**Feeling Emotions for Others that They Don't Feel:
Agency Appraisals and Vicarious Anger**

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This research was conducted while Josh Wondra was a graduate student at the University of Michigan. We are grateful to Davy Rothbart and Sarah Zearfoss for their advice on how to develop the story that we used in the experiment.

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Abstract

How do people feel emotions for someone else? This has been studied as empathy—feeling the same emotion that someone else feels. But people also feel emotions for someone else that the other person doesn't feel, such as feeling angry for someone who is sad. We use appraisal theories to predict that people feel an emotion for someone else when they appraise that person's situation differently. According to appraisal theories, people react to misfortunes with anger if they are caused by another person, but not if the cause is impersonal, and we predicted that this would also be true in feeling emotions for another person, regardless of what the other person feels. In two studies, subjects learned about a disadvantaged high school student who applied to college and was rejected from every school. Subjects felt angrier when they learned that the student's friend caused the bad outcome than when the student made a well-intentioned mistake, but they did not think the student felt angry. The difference in subjects' anger was mediated by changes in appraisals of agency. The student believed the rejections were caused by bad circumstances and felt sad in both conditions. The results extend research on empathy and other vicarious emotional experiences by supporting appraisal as a process that is involved in feeling emotions for other people.

Feeling Emotions for Others that They Don't Feel:

Agency Appraisals and Vicarious Anger

Why do people feel emotions when they are exposed to others' emotional experiences? Psychologists have proposed that this could be due to shared group membership, so what happens to other group members feels as though it happens to the observer too [1-2], or it might be that the other's emotion expression says something about what's happening to the observer [3-4]. But this reasoning does not apply when there is no shared group membership and whatever happened to the other has little to do with what is happening to the observer. We call this experience, when an observer feels emotions in response to someone else's emotional experience that has little direct impact on the observer, *vicarious emotion*. Emotions are generally theorized to be about personal concerns [5-7], so why would anyone feel emotions for others?

The problem of vicarious emotions has been addressed in theories of empathy, which have focused on how observers feel the same emotion as others. Several current empathy theories propose that observers automatically feel the emotions that they perceive in others through emotional mimicry, mirror neurons, or perception-action processes [8-13]. These theories explain how observers feel the emotions they think others feel.

But sometimes you feel vicarious emotions that others don't feel, and there is nothing to mimic or mirror. You can feel embarrassed for others who show no sign of embarrassment [14]. You can feel afraid for the characters in a horror movie who do not know that the bad guy is waiting for them around the corner. Empathy theories that say

you feel the emotions that you perceive in others cannot explain this kind of vicarious emotional experience. If you match the emotion that you think someone else feels, then how do you feel an emotion for them that you don't think they feel?

Wondra and Ellsworth [15] proposed an appraisal theory of empathy and other vicarious emotional experiences to account for both vicarious emotions that match what the other person feels and those that differ from what the other person feels. The theory is based on appraisal theories of emotion, which argue that firsthand emotional experiences are based on appraisals of the situation [16-18]. Appraisal theorists have proposed specific sets of appraisals that are most important for differentiating emotional experience. As one example, Smith and Ellsworth [18] found that subjects differentiated 14 emotions using six appraisal dimensions: pleasantness, attentional activity, perceived effort, self/other-agency, situational control, and certainty. Some emotions had largely overlapping appraisal patterns, such as anger and contempt. Others had very little overlap, such as sadness and pride. These six appraisal dimensions, and the way that they mapped onto emotional experience, are similar to those found in other appraisal theories [19].

Appraisals of agency are especially important for differentiating negative emotions [18, 20-21]. Appraisals that a negative event was caused by someone else (other-agency) characterize anger, whereas appraisals that the event was caused by circumstances beyond anyone's control (situational control) characterize sadness. Suppose that a person sees another driver hit and dent her parked car in the middle of winter. If the owner believes the driver's recklessness caused the accident

(other-agency), then appraisal theory predicts that she would feel angry. If instead the owner believes that a patch of ice caused the accident (situational control), then the theory predicts that she would feel sad. The appraisals might change over time and the owner might go back and forth between blaming the weather and the driver and feel both angry and sad as a consequence.

The appraisal theory of empathy and vicarious emotions explains vicarious emotional experiences with the same appraisal process [15]. In this theory, the perception of the other person's situation is an essential determinant of the perceiver's emotional response. Just as you feel emotions for yourself when you appraise your own situations, you feel emotions for others when you appraise their situations. If your appraisal of someone else's situation matches that person's appraisal, then you will feel what the other person feels and experience empathy. If not, then you might feel an emotion that the other doesn't feel. Elfenbein [22] made a similar argument in her affective process theory of affective linkage. An observer's perception of the situation has been used to explain how people infer what someone else feels [23-24]. We are saying something else—that an observer's appraisal of the situation also affects what the observer feels.

So far, there are no tests of appraisal theory in the context of vicarious emotions. Some indirect evidence exists—one study found a non-significant trend for children to give more concerned looks to adults who were distressed for justified (vs. unjustified) reasons [25], and another found that subjects reported feeling more distress for someone who went through an ineffective (vs. effective) painful medical procedure (but only if

they took the other person's perspective) [26]—but this research is not clearly linked to appraisal theories, does not directly investigate participants' appraisals, and focuses on the extent of matching emotions the target feels, rather than on the possibility of feeling emotions that don't match what the target feels at all. Appraisal theory suggests a mechanism that explains both empathetic and non-empathetic emotions, and the present research is the first experimental test of this theory. We chose to study negative emotional experiences because most of the research on empathy has focused on empathy for negative emotions. We investigated appraisals of agency because appraisal theories single out agency as particularly important for differentiating negative emotional experiences [18, 20].

Our first step in testing the theory was to see if changing observers' appraisals of someone else's situation could make them feel an emotion that the other person doesn't feel. We varied the information that subjects received about someone else's bad situation in order to create different appraisals of agency. In two conditions, the target of empathy felt sad and believed that circumstances beyond their control were responsible for their misfortune. In one condition, subjects received information that was similar to what the target knew. In a second condition, subjects received information that the target didn't know—someone else was responsible for the misfortune. We predicted that subjects who thought that a third person was to blame would appraise the situation as high in other-agency and feel angry for the target, even though the target did not perceive any other-agency, and so felt sad.

In two studies, subjects read the transcript from (Study 1) or listened to (Study 2) a radio show about a disadvantaged high school student named Brian who applied to college and was rejected from every school. There were two experimental conditions. In one condition, the rejections resulted from a well-intentioned mistake that could be attributed to Brian's disadvantaged background (mistake condition). In the second condition, Brian's friend sabotaged his applications but Brian did not know this (other-agency condition). In both conditions, Brian felt extremely sad. Our primary prediction was that subjects in the other-agency condition would appraise the misfortune as caused by the friend and feel angry, that is, they would feel a vicarious emotion that the target did not feel.

A secondary question was whether subjects in the mistake condition, who did not know about the sabotage, would appraise the situation as Brian did—as due to factors that were out of his control—and would feel sad as Brian did. Getting a clear answer to this question was methodologically challenging for a couple of reasons. First, prototypical negative events that involve high levels of situational control are things like natural disasters or unpreventable diseases—victims of tsunamis and brain cancer are rarely blamed. Our main goal was to manipulate appraisals of other-agency, and we thought it would be implausible to create an other-agency condition in which a third party caused a tsunami or brain cancer. Instead, we tried to create a story in which the person's mistaken decision would not be seen as his own fault, but as the fault of his circumstances – coming from a disadvantaged background, Brian was clueless about what college admissions offices are looking for, and no one gave him any useful

information. This meant that we were working against the actor-observer bias—people perceive strong situational forces that cause their own behavior but not others' behavior [27-29]. When we ourselves fail, situational forces are salient to us, but when others fail, we tend to find reasons that they are to blame.

Second, there is a challenge of emotion language. People tend to use the word “sad” for all negative events as a generic way of saying “not happy”, even if the event is one that mainly elicits anger, anxiety, or some other more specific negative emotion [30]. This makes it difficult to find differences in reported sadness between situations that are quintessentially sad and situations that are negative in other ways. Thus, it was possible that subjects would report sadness as a generic way to express that something bad happened.

But our main goal was to test whether changing appraisals of other-agency would make subjects feel an emotion that the target did not feel. This phenomenon has not been thoroughly studied and is not explained well by other theories of empathy. Thus, our primary prediction was that increasing subjects' appraisals of other-agency would make them feel vicarious anger, even when the target was not angry.

Study 1 Method

Subjects

Subjects were 145 ($n = 86$ women) undergraduate students and community members who received course credit or \$5 for participating. Two additional subjects were excluded because one was sending text messages during the study and the other did not finish reading the script. We terminated data collection the week after we had at

least 64 subjects per condition, which is the sample size needed for 80% power to detect a medium-sized effect ($d = .5$) with a t test. Subjects' ages ranged from 18 to 50 ($M = 18.92$, $SD = 2.77$). The majority of subjects were European American/White ($n = 89$) or Asian/Asian American ($n = 37$); 14 were African American/Black, six were Latino/Hispanic, one was Native Hawaiian/Pacific Islander, and two identified as another racial or ethnic heritage.

The Story

In everyday life, and in research on empathy, empathy is often evoked by reading or hearing about people we have never met. Novelists, journalists, and charitable organizations seek to create empathy through rich descriptions of people and their situations. Instead of using simple vignettes, we attempted to replicate these rich descriptions by creating a vivid narrative along the lines of the public radio show *This American Life* (<http://www.thisamericanlife.org/>). In *This American Life*, each broadcast includes real people's stories exemplifying a particular theme, such as "Notes on Camp" or "Switched at Birth". The host interviews people about their experience and adds background narrative to provide context. We followed this format, using the theme "Rejected". Subjects in Study 1 read the script for the "broadcast", and in Study 2 we increased the realism by creating an actual audio broadcast.

The story was about a high school student named Brian who comes from a disadvantaged background and wants to go to college. No one in Brian's family has gone to college. He is the son of a single mother who was the only person in her family to graduate from high school. He spends time with a student group that volunteers in

poor neighborhoods like his. His high school guidance counselor has been unhelpful and he has no other guidance about how to get into college.

In contrast, Brian's friend Andrew comes from a well-off background. Andrew's parents graduated from Stanford and they have college funds for their children. Andrew's two older sisters are attending elite universities and he has no doubt that he will do the same.

One night Andrew takes Brian to a park where Andrew's friends are smoking marijuana. Brian declines the drugs and asks Andrew to take him home, but before they can leave the police arrive and arrest both of them for drug possession. Andrew apologizes to Brian for the arrest and asks if he can do anything to make it up. Brian asks Andrew to help him get into college. With Andrew's help, Brian quickly turns his academic life around, becomes a very competitive college candidate, and decides to apply to elite schools. Andrew begins to worry that Brian's application is stronger than his own, so he stops helping Brian.

Brian comes to a point in the Common Application where he must write about his delinquency history and explain the drug arrest. Brian has no idea what he should say. What happens next differs by condition:

HOST: *So what did you do?*

BRIAN: *Well, again, I really didn't know what I was supposed to do. At first I wrote that it was a huge mistake, I made some bad decisions, I had learned to make better choices, and wouldn't let it happen again.*

(mistake condition) But then I thought it made me sound too guilty, and I thought I remember hearing that you're not supposed to do that in this kind of situation, so I tried to play it down a bit. I thought that I shouldn't sound too guilty or apologetic.

(other-agency condition) I figured that I should talk to Andrew because he had to do it too, so I called him and showed him what I wrote, and he said I was doing it completely wrong. He said it made me sound too guilty, and you're not supposed to do that in this kind of situation, so he said I should try to play it down a bit. He said that's the kind of thing that he was doing – he wasn't going to sound too guilty or apologetic and neither should I. I asked if I could see what he wrote, and he said no, but he said that he would help me write something that was really close to what he wrote, so we worked on the explanation together.

Later, Brian's application is rejected by every college. The radio show host meets privately with a college admissions counselor who reviews Brian's application and says that his explanation for the drug arrest was the fatal flaw. The admissions counselor reads the following letter, which the host introduces as the letter that Brian wrote (mistake condition) or as the letter that that Andrew helped Brian write (other-agency condition):

"To whom it may concern,

I was arrested once in high school for smoking marijuana with a few other people in a park.

With regard to my alleged drug offense, I would like to clarify a few facts. First, I am committed to avoiding illegal drugs and I have not

been around them before or since that night. That night was a mistake that I do not plan to repeat. Second, I wasn't even the one who was smoking it, it was the other people. The police officer who arrested us was just unwilling to recognize that fact. Third, this offense is incredibly common among high school students and so it should not reflect poorly on me as a candidate for your school. Fourth, my record is completely clean aside from that one incident, so clearly I am not some kind of criminal. I was just a victim of circumstances.

To conclude, with all of my other qualifications considered, I feel that it would be a mistake on your part to deny me admission for this isolated incident. I hope that you take all of this into consideration as you make your decision, because I really feel that I deserve to get into your school."

The admissions counselor explains that the applicant never takes responsibility or says that he learned anything from the experience, which makes her think that the student may not be mature enough for the university environment. The admissions counselor then contrasts Brian's letter with a letter she remembers reading from another applicant who had gone through a similar incident. The other applicant had also hidden from the police in a car trunk with drugs (a detail about Brian and Andrew's situation from earlier in the story) but had taken responsibility and his application was accepted. The host reminds the audience that this applicant might have been Andrew. The host

also states that Brian did not know anything about the interview with the admissions counselor.

In the last lines of the script, Brian expresses his sadness about the rejections:

HOST: Do you remember how you were feeling the moment that you opened that last letter from one of the schools and found out that you weren't going to college this year?

BRIAN: Yeah. I felt terrible. It was the worst feeling. Like I just couldn't do anything right.

HOST: And how do you feel about it now?

BRIAN: You know... I don't know... defeated? Um... it sucks. It still sucks. I don't know. It was just dumb luck. I guess I just try to remember that it was the luck of the draw. I did everything I could, but... I'm still really upset about it. I tried so hard to make things work out, but it wasn't enough, and that just makes me feel really sad. I just don't know how I could do any better.

In summary, the only difference between conditions was whether Brian decided to change the explanation (mistake condition) or Andrew told him to do it (other-agency condition).

Procedure

Subjects participated in groups of up to six. They were randomly assigned to read the mistake script ($n = 74$) or the other-agency script ($n = 71$). The experimenter told subjects that they would read scripts from a radio show that told stories about real

people, explained the format of the show, and told subjects that they would read the story individually and then complete a questionnaire.

The questionnaire measured subjects' emotional reactions to the story, their perceptions of what caused the rejections (appraisals of agency), their perceptions of Brian's emotions, and their perceptions of what thought caused the rejections.

First, subjects reported their own emotions. They answered an open-ended question about their main feelings after reading the story. Then they were asked how much they felt angry, mad, sad, unhappy, sympathetic, happy, interested, afraid, compassionate, proud, hopeful, guilty, and pitying (1 = not at all, 6 = extremely). We began with an open-ended question so that subjects could report what they were feeling in their own words before we primed them to think of the specific emotions we had in mind. Our main prediction was about vicarious anger, and the items angry and mad ($r(143) = .89$) were averaged to measure anger. Our secondary prediction was about vicarious sadness; the items sad and unhappy were intended to measure sadness, but unhappy was more strongly correlated with mad and angry ($rs(143) > .65$) than with sad ($r(143) = .54$), so we used sad by itself.

Second, subjects answered an open-ended question about Brian's feelings at the end of the story. Then they were asked how much Brian felt the same emotions at the end of the story that they reported for themselves, except for compassionate, sympathetic, and pitying, because they are emotions typically felt for someone else. The items angry and mad ($r(143) = .82$) were averaged to measure perceptions of Brian's anger. And the single item sad was used to measure perceptions of Brian's sadness.

Third, to measure agency appraisals, subjects were asked who was responsible for Brian not getting into college: Andrew, bad luck, Brian, and college admissions (1 = not at all responsible, 6 = completely responsible). We predicted that subjects in the other-agency condition would think Andrew was more responsible than those in the mistake condition. We also tested whether those in the mistake condition would think bad luck was more responsible. We included Brian and college admissions because these were the most common alternative targets of agency appraisals in pilot testing.

Finally, there were exploratory questions about subjects' perceptions of who Brian thought was responsible for the rejections (which we do not discuss for the sake of brevity), and there were open-ended questions about the target of subjects' anger (if they felt angry) and of Brian's anger (if they said Brian was angry); we initially included these because we found that subjects could express anger at a number of different targets during pilot testing, but we did not analyze the responses and we do not discuss them in this paper.

Study 1 Results

We tested whether subjects felt angrier in the other-agency condition and relatively sadder in the mistake condition, and whether these differences in emotions corresponded to differences in appraisals. Furthermore, we tested whether subjects' perceptions of Brian's emotions affected their own emotions, as some empathy theories predict.

Appraisals of Agency

We predicted that subjects would think Andrew was more responsible in the other-agency condition; and indeed, subjects thought Andrew was more responsible in the other-agency condition ($M = 4.75$, $SD = 1.01$) than in the mistake condition ($M = 3.20$, $SD = 1.37$), $t(134.02) = 7.73$, $p < .001$, 95% CI [1.15, 1.94]. We also tested whether subjects would think bad luck was more responsible in the mistake condition. However, they did not think that bad luck was more responsible in the mistake condition ($M = 2.65$, $SD = 1.48$) than in the other-agency condition ($M = 2.61$, $SD = 1.35$), $t(142.56) = .18$, $p = .86$, 95% CI [-.51, .42]. Instead, subjects thought that Brian was more responsible in the mistake condition ($M = 4.59$, $SD = 1.15$) than in the other-agency condition ($M = 3.75$, $SD = 1.22$), $t(141.57) = 4.32$, $p < .001$, 95% CI [-1.24, -.46]. There was also a trend for subjects to think that college admissions was more responsible in the mistake condition ($M = 2.78$, $SD = 1.37$) than in the other-agency condition ($M = 2.39$, $SD = 1.27$) as well, $t(142.85) = 1.78$, $p = .08$, 95% CI [-.82, .04].

Thus, our main goal was successful—we successfully shifted subjects' appraisals of other-agency; however, our secondary goal was unsuccessful—there was no difference in their appraisals of situational control.

Plan for Analysis of Open-Ended Emotion Data

To test for differences in subjects' own emotions and their perceptions of Brian's emotions in the open-ended emotion questions, we identified emotion words that communicated anger and sadness for subjects' own emotions, and anger and sadness for Brian's emotions (see Table 1). Coders were blind to the subjects' experimental condition. Each subject received a 1 for anger or sadness if they used at least one word

that communicated the emotion and a 0 if they did not. We used logistic regression to test the probability that subjects reported each emotion by experimental condition. Note that there was no difference by condition in the number of words subjects wrote for their own emotions, $t(142.81) = .17, p = .864$, or for their perceptions of Brian's emotions, $t(138.74) = .74, p = .463$. This means that any difference in the probability that they reported an emotion cannot be simply attributed to differences in how much they wrote.

Table 1. Words Coded as Sadness and Anger in Studies 1 and 2.

Group	Words
Own Emotions	
Sadness	defeated, depressed, despondence, disappointed, disappointment, down, helpless, sad, saddened, sadness, solemn, sorrow, unfulfilled, unsatisfied
Anger	aggravated, anger, angry, annoyance, annoyed, bitter, enraged, irritated, irritation, mad, resentment
Brian's Emotions	
Sadness	broken down, crushed, defeat, defeated, dejected, depressed, depression, demotivated, depressed, despair, devastated, disappointed, disappointment, discontent, discouraged, disheartened, disillusioned, down, down in the dumps, downtrodden, gloomy, grief, heartbroken, helpless, hopeless, hopelessness, let down, melancholy, put down, sad, sadness, sorrow, unfulfilled, unsatisfied,
Anger	anger, angry, bitter, indignant, mad, resentment

Subjects' Own Emotions

Our focal hypothesis was that subjects would feel angrier in the other-agency condition. We also tested whether subjects felt sadder in the mistake condition.

Open-Ended Data

Figure 1 displays the proportion of subjects who felt angry and sad by condition. The data supported our hypotheses. Subjects were more likely to feel angry in the other-agency condition (41%) than in the mistake condition (20%), $B = 1.00$, $SE = .38$, $Z = 2.65$, $p = .01$, 95% CI [.27, 1.76]. In contrast, they were more likely to feel sad in the mistake condition (51%) than in the other-agency condition (32%), $B = -.79$, $SE = .34$, $Z = 2.30$, $p = .02$, 95% CI [-1.47, -.12].

Figure 1. Percentage of subjects who reported feeling angry and sad in the open-ended emotion question (Study 1).

Closed-Ended Data

Figure 2 displays the means and standard errors for sadness and anger by condition. Confirming the open-ended analyses and our focal hypothesis, subjects felt angrier in the other-agency condition ($M = 3.37$, $SD = 1.50$), than in the mistake condition ($M = 2.44$, 1.35), $t(139.93) = 3.90$, $p < .001$, 95% CI [.46, 1.40]. But in contrast to the open-ended data, subjects did not feel sadder in the mistake condition ($M = 3.30$, $SD = 1.40$) than in the other-agency condition ($M = 3.45$, $SDs = 1.34$), $t(143.00) = .67$, $p = .50$, 95% CI [-.30, .60].

Figure 2. Subjects' average anger and sadness in the closed-ended emotion questions by condition (Study 1). The bars represent ± 1 standard error.

In summary, there was consistent support for our focal hypothesis that subjects in the other-agency condition would feel angrier than those in the mistake condition.

We also found support for our secondary hypothesis that subjects in the mistake condition would feel sadder than those in the other-agency condition in the open-ended emotion data, but not in the closed-ended emotion data.

Did Appraisals Cause Subjects to Feel Anger the Target Didn't Feel?

We predicted that subjects would feel angrier in the other-agency condition because of the change in their appraisals. We tested this prediction using mediation models with condition predicting subjects' anger through their appraisals that Andrew was responsible for the rejections. We found bias-corrected 95% confidence intervals for the parameter estimates based on 10,000 bootstrap samples using PROCESS in SPSS [31] for open-ended anger and the lavaan package in R [32] for closed-ended anger.

For subjects' open-ended responses, there was an indirect effect of condition on anger through appraisals that Andrew was responsible for the rejections, 95% CI [-1.36, -.28], which reduced the direct effect to non-significance, 95% CI [-1.11, .60]. Similarly, for subjects' closed-ended responses, there was an indirect effect of condition on anger through their appraisals that Andrew was responsible for the rejections, 95% CI [-.85, -.24], which reduced the direct effect to non-significance, 95% CI [-.95, .13]. In summary, the data supported our hypothesis that subjects felt angrier in the other-agency condition due to changes in their appraisals of agency.

Did Perceptions of Brian's Emotions Cause Subjects' Vicarious Emotions?

We tested an alternative hypothesis that the differences in subjects' anger were due to differences in their perceptions of Brian's anger. If this alternative is true, then

subjects should think Brian felt angrier when they felt angrier, in the other-agency condition.

Open-Ended Data

The open-ended data for perceptions of Brian's emotions were missing for three subjects due to coding errors. Overwhelmingly, subjects thought that Brian felt sad, as we intended. Over 80% of the subjects in both conditions thought that Brian felt sad. Subjects were equally likely to think that Brian felt sad in the mistake condition (86%) and in the other-agency condition (85%), $B = -.13$, $SE = .47$, $Z = .27$, $p = .79$, 95% CI [-1.07, .80]. Few subjects thought Brian was angry, and they were equally likely to think that Brian felt angry in the mistake condition (10%) and in the other-agency condition (4%), $B = -.89$, $SE = .71$, $Z = 1.25$, $p = .21$, 95% CI [-2.46, .43].

These results fail to support the alternative explanation that subjects' own emotions were based on their perceptions of Brian's emotions, because subjects were more likely to report that they felt angry in the other-agency condition, but they were not more likely to think Brian felt angry in the other-agency condition.

Closed-Ended Data

Unexpectedly, there was a difference in how angry subjects thought that Brian felt—but it was in the opposite direction of their own anger. Subjects thought that Brian was *less* angry in the other-agency condition ($M = 2.85$, $SD = 1.34$) than in the mistake condition ($M = 3.36$, $SD = 1.23$), $t(140.83) = 2.43$, $p = .02$, 95% CI [-.94, -.10]. Thus, there was no evidence that the differences in subjects' anger were caused by them matching what they thought Brian felt—in fact, the opposite was true.

There was no difference in perceptions of how sad Brian felt in the mistake condition ($M = 4.76$, $SD = 1.06$) and in the other-agency condition ($M = 4.86$, $SD = 1.09$), $t(142.33) = .57$, $p = .57$, 95% CI $[-.25, .45]$.

Study 1 Discussion

In Study 1, we found evidence that subjects' feelings for another person differed according to their appraisals of agency for the other person's misfortune. Specifically, they felt angrier for the target person when they thought that another human agent was responsible, even though the target person, not knowing about this, only felt sad. There was no evidence that their anger had anything to do with their perceptions of how the target felt. This result is consistent with the idea that you can feel an emotion that someone else does not feel when you appraise their situation differently from how they appraise it.

The goal of Study 2 was to replicate the appraisal-based differences in vicarious anger when subjects listened to a podcast version of the show. We recorded the show with actors to provide a more vivid experience.

In addition, we tried to increase the chance that we would succeed in our secondary goal, that when subjects did not have privileged information, we could get them to appraise the situation as the target appraised it— as due to a situation that was out of the target's control—and they would feel sadder for the target. Although pilot testing suggested that subjects would forgive Brian's mistake because of his disadvantage, Study 1 found that they blamed him for his misfortune in the mistake condition. We tried to address this in Study 2 by emphasizing Brian's disadvantage

further and downplaying the severity of his mistake so that subjects would be less likely to blame him for the rejections.

Study 2 Method

Study 2 was similar to Study 1 except that subjects listened to a recorded version of the story instead of reading the script. Subjects listened to the story on headphones in front of a computer. They completed the dependent measures on the computer. The procedure and dependent variables were the same except for the changes described below.

Changes to the Story

To increase the chance that we would succeed in our secondary goal, we made several changes to the story to try to reduce the chance that subjects would blame Brian for his failure to get into college. Brian's disadvantage was emphasized more, and the paragraphs that differed between the two conditions were modified to emphasize the idea that in the mistake condition Brian was clueless:

HOST: So what did you do?

BRIAN: Well, again, I really didn't know what I was supposed to do. At first I wrote that it was a huge mistake, I made some bad decisions, I had learned to make better choices, and wouldn't let it happen again, but I really wasn't sure what they were looking for.

(mistake condition) I mentioned it to my mom one morning during breakfast, and she gave me this great advice that if you just put your best foot forward in this kind of situation, then people will respect you for that. Later on I read what I had written and I thought my letter wasn't doing that. I thought it made me

sound too guilty, and that you're not supposed to do that in this kind of situation, so I tried to play it down a bit. I thought that I should sound more confident in myself, so I rewrote it. I did the best I could, but I still really didn't have a clue if that's what they were looking for.

(other-agency condition) I figured that I should talk to Andrew because he had to do it too, so I called him and showed him what I wrote, and he said I was doing it completely wrong. He said it made me sound too guilty, and you're not supposed to do that in this kind of situation, so he said I should try to play it down a bit. He said that's the kind of thing that he was doing – he wasn't going to sound too guilty or apologetic and neither should I. I asked if I could see what he wrote, and he said no, but he said that he would help me write something that was really close to what he wrote, so we worked on the explanation together. I still really didn't have a clue if it's what they were looking for, but Andrew said it was perfect.

Additionally, the letter Brian submitted to explain his drug arrest was modified to sound less harsh and his emotion expression at the end de-emphasized the role of luck in his rejections.

Changes to the Dependent Variables

Subjects' closed-ended self-reports of emotions, their appraisals, their closed-ended perceptions of Brian's emotions, and their perceptions of Brian's appraisals were converted to slider scales with scores from 0 to 100. The emotion word "down" replaced "unhappy" to measure sadness.

Because people see intentional harm as worse than unintentional harm [33], we added an item to measure subjects' appraisals of pleasantness ("How good or bad do you think it is that Brian didn't get into college?", 0 = Extremely good, 100 = Extremely bad) and one item to measure their perceptions of Brian's appraisals of pleasantness ("How good or bad did Brian think it was that he didn't get into college?", 0 = Extremely good, 100 = Extremely bad). If subjects thought Brian's situation was more unpleasant when he was sabotaged, then they might have reported stronger negative emotions across the board. On the one hand, this might have increased reports of sadness in the other-agency condition and eliminated a difference that would have otherwise emerged. On the other hand, this might have increased reports of anger in the other-agency condition so that the observed differences in anger were due to differences in appraised pleasantness, not agency.

Finally, the appraisal questions were changed to more explicitly reflect who subjects thought was responsible, and to refer to bad circumstances rather than bad luck to measure situational agency appraisals. Subjects were asked to think about why Brian didn't get into college and state their agreement (0 = Strongly Disagree, 100 = Strongly Agree) that it was Brian's fault, it was Andrew's fault, it was college admissions' fault, and it was because of bad circumstances. They were asked the same questions about why Brian felt that he didn't get into college, but as in Study 1 these questions are not relevant to our main hypotheses and we do not discuss them further.

Subjects

Subjects participated in groups of up to ten. We recruited 126 undergraduate students and community members ($n = 61$ women) who received course credit or \$8 for participating. We terminated data collection the week after we had at least 64 subjects per condition, which is the sample size needed for 80% power to detect a medium-sized effect ($d = .5$) with a t test; however, 10 subjects were excluded from analyses (5 per condition). Five were excluded because they suspected that the story was fake, two because they were using their cell phones or surfing the internet during the study, one because she was confused and thought the show mixed up the names of Brian and Andrew, one because he was falling asleep during the study, and the last because the experimenter suspected that he was high on drugs when he arrived. Subjects' ages ranged from 17 to 25 ($M = 19.02$, $SD = 1.26$). The majority of subjects were European American/White ($n = 80$) or Asian/Asian American ($n = 34$); seven were African American/Black, seven were Latino/Hispanic, and one identified as another racial or ethnic heritage.

Study 2 Results

As in Study 1, we tested whether subjects felt relatively angrier in the other-agency condition and relatively sadder in the mistake condition, and whether these differences in emotions corresponded to differences in appraisals.

Appraisals of Agency

We predicted that subjects would think Andrew was more responsible in the other-agency condition. As predicted, subjects thought that Andrew was responsible for Brian's rejections more in the other-agency condition ($M = 76.45$, $SD = 21.85$) than in the

mistake condition ($M = 53.61$, $SD = 26.59$), $t(108.62) = 5.14$, $p < .001$, 95% CI $[-31.64, -14.02]$. We also tested whether subjects would think bad circumstances were more responsible in the mistake condition. There was a trend for subjects to blame bad circumstances more in the mistake condition ($M = 72.76$, $SD = 25.78$) than in the other-agency condition ($M = 64.72$, $SD = 27.25$), $t(121.78) = 1.69$, $p = .09$, 95% CI $[-1.39, 17.47]$. As in Study 1, subjects thought that it was Brian's fault more in the mistake condition ($M = 54.68$, $SD = 28.17$) than in the other-agency condition ($M = 35.16$, $SD = 27.56$), $t(115.17) = 3.83$, $p < .001$, 95% CI $[9.41, 29.63]$. There was no difference in appraisals that college admissions was responsible between the mistake condition ($M = 33.39$, $SD = 27.36$) and the other-agency condition ($M = 33.69$, $SD = 27.26$), $t(113.83) = .06$, $p = .95$, 95% CI $[-10.36, 9.74]$.

Thus, our main goal was successful—we successfully shifted subjects' appraisals of other-agency; however, our secondary goal was not as successful—there was only a non-significant trend for subjects to appraise the rejections as due to the situation in the mistake condition.

Subjects' Own Emotions

There was a trend for subjects to appraise Brian's situation as more unpleasant in the other-agency condition ($M = 84.12$, $SD = 13.04$) than in the mistake condition ($M = 79.57$, $SD = 14.05$), $t(116.80) = 1.86$, $p = .07$, 95% CI $[-9.41, .31]$. Therefore, we included appraisals of unpleasantness as a covariate in our tests of differences in subjects' emotions by condition.

Once again, our main hypothesis was that subjects in the other-agency condition would feel angrier than those in the mistake condition. We also tested whether subjects in the mistake condition felt sadder.

Open-Ended Data

As in Study 1, there was no difference by condition in the number of words subjects wrote for their own emotions, $t(123.87) = 1.23$, $p = .220$, or for their perceptions of Brian's emotions, $t(118.31) = 1.56$, $p = .121$. This means differences in their emotions cannot be attributed to differences in the number of words they wrote.

Figure 3 displays the predicted probability that subjects felt angry and sad by condition at an average level of appraised unpleasantness. As predicted, subjects were more likely to feel angry in the other-agency condition (68%) than in the mistake condition (24%), $B = 1.91$, $SE = .43$, $Z = 4.50$, $p < .001$, 95% CI [1.10, 2.77]. Additionally, the more unpleasant they appraised the situation, the more likely they were to feel angry, $B = .05$, $SE = .02$, $Z = 2.84$, $p = .005$, 95% CI [.02, .08]. Although the pattern for sadness was in the same direction as Study 1, there was no significant difference in the probability that subjects felt sad in the mistake condition (67%) and in the other-agency condition (60%), $B = -.33$, $SE = .38$, $Z = .86$, $p = .39$, 95% CI [-1.09, .42]. Surprisingly, there was no effect of appraisals of unpleasantness on subjects' sadness, $B = .003$, $SE = .014$, $Z = .22$, $p = .82$, 95% CI [-.03, .03].

Figure 3. Predicted percentage of subjects who reported feeling angry or sad in the open-ended emotion question by condition (Study 2). The predicted percentages are based on a logistic regression model with appraised unpleasantness as a covariate and set equal to the mean.

Closed-Ended Data

The items angry and mad ($r(118) = .85$) were averaged to measure anger and the items sad and down were averaged to measure sadness ($r(122) = .62$). Figure 4 displays the means and standard errors for sadness and anger by condition at an average level of appraised unpleasantness.

As predicted, subjects felt angrier in the other-agency condition ($M = 71.82$, $SE = 3.01$) than in the mistake condition ($M = 55.14$, $SE = 3.16$), $t(119) = 3.79$, $p < .001$, 95% CI [7.97, 25.39]. Additionally, there was a trend such that the more unpleasant subjects

appraised Brian's situation, the angrier they felt, $B = .32$, $SE = .16$, $t(119) = 1.98$, $p = .050$, 95% CI $[-.001, .64]$. There was no difference in how sad subjects felt in the mistake condition ($M = 68.27$, $SE = 2.66$) and in the other-agency condition ($M = 64.94$, $SE = 2.51$), $t(120) = .90$, $p = .37$, 95% CI $[-10.62, 3.96]$; however, the more unpleasant subjects appraised the situation, the sadder they felt, $B = .40$, $SE = .14$, $t(120) = 2.96$, $p = .004$, 95% CI $[.13, .67]$.

Figure 4. Subjects' predicted anger and sadness by condition (Study 2). The bars represent ± 1 standard error. The predicted values are based on a linear regression model with appraised unpleasantness as a covariate and set equal to the mean.

As in Study 1, there was consistent support for our main hypothesis: subjects felt angrier in the other-agency condition than in the mistake condition. But there was no

support for our secondary hypothesis that subjects in the mistake condition would feel sadder.

Did Appraisals Cause Subjects to Feel Anger the Target Didn't Feel?

As in Study 1, we predicted that the appraisal that Andrew was responsible would mediate the difference in anger between conditions. In the mediation models, we tested for indirect effects through appraisals of agency, but we also included appraisals of unpleasantness as a second mediator.

For subjects' closed-ended responses, there was an indirect effect of condition on anger through appraisals that Andrew was responsible, 95% bias-corrected CI [2.29, 11.04], though unlike Study 1 there was still a direct effect of condition on anger, 95% bias-corrected CI [4.65, 22.41]. For subjects' open-ended responses, the indirect effect on anger was in the same direction, but it was not significant, 95% bias-corrected CI [-.19, .89]; interestingly, there was an indirect effect through appraisals of unpleasantness, 95% CI [.01, .61], though there was still a direct effect of condition, 95% CI [.92, 2.73].

Thus, the data generally supported the hypothesis that differences in subjects' anger were at least partially due to changes in their appraisals, though it was more mixed than in Study 1.

Did Perceptions of Brian's Emotions Cause Subjects' Vicarious Emotions?

As in Study 1, we examined whether the differences in subjects' own anger by condition were matched by differences in their perceptions of Brian's anger.

Open-Ended Data

Over 90% of the subjects in both conditions thought that Brian felt sad. There was no difference in the proportion of subjects who thought that Brian felt sad between the mistake condition (93%) and the other-agency condition (91%), $B = .34$, $SE = .67$, $Z = .50$, $p = .62$, 95% CI $[-.97, 1.74]$. In contrast to subjects' own anger, there was no difference in the proportion of subjects who thought that Brian felt angry between the mistake condition (17%) and the other-agency condition (9%), $B = .69$, $SE = .55$, $Z = 1.26$, $p = .21$, 95% CI $[-.37, 1.83]$. These results fail to support the alternative explanation that differences in subjects' anger was due to differences in their perceptions of Brian's emotions.

Closed-Ended Data

The items angry and mad ($r(122) = .75$) were averaged to measure anger and the items sad and down ($r(123) = .44$) were averaged to measure sadness. Similar to Study 1, there was a trend for subjects to perceive that Brian was angrier in the mistake condition ($M = 59.73$, $SD = 22.99$) than in the other-agency condition ($M = 51.91$, $SD = 24.03$), $t(122.84) = 1.86$, $p = .07$, 95% CI $[-.51, 16.14]$, which is in the opposite direction of the differences in their own anger by condition. This result means that the differences in subjects' own anger by condition were not due to perceptions that Brian was angry. There was no difference in subjects' perceptions of sadness between the mistake condition ($M = 92.39$, $SD = 11.75$) and the other-agency condition ($M = 89.32$, $SD = 12.37$), $t(122.90) = 1.42$, $p = .16$, 95% CI $[-1.20, 7.34]$.

Study 2 Discussion

In Study 2, we replicated the major finding from Study 1 that subjects felt angrier when they appraised the target's situation as due to another agent, even though they did not think the target felt angry. There was no evidence that they felt angry because they thought the target felt angry.

General Discussion

Sometimes we feel emotions for others that match what they feel and we experience empathy. At other times we feel emotions for them that do not match what they feel. How does this happen? To answer this question, we turned to appraisal theories of emotion, which argue that emotions are based on appraisals of situations [16-18]. We reasoned that just as our own emotions correspond to our appraisals of our situation, the emotions we feel for other people correspond to our appraisals of *their* situation. We hypothesized that observers can feel vicarious emotions that do not match what the other feels when they appraise the other's situation differently [15, 22]. Specifically, based on prior research on appraisal theory, we predicted that observers would feel vicarious anger that a target did not feel if they appraised the target's situation as high in other-agency [18, 20-21, 34].

The results of the two studies provide initial support for appraisal as a process that is involved in vicarious emotions, which was the primary goal of the research. Subjects in the other-agency condition were angrier than those in the mistake condition in both studies, and their appraisals of other-agency matched this difference in anger. In three of the four tests for indirect effects, the differences in anger were at least partially

mediated by differences in appraisals that Brian's friend was responsible for his rejections.

Some theories of empathy argue that empathic emotions are caused by perceiving a target's emotional state [9, 12, 13]. These theories do not address how observers can feel vicarious emotions that a target does not feel. Our appraisal-based approach addresses a gap in the literature on vicarious emotions by suggesting a process that can account for these experiences.

Our research also extends appraisal theory, which has so far focused on a person's own emotional experience, to the person's feeling of emotion for other people. Our main goal was to demonstrate that changing appraisals of agency could lead observers to feel anger on behalf of someone else, even when that person does not feel angry. This goal was successful. As a secondary goal, we attempted to examine vicarious sadness and appraisals of situational control. This goal was less successful due to the variability in the results across the two studies. One reason for this is that we did not find differences in the appraisal of situational control, which differentiates sadness (and fear) from other negative emotions [16, 18, 20, 34]. Our main goal was to change appraisals of other-agency to make subjects feel vicarious anger that Brian didn't feel. To keep the two conditions as parallel as possible, our second condition had Brian deliver the same letter that Andrew had him write in the first condition. Although we hoped that subjects would take Brian's disadvantage into account and blame his circumstances, they still tended to blame him. Future research on vicarious sadness and

appraisal might be more successful by using scenarios that have less of a risk that subjects will blame the target.

Alternatively, what might be important for sadness is not that a misfortune was *caused* by impersonal circumstances, but that it remains out of anyone's control. Indeed, situational control has been alternatively conceptualized as coping potential, where one's ability to cope with a situation matters, regardless of what caused it [19, 35]. Whatever the cause of Brian's rejections, the impact on his future was the same, and there was nothing he could do about it. Future research should explore the role of appraisals of situational agency and appraisals of low coping potential in vicarious sadness.

This is the first test of the appraisal approach to vicarious emotions, and many questions remain. One clear direction for future research is to go beyond agency to examine other dimensions specified by appraisal theories, and to examine other vicarious emotional experiences. Do people feel non-matching vicarious emotions when they differ in their appraisals of certainty (e.g., the other person thinks the situation is hopeless but you think there's a chance of success) or control (e.g., the other person thinks her precautions are sufficient but you have your doubts) or morality (e.g., the other person thinks something immoral is going on but you think it's just a cultural difference)?

The experiment was rooted in an expanded view of appraisal theories of emotion [15, 19]. Some appraisal theorists have emphasized that emotions are about personal goals and prioritized appraisals of the motivational relevance and motivational

congruence of situations [5-6]. This perspective makes vicarious emotions a problem because there doesn't seem to be a personal goal at stake. Other appraisal theorists have argued that situations can be appraised as pleasant or unpleasant even if no personal goals are at stake [17-18, 36]. Although these latter perspectives don't exclude the possibility of vicarious emotions, they have not said much about vicarious emotions either. The present studies expand empirical research on how specific dimensions of appraisal shape vicarious emotions.

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