation!
APPENDIX C

Full comparison table

| Status seeking          | Bonheur | cf | p    | Colere | cf | p    | Culpabilité | cf | p    | Degout | cf | p    | Fierté | cf | p    | Honte | cf | p    | Peur | cf | p    | Tristesse | cf | p    |
|-------------------------|---------|----|------|--------|----|------|-------------|----|------|--------|----|------|--------|----|------|-------|----|------|-------|----|------|-------|----|------|--------|
| **A Positive Manipulation** | Mean    | 2.98 | B 0.120 | Mean | 1.97 | B 0.989 | Mean | 1.12 | B 0.549 | Mean | 1.10 | B 1.322 | Mean | 3.10 | B 0.046 | Mean | 1.34 | B 0.093 | Mean | 1.07 | B 0.259 | Mean | 1.17 | B 0.581 |
| Median                  | 3       | C 0.000 | Median | 1 | C 0.000 | Median | 1 | C 0.000 | Median | 1 | U 0.488 | Median | 3 | C 0.000 | Median | 1 | C 0.140 | Median | 1 | C 0.443 | Median | 1 | U 0.006 | Median | 1 | C 0.006 |
| **B Positive Control**   | Mean    | 2.61 | C 0.012 | Mean | 1.05 | C 0.831 | Mean | 1.15 | C 0.003 | Mean | 1.02 | C 0.092 | Mean | 2.56 | C 0.000 | Mean | 1.17 | C 0.002 | Mean | 1.27 | C 0.889 | Mean | 1.20 | C 0.882 |
| Median                  | 3       | D 0.000 | Median | 1 | D 0.001 | Median | 1 | D 0.000 | Median | 1 | D 0.002 | Median | 2 | D 0.006 | Median | 1 | D 0.000 | Median | 1 | D 0.827 | Median | 1 | D 0.027 |
| **C Negative Control**   | Mean    | 1.98 | Mean | 1.10 | Mean | 1.54 | Mean | 1.12 | Mean | 1.41 | Mean | 1.49 | Mean | 1.15 | Mean | 1.27 | Mean | 1.29 | Mean | 1.19 | Mean | 1.20 | Mean | 1.05 |
| Median                  | 2       | Mean | 1 | Median | 1 | Median | 1 | Median | 1 | Median | 1 | Median | 1 | Median | 1 | Median | 1 | Median | 1 | Median | 1 |
| **D Negative Manipulation** | Mean    | 1.68 | C 0.200 | Mean | 1.59 | C 0.003 | Mean | 1.90 | C 0.062 | Mean | 1.68 | C 0.019 | Mean | 1.61 | C 0.907 | Mean | 1.73 | C 0.148 | Mean | 1.22 | C 0.521 | Mean | 1.61 | C 0.050 |
| Median                  | 1       | Median | 1 | Median | 1 | Median | 1 | Median | 1 | Median | 1 | Median | 1 | Median | 1 | Median | 1 | Median | 1 |
| **Reciprocity striving** | Bonheur | 2.72 | B 0.263 | Mean | 1.03 | B 0.576 | Mean | 1.03 | B 0.094 | Mean | 1.00 | B 0.325 | Mean | 1.55 | B 0.368 | Mean | 1.06 | B 0.221 | Mean | 1.23 | B 0.569 | Mean | 1.13 | B 0.161 |
| Median                  | 3       | C 0.000 | Median | 1 | C 0.000 | Median | 1 | C 0.012 | Median | 1 | C 0.546 | Median | 1 | C 0.000 | Median | 1 | C 0.000 | Median | 1 | C 0.000 | Median | 1 | C 0.000 | Median | 1 | C 0.000 |
| **B Positive Control**   | Mean    | 2.47 | C 0.000 | Mean | 1.06 | C 0.000 | Mean | 1.22 | C 0.333 | Mean | 1.03 | C 0.000 | Mean | 1.41 | C 0.903 | Mean | 1.25 | C 0.011 | Mean | 1.31 | C 0.003 | Mean | 1.23 | C 0.000 |
| Median                  | 2       | D 0.000 | Median | 1 | D 0.000 | Median | 1 | D 0.000 | Median | 1 | D 0.000 | Median | 1 | D 0.265 | Median | 1 | D 0.171 | Median | 1 | D 0.012 | Median | 1 | C 0.001 |
| **C Negative Control**   | Mean    | 1.16 | Mean | 2.91 | Mean | 1.36 | Mean | 2.59 | Mean | 1.42 | Mean | 1.69 | Mean | 1.00 | Mean | 2.25 | Mean | 1.00 | Mean | 2.25 | Mean | 1.92 | Mean | 2.48 |
| Median                  | 1       | Median | 3 | Median | 1 | Median | 2 | Median | 1 | Median | 1 | Median | 1 | Median | 1 | Median | 1 | Median | 2 |
| **D Negative Manipulation** | Mean    | 1.06 | C 0.974 | Mean | 3.47 | C 0.035 | Mean | 1.38 | C 0.972 | Mean | 2.91 | C 0.465 | Mean | 1.81 | C 0.308 | Mean | 1.47 | C 0.2 | Mean | 1.03 | C 0.317 | Mean | 2.16 | C 0.484 |
| Median                  | 1       | Median | 4 | Median | 1 | Median | 3 | Median | 1 | Median | 1 | Median | 1 | Median | 1 | Median | 1 | Median | 2 |
| **Group Identity seeking** | Bonheur | 2.91 | B 0.000 | Mean | 1.38 | B 0.772 | Mean | 1.16 | B 0.360 | Mean | 1.31 | B 0.211 | Mean | 2.31 | B 0.000 | Mean | 1.34 | B 0.093 | Mean | 1.07 | B 0.259 | Mean | 1.31 | B 0.083 |
| Median                  | 3       | C 0.000 | Median | 1 | C 0.007 | Median | 1 | C 0.984 | Median | 1 | C 0.088 | Median | 2 | C 0.000 | Median | 1 | C 0.000 | Median | 1 | C 0.000 | Median | 1 | C 0.000 |
| **B Positive Control**   | Mean    | 1.82 | C 0.009 | Mean | 1.45 | C 0.001 | Mean | 1.06 | C 0.619 | Mean | 1.30 | C 0.008 | Mean | 1.08 | C 0.108 | Mean | 1.15 | C 0.013 | Mean | 1.03 | C 0.078 | Mean | 1.55 | C 0.038 |
| Median                  | 1       | D 0.041 | Median | 1 | D 0.041 | Median | 1 | D 0.031 | Median | 1 | D 0.013 | Median | 1 | D 0.821 | Median | 1 | D 0.000 | Median | 1 | D 0.000 | Median | 1 | D 0.500 |
| **C Negative Control**   | Mean    | 1.29 | Mean | 1.06 | Mean | 1.59 | Mean | 1.74 | Mean | 1.06 | Mean | 1.41 | Mean | 1.41 | Mean | 1.28 | Mean | 1.92 | Mean | 1.92 | Mean | 1.28 |
| Median                  | 1       | Median | 1 | Median | 1 | Median | 1 | Median | 1 | Median | 1 | Median | 1 | Median | 1 | Median | 1 | Median | 2 |
| **D Negative Manipulation** | Mean    | 1.33 | C 0.453 | Mean | 1.39 | C 0.022 | Mean | 1.45 | C 0.078 | Mean | 1.73 | C 0.843 | Mean | 1.24 | C 0.177 | Mean | 2.09 | C 0.012 | Mean | 1.33 | C 0.309 | Mean | 1.97 | C 0.527 |
| Median                  | 1       | Median | 1 | Median | 1 | Median | 1 | Median | 1 | Median | 1 | Median | 1 | Median | 1 | Median | 1 |

Relevant results are in **bold** and their cells are shaded. The cf column names the condition to which this condition is compared. The p column gives the significance level of the comparison.
APPENDIX D

Spurious results from individual scenarios

Reciprocity striving, Negative-Manipulation:
Sex effect for anger (p = .034): Women (n = 18) > Men (n = 14)
Language effect for sadness (p = .035): Other (n = 5) > French (n = 27)

Reciprocity striving, Positive-Control:
Language effect for sadness (p = .024): Other (n = 4) > French (n = 28)

Group identity seeking, Negative-Manipulation:
Sex effect for guilt (p = .030): Women (n = 18) > Men (n = 15)

Explanation

Although we found these spurious results, we did not pursue their effects in detail for several reasons. First, the effects were not systematic across all groups, or even across the four scenarios for any of the three social appraisals. As such, we considered the effects to be random. Second, the quantities of subjects involved are low. Thus, the patterns could just be products of small numbers effects, especially for the supposed Language effects. Third, having eliminated the Language effect cases due to small numbers, we decided the sex effect on guilt for group identity seeking did not require further investigation because guilt does not enter our hypotheses regarding this social appraisal, though it would be interesting in a context in which we were investigating sex differences. We did investigate the sex effect on anger for status seeking and found that for women alone, there was a significant difference (p = .041) between the manipulation (n = 18) and control (n = 14) conditions. However, again, because of the small numbers involved, and combined with the asymmetry in the number of subjects, we did not consider this effect strong enough to be the primary driver of the overall results. Because we found logical reasons to explain these effects, we did not consider these effects to warrant further investigation given the scope of the current study.
REFERENCES


