

## Does Social Exclusion Motivate Interpersonal Reconnection? Resolving the “Porcupine Problem”

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Evidence from 6 experiments supports the social reconnection hypothesis, which posits that the experience of social exclusion increases the motivation to forge social bonds with new sources of potential affiliation. Threat of social exclusion led participants to express greater interest in making new friends, to increase their desire to work with others, to form more positive impressions of novel social targets, and to assign greater rewards to new interaction partners. Findings also suggest potential boundary conditions to the social reconnection hypothesis. Excluded individuals did not seem to seek reconnection with the specific perpetrators of exclusion or with novel partners with whom no face-to-face interaction was anticipated. Furthermore, fear of negative evaluation moderated responses to exclusion such that participants low in fear of negative evaluation responded to new interaction partners in an affiliative fashion, whereas participants high in fear of negative evaluation did not.

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A number of porcupines huddled together for warmth on a cold day in winter; but, as they began to prick one another with their quills, they were obliged to disperse. However the cold drove them together again, when just the same thing happened . . . In the same way the need of society drives the human porcupines together, only to be mutually repelled by the many prickly and disagreeable qualities of their nature. (Schopenhauer, 1851/1964, p. 226)

As Schopenhauer implies, the desire for positive social relationships is one of the most fundamental and universal of human needs. This need has deep roots in evolutionary history and exerts a powerful impact on contemporary human psychological processes (Baumeister & Leary, 1995; Buss, 1990). Failure to satisfy this need can have devastating consequences for psychological well-being. People who lack positive relationships often experience loneliness, guilt, jealousy, depression, and anxiety (e.g., Leary, 1990), higher incidence of psychopathology (Bloom, White, & Asher, 1979), and reduced immune system functioning (e.g., Cacioppo, Hawkley, & Bernston, 2003).

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And yet, as Schopenhauer's porcupine parable also suggests, people can cause each other considerable aggravation, distress, and heartbreak. For example, ostracism, rejection, and other forms of social exclusion can be highly aversive (Baumeister & Tice, 1990; Baumeister, Twenge, & Nuss, 2002; Gardner, Gabriel, & Diekman, 2000; Leary, Tambor, Terdal, & Downs, 1995). Indeed, recent evidence suggests that social exclusion precipitates a psychological state that resembles physical pain (Eisenberger, Lieberman, & Williams, 2003; MacDonald & Leary, 2005).

Given the strong need for social connection, coupled with the negative consequences associated with long-term social isolation, one might guess that people would respond to exclusion with increased motivation to build social bonds, perhaps especially with new (and possibly more promising) social partners. However, there is surprisingly little empirical evidence to suggest that this is the case. In fact, much of the previous research in this area has observed antisocial—rather than affiliative—responses to exclusion (e.g., Buckley, Winkel, & Leary, 2004; Twenge & Campbell, 2003). The present investigation, therefore, was designed to test the hypothesis that social exclusion stimulates a desire to reconnect with the social world. A subsidiary goal was to test the effects of several moderating variables implied by the logic underlying this social reconnection hypothesis. These tests establish conceptually important boundary conditions and also help reconcile the reconnection hypothesis with previous research documenting antisocial consequences of social exclusion.

### The Social Reconnection Hypothesis

There are strong reasons for thinking that social exclusion stimulates a desire to affiliate and reconnect with others, at least to

the extent that those others are perceived as providing realistic sources of renewed affiliation. This reconnection hypothesis follows from theory pertaining to the links between motivation, deprivation, and goal attainment. When the satisfaction of an important drive is thwarted, humans (like other species) often seek alternative means of satisfying that drive. The experience of social exclusion may serve as a signal that one's need for social connection is not being satisfied. As a consequence, excluded individuals may feel an especially strong desire to form bonds with other people, so as to satisfy that need. This would not be unlike the response of a hungry person whose efforts to find food are thwarted and who therefore looks elsewhere, perhaps even more vigorously, to find sustenance.

Although various theorists have suggested forms of this reconnection hypothesis (e.g., Baumeister & Leary, 1995), there is surprisingly little empirical evidence for this hypothesized phenomenon. Several recent findings, however, lend credibility to this hypothesis. Williams and Sommer (1997) found that women (though not men) responded to ostracism by increasing their efforts on a subsequent group task, which could indicate that they were trying to make themselves appear desirable to their group. Williams, Cheung, and Choi (2000) observed that ostracized individuals were more likely than others to conform to the opinions of other people. Those authors interpreted this increased conformity as a strategic attempt to make friends by increasing apparent similarity (although such attempts could also reflect passivity or self-doubt). Gardner, Pickett, and Brewer (2000) had participants read personal diaries of others and found that participants who had been socially excluded recalled more events related to affiliation—both positively tinged events denoting social acceptance and negatively tinged ones denoting rejection. This could imply that rejected people were motivated to learn about social acceptance, although it could also indicate heightened sensitivity or accessibility stemming from one's own recent experience. In summary, evidence bearing directly on the reconnection hypothesis—and its implication for more favorable social responding—is suggestive but hardly conclusive. Several findings suggest that rejected people sometimes respond in ways that could promote acceptance, but rigorous tests of the hypothesis have not been previously reported.

### Possible Exceptions to the Reconnection Hypothesis

Despite reasons for hypothesizing social reconnection, it is also clear that exclusion can sometimes promote interpersonal withdrawal and even contempt (e.g., Twenge & Campbell, 2003). Thus, hypothesized responses to exclusion should account not just for possible interest in reconnecting, but also for exceptions to the reconnection hypothesis. Although our analysis suggests that social exclusion may motivate social reconnection, this same analysis also suggests possible boundary conditions. The logic on which the reconnection hypothesis is based implies that excluded people should respond favorably toward others only to the extent that those others are perceived as providing realistic sources of renewed social connection. In the present studies, we examine the hypothesized moderating effects of three factors that may decrease the likelihood of perceiving others as realistic sources of positive social contact and that may, in turn, decrease the likelihood of affiliative responding.

First, and perhaps most obviously, someone who has been excluded is not likely to view the perpetrators of exclusion as realistic sources of positive social contact. The psychological pain associated with social exclusion can serve as an intense form of punishment. Excluded individuals, then, are not expected to respond favorably to previous perpetrators of exclusion. If anything, the opposite is likely to be the case: Excluded individuals may perceive perpetrators of exclusion in a hostile light, may avoid them, and may even be inclined to lash out against those people. (Indeed, evidence suggests that individuals who have suffered a rejection sometimes react by aggressing against those who have rejected them; Buckley et al., 2004.)

A second factor involves the prospect of direct and presumably pleasant interaction. For another person to be perceived as a realistic source of social connection, one must expect some possibility for actual interaction with that person. Therefore, support for the social reconnection hypothesis is likely to be found under conditions in which actual interaction occurs or is anticipated to occur. In the absence of any such interaction, social exclusion is unlikely to lead to affiliative responding. This reasoning fits with evidence that social exclusion can lead people to behave aggressively—not more favorably—toward individuals with whom no face-to-face interaction is expected (Twenge, Baumeister, Tice, & Stucke, 2001; Twenge & Campbell, 2003).

Third, there are likely to be individual differences in the tendency to view others as realistic sources of positive social connection. Even if most people respond to exclusion with a positive and optimistic attitude toward new interaction partners, some people—especially those who chronically fear the sting of negative social evaluation—may be more hesitant and hypervigilant to the potential for further social harm (e.g., Beck, Emery, & Greenberg, 1985). People who are generally fearful that others will evaluate them negatively often have strong negative expectations about even novel social interactions (e.g., Maddux, Norton, & Leary, 1988). As a result, individuals who anticipate negative social evaluation tend not to pursue novel social encounters for fear that they will bring significant distress (Heimberg, Lebowitz, Hope, & Schneier, 1995). Such individuals, therefore, may be apt to generalize from a single instance of rejection to other potential partners, leading them to view even novel partners as sources of further rejection rather than as sources of new affiliation. It follows that support for the reconnection hypothesis is likely to be found among individuals who are socially optimistic, whereas social exclusion may lead to a more broadly negative and antisocial response among those who fear the pain of negative social evaluation.

### Overview of the Present Research

The dynamics underlying real-world responses to exclusion are likely to be complex and multifaceted. To help clarify the nature of these responses, therefore, the present studies were intended to distill these responses into some of their component cognitive and behavioral parts. In six experiments, we investigated several conceptually and operationally different outcome measures, including social choices, interpersonal perceptions, and actions. We assessed whether excluded people are interested in making new friends (see Study 1), choose to work with others versus alone (see Study 2), perceive others as friendly and desirable or as hostile and angry

(see Studies 3 and 4), and treat others favorably or unfavorably when evaluating their work and assigning them rewards (see Studies 5 and 6).

In several of these studies, we also tested hypotheses pertaining to the three hypothesized moderating variables summarized above. First, we examined responses to the specific perpetrators of exclusion (see Studies 4 and 5), allowing us to assess whether participants' responses discriminate between novel individuals and those who have recently rejected them. Second, we examined responses to a novel individual with whom excluded participants expected no personal contact (see Study 6). If socially favorable responses to exclusion are designed to facilitate connection primarily with realistic sources of renewed affiliation, then these responses might not extend to such an individual. Third, we examined the potential moderating effects of fear of negative evaluation (see Studies 4–6). We expected that individuals low in fear of negative evaluation would respond to novel partners in a positive and affiliative manner, whereas people high in fear of negative evaluation—who tend to exaggerate the potential for harm in even novel social encounters—may be less inclined to respond in a positive and affiliative fashion.

### Study 1

Participants in Study 1 underwent an exclusion manipulation in which they visualized and wrote about a previously experienced instance of exclusion or personal rejection (or a past experience of social acceptance, or a neutral control topic; see Gardner et al., 2000). Participants' interest in making new friends via a new student social service was then evaluated. If exclusion motivates a desire for reconnection, then participants who recalled the rejection experience should be more likely than the others to want to make new friends.

### Method

**Participants.** Fifty-six undergraduates (40 women, 15 men, and 1 who did not indicate gender) participated in exchange for course credit.

**Design and procedure.** Participants arrived for a study ostensibly investigating the relationship between personality and interpersonal processes. Participants were randomly assigned to one of three essay conditions: social exclusion, social acceptance, or neutral control. In each, participants were asked to relive in their minds and write about a previous experience from their life. Prior studies have shown that visualizing a previously experienced instance of rejection evokes responses similar to those found when using interpersonal methods for creating rejection (Gardner et al., 2000; Pickett, Gardner, & Knowles, 2004).

Participants in the exclusion condition were asked to write an essay about a time when they felt rejected or excluded by others. Participants in the social acceptance condition wrote instead about a time when they felt accepted by others. Participants in the neutral-control condition wrote about their activities the previous day (e.g., what they ate). When participants had completed the visualization/essay task, they completed the 20-item Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988). The PANAS is a widely used measure of affect that provides distinct indices of positive affect (e.g., "enthusiastic") and negative affect (e.g., "distressed"). Participants indicated the extent to which they were experiencing each emotion in the current moment.

To evaluate their interest in connecting with others, participants then completed a questionnaire regarding a fictitious student service whose implementation was being considered. Participants read a short paragraph

about the student service—Florida State University (FSU) Connect—and reported the degree to which they would be interested in using the service to make new friends. Participants read that, if implemented, FSU Connect would organize student events (such as concerts and game nights) with the overarching goal of connecting FSU students with one another and facilitating the establishment of new friendships. Participants were told that student fees at FSU would be increased by \$75 to cover the cost of having FSU Connect available on campus.

Participants next responded to 10 statements assessing their interest in meeting people via the student service (e.g., "I have a strong interest in meeting new friends," "FSU Connect is a student service that I might try"). Responses were recorded using 12-point scales ranging from 1 (*strongly disagree*) to 12 (*strongly agree*) and were averaged to create a composite measure of participants' desire to connect with others via the student service ( $\alpha = .96$ ). After completing these measures, participants were debriefed and received credit.

### Results

A one-way analysis of variance (ANOVA) on participants' desire to connect with others via the student service revealed significant variation among the three conditions,  $F(2, 53) = 4.99$ ,  $p = .01$ . Pairwise comparisons indicated that participants in the exclusion condition ( $M = 7.82$ ,  $SD = 2.59$ ) were more interested in connecting with others, compared with participants in both the acceptance condition ( $M = 6.07$ ,  $SD = 2.40$ ),  $F(1, 35) = 4.55$ ,  $p = .04$ ,  $d = 0.70$ , and the neutral-control condition ( $M = 5.10$ ,  $SD = 2.92$ ),  $F(1, 35) = 8.93$ ,  $p = .005$ ,  $d = 0.99$ . Participants in these latter conditions did not differ from one another,  $F(1, 36) = 1.25$ ,  $p = .27$ .

To evaluate whether these effects may have been the result of changes in participants' affective state, two one-way ANOVAs were conducted using the Positive Affect ( $\alpha = .84$ ) and Negative Affect ( $\alpha = .87$ ) subscales of the PANAS as dependent measures. Results revealed no significant variation among the three groups in terms of positive affect,  $F(2, 52) = 1.56$ ,  $p = .22$ , or negative affect ( $F < 1$ ), suggesting that the observed effects were not simply because of differences in affect. Moreover, desire to connect with others via the student service was not related to positive affect,  $r(54) = .09$ ,  $p = .54$ , or negative affect,  $r(54) = .06$ ,  $p = .67$ .

### Discussion

Reliving an instance of social exclusion increased participants' desire to meet and connect with new friends and to use a service dedicated to connecting FSU students with one another. This provides initial support for the social reconnection hypothesis and suggests that exclusion may promote interest in forging new social bonds.

### Study 2

Study 2 provided a second test of whether social exclusion stimulates a desire for social contact. Social exclusion was manipulated by having participants complete a personality test and randomly assigning some of them to receive bogus feedback indicating that they may end up alone later in life. Following previous work (e.g., Twenge et al., 2001), two control groups were used: One involved a forecast of future social acceptance; the other involved a forecast of an accident-prone future marked by injuri-

ous mishaps in order to ascertain whether any effects of the manipulation were specific to social exclusion or stemmed merely from the forecast of an unpleasant future. To assess participants' desire for social contact, we had them choose whether to complete the next task alone or with a group. If social exclusion stimulates a desire for affiliation, then participants in the exclusion condition should be more likely than control participants to prefer working together with others.

### Method

**Participants.** Thirty-four undergraduates (28 women and 6 men) participated in exchange for partial course credit.

**Design and procedure.** Participants were told that the purpose of the study was to understand different aspects of personality. Participants first completed a brief demographic questionnaire and the Eysenck Personality Questionnaire (Eysenck & Eysenck, 1975). To bolster the credibility of the study, participants were given accurate feedback regarding their extraversion score. Participants were also given bogus feedback regarding the implications of that extraversion score for their future social relationships. Participants were randomly assigned to one of three social feedback conditions: future alone, future belonging, and misfortune control (see Twenge et al., 2001, for more details regarding the manipulation). Future-alone participants were told:

You're the type who will end up alone later in life. You may have friends and relationships now, but by your mid-20s most of these will have drifted away. You may even marry or have several marriages, but these are likely to be short-lived and not continue into your 30s. Relationships don't last, and when you're past the age where people are constantly forming new relationships, the odds are you'll end up being alone more and more.

Participants assigned to the future-belonging condition were told:

You're the type who has rewarding relationships throughout life. You're likely to have a long and stable marriage and have friendships that will last into your later years. The odds are that you'll always have friends and people who care about you.

Misfortune-control participants were told:

You're likely to be accident prone later in life—you might break an arm or a leg a few times, or maybe be injured in car accidents. Even if you haven't been accident prone before, these things will show up later in life, and the odds are you will have a lot of accidents.

After receiving their personality description, participants completed the PANAS. The experimenter then returned and told the participant that because the experiment was so short, he or she would complete an additional task with another experimenter down the hall. Participants were told that some people would complete the task alone, whereas others would complete the task with several partners. Participants were told that the experimenter would consider each participant's preference. The experimenter handed the participant a sheet of paper on which they responded to the question, "To what extent would you prefer doing the experimental task with a few other social partners?" Participants responded to the question using a scale ranging from 0 (*not at all*) to 11 (*extremely*). Higher scores therefore reflected a greater desire to be with others as opposed to being alone. Once participants completed this dependent measure, they were thoroughly debriefed and provided their credit. In this, and each of the present studies, care was taken to ensure that excluded participants did not suffer any distress as a result of the manipulation.

### Results

**Desire for affiliation.** A one-way ANOVA on participants' preferences to work with a group revealed significant variation among the three groups,  $F(2, 31) = 3.88, p = .03$ . Pairwise comparisons confirmed that future alone participants ( $M = 7.92, SD = 2.02$ ) were more desirous of working with others than were future belonging participants ( $M = 5.73, SD = 2.00$ ),  $F(1, 21) = 6.79, p < .02, d = 1.14$ , or misfortune control participants ( $M = 6.09, SD = 2.07$ ),  $F(1, 21) = 4.57, p = .04, d = 0.93$ . Responses in these latter two conditions did not differ from one another ( $F < 1$ ).

**Affective responses.** To determine whether the observed effects may have been simply the result of changes in mood, two one-way ANOVAs were conducted with the Positive and Negative Affect subscales of the PANAS. Results indicated that the three experimental groups did not differ in their level of positive affect ( $F < 1$ ). They did differ, however, in their level of negative affect,  $F(2, 31) = 3.55, p = .04$ . Future alone participants ( $M = 1.72, SD = 0.50$ ) reported more negative affect than future belonging participants ( $M = 1.30, SD = 0.43$ ),  $F(1, 21) = 4.55, p < .05$ , and misfortunate control participants ( $M = 1.36, SD = 0.23$ ),  $F(1, 21) = 4.63, p = .04$ . Participants' preference to work with others was negatively correlated with their reported positive affect,  $r(32) = -.34, p < .05$ , and positively correlated with negative affect,  $r(32) = .31, p = .07$ . Further analyses, however, ruled out the possibility that effects of the manipulation on participants' preference to work with others were attributable simply to fluctuations in mood. Including neither negative affect nor positive affect as a covariate in an analysis of covariance (ANCOVA) reduced the observed effect of exclusion on participants' desire to affiliate; the difference between the future-alone group and the other two groups remained significant (both  $Fs > 4.50, ps < .05$ ).

### Discussion

Threat of social exclusion in the form of bogus feedback forecasting a lonesome future led people to increase their preference for working together with others. This is consistent with the reconnection hypothesis, which implies that thwarting the need for affiliation increases people's desire to reconnect with others. The increased desire to affiliate was specific to people who received the social exclusion feedback. Participants in the misfortune control group, who received a forecast of an unpleasant future involving accidents and injuries, did not show any elevated desire to work with others. Exclusion, rather than simply a negatively valenced forecast, was apparently the crucial cause.

### Study 3

Studies 1 and 2 showed that social exclusion promotes heightened motivation to connect with others, whether by joining a service designed to connect students with one another or by working with others in a laboratory task. In Study 3, we investigated the cognitive changes that accompany this motivation. Specifically, our hypothesis was that rejected people would be motivated to regard other people as especially welcoming and friendly, a perception that would facilitate efforts to affiliate with them.

Social exclusion was manipulated by having participants meet in a small group and then select partners for dyadic interactions.

Some participants were subsequently told that no one in the group had chosen to work with them. Others were told that everyone wanted to work with them. This manipulation involved an immediate and direct form of social exclusion, thus complementing the past and future exclusion experiences in Studies 1 and 2, respectively.

Following the exclusion manipulation, participants were asked to rate several target persons as to their level of sociability and attractiveness as well as their level of hostility. If social exclusion stimulates a desire to reconnect with others, then excluded individuals may see these new individuals as especially sociable and attractive. This would fit with evidence that people perceive in others attributes that are consistent with their own subjective needs and desires (Maner et al., 2005). However, if exclusion promotes interpersonal contempt or a desire to withdraw from others, then excluded individuals may be hesitant to view others as sociable and instead perceive others in a more hostile or threatening light.

### Method

**Participants.** Eighteen undergraduates (10 women and 8 men) participated in exchange for partial course credit.

**Design and procedure.** Participants arrived in same-sex groups of three or four for a study ostensibly investigating group dynamics. Participants were told that in the first activity, members of a large group would interact in order to get to know one another. To facilitate this interaction, participants were given name tags and a set of discussion questions (adapted from the relationship closeness induction task developed by Sedikides, Campbell, Reeder, & Elliot, 1999). After learning each other's names, participants were instructed to work informally through their discussion questions. The experimenter left the room while participants performed this task.

After 15 min, the experimenter returned and led participants to individual rooms. Participants were told "We are interested in forming groups in which the members like and respect each other. Below, please name the two people (out of those you met today) you would most like to work with."<sup>1</sup> These instructions were adapted from Leary et al. (1995) and Nezlek, Kowalski, Leary, Blevins, and Holgate (1997). The experimenter then left the participant in his or her room while groups were ostensibly formed on the basis of participants' preferences. Participants completed a brief demographic questionnaire while the experimenter was ostensibly forming the groups.

The experimenter returned and informed participants of how the groups had been formed. Participants in the accepted condition were told that the groups could not be formed as usual because everyone had selected the participant to be in their group. Participants in the excluded condition were told that the groups could not be formed as usual because nobody had selected the participant to be in their group. Participants in both conditions were then told that instead of the small group activity, they would complete a different task.

Participants next completed the Brief Mood Introspection Scale (Mayer & Gaschke, 1988), a well-validated scale that provides separable measures of arousal level (e.g., "jittery," "active") and mood valence (e.g., "content," "happy"). Participants responded to each item in terms of how they felt at the present moment. Use of this scale complemented our use of the PANAS in Studies 1 and 2, ensuring that results pertaining to participants' affect were not peculiar to any one mood measure. After completing this scale, participants performed a person perception task. Participants rated 4 male and 4 female target individuals, all of whom had been prerated as average in physical attractiveness and neutral in facial expression. Participants rated each face on characteristics related to sociability and hostility. After completing the face-rating task, participants were debriefed, given their credit, and dismissed.

### Results

A measure of perceived sociability was calculated by averaging responses to *nice*, *friendly*, *attractive*, and *desirable to members of the opposite sex* ( $\alpha = .88$ ). A hostility index was calculated by averaging responses to *hostile* and *angry* ( $\alpha = .60$ ).

A 2 (exclusion vs. acceptance)  $\times$  2 (participant sex) ANOVA on participants' sociability ratings revealed only a main effect of the exclusion manipulation,  $F(1, 13) = 6.02, p = .03, d = 1.13$ . Compared with accepted participants ( $M = 4.09, SD = 0.48$ ), excluded participants consequently viewed the targets as more attractive and sociable ( $M = 4.70, SD = 0.75$ ).

A similar ANOVA on participants' perceptions of hostility indicated no significant effects. Excluded participants ( $M = 4.00, SD = 1.63$ ) did not differ significantly from accepted participants ( $M = 3.59, SD = 0.72$ ) in terms of how hostile they perceived targets to be ( $F < 1$ ).

As in the earlier studies, we examined the possibility that effects of social exclusion may have been simply caused by changes in mood. Scores on the Mood Valence and Arousal subscales of the Brief Mood Introspection Scale were submitted to separate one-way ANOVAs. Results indicated that excluded participants did not differ from accepted participants in terms of their reported arousal or mood valence (both  $Fs < 1$ ). Neither mood nor arousal was related to positive social perceptions, valence  $r(16) = -.21, p = .43$ ; arousal  $r(16) = -.17, p = .51$ . Thus, there is no evidence that changes in either mood or arousal can account for the increase in perceived sociability among socially excluded participants.

### Discussion

Studies 1 and 2 showed that exclusion increased interest in meeting and initiating contact with others. Going a step further, we found in Study 3 that exclusion led people to view others as nicer, friendlier, and more desirable. Exclusion did not lead participants to view others as angrier or more hostile (or reduce such perceptions). These findings provide evidence in further support of the reconnection hypothesis. Viewing other people as friendly and inviting is consistent with a motive aimed at restoring social bonds. Rejected persons' desire to reconnect thus may be supported by motivated cognitions that lead them to see others as welcoming.

### Study 4

Results of the first three studies provide evidence that exclusion inspires a desire to be with other people (and biases person perception accordingly). However, given previous evidence for antisocial responses to exclusion, it seemed implausible to conclude that every rejected person seeks to connect with every available person. Hence, Study 4 began to map out the boundary conditions for the affiliative tendencies of rejected persons. First, we examined whether affiliative responses to exclusion would make an exception for the specific perpetrators of the exclusionary experience. We expected that whereas rejected individuals may

<sup>1</sup> In some cases, the group of participants consisted of only three people. In these cases, the experimenter instructed each participant to list the person with whom they wanted to work most on the first line and their second choice on the second line.

seek reconnection with novel partners, and toward that end may come to perceive such potential partners more positively, they may still be inclined to hold negative attitudes toward the specific persons who rejected them. In order to test these hypotheses, participants in this study evaluated two distinct people: (a) the specific person with whom they had recently interacted (and who had, in one condition, rejected them) and (b) a new, previously unknown partner. Thus, responses to exclusion may depend on the identity of the target person, which would provide evidence for one boundary condition.

A second possible boundary condition lay in the personality of the rejected person. Study 4 provided the opportunity to examine potential moderating effects of fear of negative evaluation. Even if most people respond to rejection by taking a positive and optimistic attitude toward new interaction partners, it seemed plausible that those who generally approach social interactions with fear and pessimism would be more inclined to view even novel interaction partners as sources of further threat rather than as sources of renewed affiliation. We therefore included the Fear of Negative Evaluation scale (Leary, 1983), a measure widely used to assess the core component of social anxiety. This well-validated scale measures the extent to which individuals exhibit fearful anticipation of negative evaluative experiences in the context of social interaction. Previous evidence (e.g., Heimberg et al., 1995) suggests that people scoring high on fear of negative evaluation may be more likely than others to generalize from a single instance of rejection to other potential partners, leading them to view even novel partners as sources of social threat rather than as sources of new affiliation.

An additional methodological modification to Study 4 was the use of a different social exclusion manipulation (based on Bushman, Bonacci, Van Dijk, & Baumeister, 2003; Vorauer, Cameron, Holmes, & Pearce, 2003). All participants interacted with another person (a confederate) who, after their initial meeting, declined the opportunity for further interaction. We manipulated whether this was allegedly because of external causes (the confederate had to leave because of another obligation) or was because of a negative reaction to the participant. Thus, although the participant's interaction with the confederate was cut short in both conditions, only the latter condition was likely to create the psychological experience of deliberate social exclusion.

The deliberate exclusion thus implied a specific negative evaluation of the individual. Would participants respond by looking on a new interaction partner as a promising opportunity for a new start? The reconnection hypothesis, as well as findings from Studies 1–3, suggests that deliberately excluded individuals may indeed adopt a more positive view of a new, previously unknown interaction partner. It was also anticipated that this effect would be observed primarily in participants low in fear of negative evaluation, who tend not to worry about being negatively evaluated, and who, in turn, may well be optimistic with a new partner. People with high fear of negative evaluation, in contrast, were expected to become more wary of the new partner after having been rejected by a previous one.

## Method

**Participants.** Thirty-four undergraduates (22 women and 12 men) participated in exchange for partial course credit. Two additional participants

were excluded from analyses: 1 because of equipment malfunction and 1 because of expressed suspicion about the true purpose of the study.

**Design and procedure.** Upon arrival, participants were told that they would be interacting with a partner, first by sending videotaped messages and then face to face, thereby allowing the researchers to understand how restrictions on initial meeting situations influence communication. Participants then completed the 12-item Fear of Negative Evaluation scale (Leary, 1983; e.g., "I am afraid that people will find fault with me," "I am usually worried about the kind of impression I make") while waiting for the partner's video.

After several minutes, the experimenter returned to the participant's room with a videocassette, ostensibly made by the participant's partner, and instructed participants to view it. The video message was approximately 3 min in length and depicted a friendly same-sex confederate discussing his or her personal and career goals. The experimenter left the room while the participant viewed the videotaped message.

Next, the experimenter returned and told the participant that he or she would record a reply to the partner. After making a short warm-up recording, the experimenter recorded the participant's responses to the same set of questions that was asked of his or her partner (e.g., "What personal qualities are important to how you see yourself?"). When the participant finished, the experimenter ostensibly took the participant's video for his or her partner to watch. The experimenter explained that it would take a few minutes for the participant's partner to watch the video; while they waited, participants completed a demographic questionnaire.

After 5 min, the experimenter returned and delivered the exclusion manipulation. Participants assigned to the irrelevant-departure condition were told that after watching the video, their partner had to leave suddenly because he or she had forgotten to do something. Participants assigned to the personal rejection condition were told that after watching the video, their partner left suddenly because he or she did not want to meet the participant. Participants in both conditions were told that they would therefore be performing the next task alone.

Participants then completed the Brief Mood Introspection Scale (Mayer & Gaschke, 1988; as in Study 3), providing measures of mood and arousal. The experimenter then told participants that although their partner had left, another (same-sex) participant had just arrived and wished to make up credit for a previous experiment. Participants were told that they would be partnered with this new person. The experimenter left the room, ostensibly to get the new partner ready for the interaction. While they waited, participants completed measures assessing perceptions of their original partner.

After 5 min, the experimenter returned with a digital camera and collected the participant's partner rating sheet. The experimenter then told the participant that he or she would view a photo of the new partner and that the participant should try to form an impression of this person. The experimenter downloaded the photo onto a computer and showed it to the participant. Participants then completed measures assessing perceptions of the new partner, using a partner rating form that was identical to the one completed for the original partner. The experimenter left the room while the participant completed these measures. Once the participant had completed the partner ratings, the experimenter returned and debriefed the participant.

## Results

A measure of perceived sociability was calculated by averaging responses to the items "nice" and "friendly" ( $\alpha = .85$ ). (We omitted the items used in Study 3 to assess desirability as a romantic partner, reasoning that many participants might think it strange to rate these characteristics when the partner was of their own gender.) A measure of perceived hostility was calculated by averaging responses to the items "hostile" and "angry" ( $\alpha = .76$ ).

*Perceived sociability.* A 2 (original vs. new partner)  $\times$  2 (personal rejection vs. irrelevant departure) mixed design ANOVA was conducted on participants' sociability ratings, with fear of negative evaluation ( $\alpha = .94$ ) included as a continuous independent variable. Results indicated a main effect of target,  $F(1, 30) = 18.88, p < .001$ ; a two-way interaction between target and exclusion condition,  $F(1, 30) = 12.43, p = .001$ ; and a three-way interaction between target, exclusion condition, and fear of negative evaluation that approached significance,  $F(1, 30) = 2.43, p < .07$ .

We therefore conducted follow-up hierarchical regression analyses in which we focused first on ratings of the new partner. New partner sociability ratings were regressed on exclusion condition and fear of negative evaluation in the first step, and their centered interaction in the second step. Results indicated a main effect of rejection that approached significance ( $\beta = .30$ ),  $t(30) = 1.74, p = .09$ , which was qualified by a significant interaction between rejection condition and fear of negative evaluation ( $\beta = -.33$ ),  $t(30) = -2.02, p = .05$  (see Figure 1). To interpret this interaction, we tested the simple effect of the rejection manipulation at relatively high and low levels of fear of negative evaluation (one standard deviation above and below the mean; Aiken & West, 1991). Among participants low in fear of negative evaluation, rejection increased perceptions of the new interaction partner as positive and sociable ( $\beta = .64$ ),  $t(30) = -2.72, p = .01$  (partial  $r = .44$ ). In contrast, rejection elicited no such effect among participants high in fear of negative evaluation ( $\beta = -.04$ ),  $t(30) = -0.16, p = .88$ . Thus, the effect of social exclusion on heightened perceptions of sociability was moderated by fear of negative evaluation. Notably, fear of negative evaluation did not moderate the effect of rejection on perceptions of how sociable participants' original partner was ( $\beta = .03$ ),  $t(30) = 0.18, p = .86$ . For perceptions of the original partner, we observed only a main effect of exclusion that approached significance, such that rejected participants, compared with control (irrelevant-departure) participants, viewed their original partner as somewhat less sociable ( $\beta = -.30$ ),  $t(30) = -1.80, p = .08$ .

*Perceived hostility.* A similar analytic strategy was used to evaluate effects on perceptions of hostility. Results indicated a

significant interaction between target and exclusion condition,  $F(1, 30) = 4.73, p = .01$ . No significant effects associated with fear of negative evaluation were observed. Follow-up tests indicated that, compared with control (irrelevant-departure) participants ( $M = 1.53, SD = 0.84$ ), participants in the personal rejection condition viewed their original partner (the one who had rejected them) as more negative and hostile ( $M = 2.76, SD = 1.28$ ),  $F(1, 32) = 11.13, p < .002, d = 1.18$ . This increase in perceived hostility was specific to perceptions of the original interaction partner: Personally rejected participants did not rate their new partner as more hostile ( $F < 1$ ). Differences in negative perceptions of the original versus the new partner were limited to participants who had been rejected. Whereas these participants viewed their original partner as more negative and hostile than their new partner,  $F(1, 16) = 7.54, p = .01$ , participants in the control (irrelevant-departure) condition did not ( $F < 1$ ).

*Affective responses.* We conducted a series of additional analyses to assess whether these effects were the result of mood or level of arousal. Results indicated that they were not. Including mood valence and arousal as predictors of positive perceptions of the new partner did not reduce the effect of the rejection manipulation; their inclusion actually increased the apparent size of the effect,  $F(1, 30) = 4.74, p < .04$ . Positive perceptions of the new partner were not significantly correlated with mood valence,  $r(32) = .19, p = .30$ , or arousal,  $r(32) = -.05, p = .76$ . Nor did controlling for these measures reduce the effect of rejection on negative perceptions of the original partner (the rejecter); the effect remained significant,  $F(1, 30) = 9.61, p < .004$ .

## Discussion

Results of Study 4 provide evidence that rejection can lead to both positive and negative social perceptions. In doing so, this study established two important boundary conditions for affiliative responses to rejection—one involving the target of potential affiliation and one involving the stable traits and attitudes of the rejected person.

Consistent with the reconnection hypothesis (and with the results of the first three studies), rejection led participants to view a novel interaction partner as especially nice and friendly. Such positive social perceptions suggest an optimism about prospects for forming new social bonds. In contrast, rejected participants were inclined to view their original partner—the perpetrator of rejection—in a particularly negative and hostile light. This increase in perceptions of hostility, however, was specific to the actual source of rejection and did not extend to a new source of potential affiliation.

Effects of social exclusion on person perception were also moderated by individual differences in fear of negative evaluation. The tendency for rejected participants to perceive a novel interaction partner as nice and friendly was pronounced only among individuals low in fear of negative evaluation (who tend to hold a generally optimistic set of social expectations). In contrast, rejected individuals who were high in fear of negative evaluation (who generally expect less pleasant social interactions) did not see even a novel social partner in a socially optimistic light. This is consistent with the hypothesis that individuals who fear the sting of negative social evaluation may be less inclined than others to view even new social partners as sources of positive affiliation.

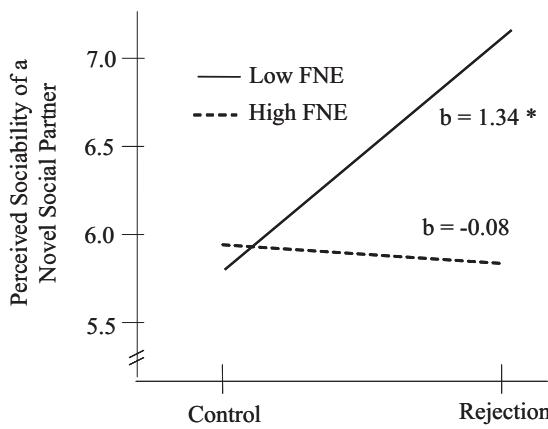


Figure 1. Study 4: Fear of negative evaluation (FNE) moderated the effect of social exclusion such that participants low in FNE, but not those high in FNE, viewed a new partner as more sociable following exclusion. \*  $p < .05$ .

after rejection. The moderating effect of fear of negative evaluation thus further delineates the conditions under which social exclusion compels reconnection.

### Study 5

Studies 1–4 showed that many individuals respond to exclusion by viewing potential sources of renewed affiliation in a positive social light and by seeking interaction with them. But perhaps talk (in the form of ratings and even rated desire to interact) is cheap. Might they also treat new interaction partners in a generous manner?

In Study 5, participants played the role of manager in a workplace simulation exercise. Participants evaluated the creativity of either a rejecter's or a novel interaction partner's work and, on the basis of that evaluation, assigned that person a monetary reward. That is, by giving a favorable evaluation, participants could in effect allocate a relatively large amount of money to their partner. Conversely, they could act in a less favorable manner by giving a negative evaluation and withholding money.

If socially excluded people adopt an affiliative stance in an attempt to form new social bonds, then they should be particularly inclined to give their new interaction partner a positive evaluation with a sizable cash reward. In contrast, if excluded people adopt a contemptuous attitude toward others, then they would be reluctant to bestow favorable evaluations and cash rewards on a new partner. This may occur especially if selfish motives opposed giving a large reward; we included a (weak) selfish incentive to keep the reward low: Participants were told that whatever money they did not give to the other participant would be entered into a fund and later assigned by a random drawing to one of the participants in the manager condition. The participant would therefore be eligible to receive that money (although the odds may objectively be rather small).

As in Study 4, we also examined potential boundary conditions that might reduce the likelihood of socially favorable responses to rejection. First, instead of evaluating the work of the new interaction partner, some participants evaluated the work of the original (rejecting) partner. Consistent with the results of Study 4, we anticipated that social exclusion would lead people to withhold rewards from their original partner. Second, we again assessed the moderating effect of fear of negative evaluation. Consistent with the findings of Study 4, we expected that high levels of fear of negative evaluation would prevent personally rejected participants from becoming more favorably disposed toward even a new partner.

### Method

**Participants.** Forty-nine undergraduates (38 women and 11 men) participated in exchange for partial course credit. One other participant was excluded from analysis because she had participated in a different experiment that used the same exclusion manipulation.

**Design and procedure.** The initial portion of the procedure was similar to that used in Study 4. Participants began by ostensibly communicating through video with a (same-sex) partner; they were told that they would be interacting face-to-face with their partner at the end of the experiment. After completing the Fear of Negative Evaluation scale and trading video messages, information constituting the rejection manipulation was delivered to the participant. Depending on the condition to which participants

were assigned (irrelevant departure or personal rejection), participants were told either that (a) their partner would need to leave the experiment a bit early and would therefore not interact with the participant at the end of experiment or (b) their partner was unwilling to meet the participant face-to-face after viewing his or her video. After receiving this feedback, participants completed the Brief Mood Introspection Scale.

Following the rejection manipulation, participants were told that the next task would involve one participant playing the role of manager and his or her partner playing the role of worker. Participants assigned to the original-partner condition were told that they would complete this task with the partner with whom they had just been sending video messages. Participants assigned to the new-partner condition were instead told that they would complete the task with another (same-sex) participant who was making up credit for a previous experiment. For participants in the new-partner condition, the experimenter had a digital camera and downloaded a photo of the new partner onto a computer and showed it to the participant.

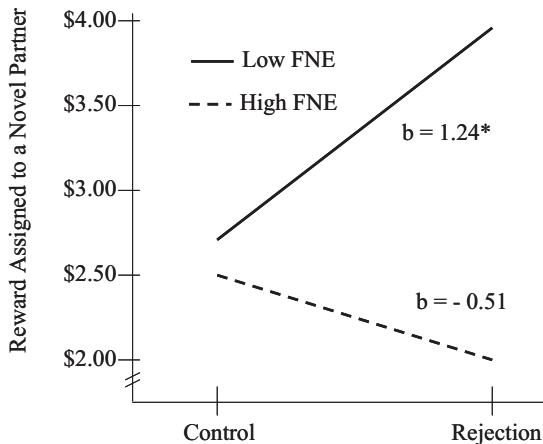
The experimenter told participants that their assignment to each role would be determined randomly. Participants selected a slip of paper on which their role (e.g., manager or worker) was printed. This drawing was rigged so that all participants were assigned the role of manager. After receiving their assignment, participants were told that they would judge the performance of their partner on a creativity task and assign rewards on the basis of that performance.

After 4 min, the experimenter returned with a drawing ostensibly completed by the partner.<sup>2</sup> Participants were given the drawing, a creativity rating sheet, and two plastic cups with a total of \$5 in quarters. Participants were instructed to rate the drawing from 0 (*not at all creative*) to 20 (*very creative*) and to deposit one quarter in the cup labeled *creativity rating* for every creativity point the worker had earned. Participants were also instructed to place into the cup labeled *manager raffle* any money they did not deposit in the employee's cup. The experimenter explained that the worker would receive the money placed in the "creativity rating" cup, whereas money placed in the "manager raffle" cup would be placed into a common pool of money; all participants assigned to the manager role during the semester would have a chance to win that money. Thus, any rewards the participant gave his or her partner would directly detract from rewards he or she might win. When participants had completed this task, the experimenter returned and debriefed the participant.

### Results

Hierarchical regression was used to assess effects of the rejection manipulation (rejection vs. control), the partner manipulation (original vs. new partner), and fear of negative evaluation ( $\alpha = .94$ ; these main effects were entered in the first step), each of the centered two-way interactions (entered in the second step) and the centered three-way interaction (entered in the third step). In addition to a two-way interaction between the two experimental manipulations ( $\beta = .44$ ),  $t(42) = 3.35$ ,  $p = .002$ , a significant three-way interaction was observed ( $\beta = -.27$ ),  $t(41) = -2.05$ ,  $p < .05$ . To interpret this interaction, regression was used first to predict money assigned to the new partner from rejection condition, fear of negative evaluation, and their interaction. Consistent with the findings of Study 4, the effect of rejection on participants' reward assignment depended on level of fear of negative evaluation ( $\beta = -.49$ ),  $t(23) = -2.53$ ,  $p = .02$  (see Figure 2). Among participants low in fear of negative evaluation (one standard deviation below the mean), personal rejection (compared with irrelevant departure) led people to allocate more money to a new

<sup>2</sup> The drawing was pre-rated as near the midpoint on four dimensions: creativity, uniqueness, coherence, and liking.



**Figure 2.** Study 5: Fear of negative evaluation (FNE) moderated the effect of social exclusion on positive behavior toward a new partner. Whereas participants low in FNE assigned greater rewards following exclusion, participants high in FNE did not. \*  $p < .05$ .

partner ( $\beta = .69$ ),  $t(23) = 2.37$ ,  $p = .03$  (partial  $r = .44$ ). In contrast, rejection did not lead participants high in fear of negative evaluation (one standard deviation above the mean) to allocate more money to the new partner. In fact, the direction of the effect was reversed, although not significantly so ( $\beta = -.29$ ),  $t(23) = -1.18$ ,  $p = .25$ .

Similar analyses focused on participants in the original (rejecting)-partner condition. Among these participants, only a main effect of rejection was found ( $\beta = -.65$ ),  $t(19) = -3.71$ ,  $p < .001$  (partial  $r = .65$ ), such that participants who had been rejected assigned fewer rewards ( $M = \$1.43$ ,  $SD = \$1.18$ ) than did participants in the irrelevant-departure condition ( $M = \$2.84$ ,  $SD = \$0.41$ ).

We conducted additional analyses to test whether these effects may have been the result of changes in participants' emotional state. As with the previous studies, no evidence emerged to indicate any such mediating process. The rejection manipulation elicited no apparent changes in mood or arousal (both  $p > .20$ ). Neither mood valence,  $r(47) = .01$ ,  $p = .93$ , nor arousal,  $r(47) = -.20$ ,  $p = .17$ , was related to the amount of reward participants assigned to their partner. Moreover, including measures of mood and arousal as covariates in ANCOVA did not reduce the size of any of the observed effects.

### Discussion

Study 5 augmented the results of the first four studies by using a behavioral measure to assess the manner in which rejected individuals treat others. Instead of just rating the other person's presumptive friendliness and expressing a desire to interact with someone, participants provided a formal evaluation that carried a bona fide cash reward. We observed evidence of both socially favorable and unfavorable reactions to rejection. Consistent with the reconnection hypothesis, some rejected participants evaluated their new partner more favorably and, in the same vein, increased that person's reward. As in Study 4, evidence for such socially favorable responding was found mainly among participants low in

fear of negative evaluation. Among individuals high in fear of negative evaluation, social exclusion failed to promote such a beneficent approach to a new interaction partner.

As in Study 4, rejected participants exhibited unfavorable responses to the person who had rejected them. In Study 4, they viewed this person as negative and hostile. In Study 5, they evaluated this person's work in a negative manner and, by means of that evaluation, knowingly reduced that person's cash reward. Indeed, personally rejected people assigned only about half as much money to their rejecter as compared with an alternative interaction partner (and half as much as participants in the control condition assigned to either interaction partner). This is consistent with the hypothesis that social rejection would lead individuals to treat the specific perpetrators of rejection with contempt and a (relatively passive) form of antisocial behavior. These antisocial actions, however, were directed only toward the specific source of rejection and did not extend to a new interaction partner.

### Study 6

The previous studies provide consistent evidence in support of the social reconnection hypothesis, as well as some of its hypothesized boundary conditions. Although rejected people seem to exhibit negative attitudes toward the person who rejected them, they also seem to exhibit positive and interpersonally optimistic perceptions and behavior, particularly toward new interaction partners who can be realistically viewed as sources of renewed affiliation. This latter finding is consistent with the hypothesis that rejection evokes a desire to reconnect with others.

Study 6 was designed to provide further confirmation that socially favorable responses to rejection are based on a desire to reconnect with others. After all, the positive responses in the preceding study were not indubitably motivated by a desire for social connection. (One may, for example, interpret the results of Study 5 as indicating self-deprecation among socially excluded participants, resulting in the tendency to assign rewards to others at the expense of oneself.) Therefore, in Study 6 we introduced a manipulation that allowed for a more rigorous test of the reconnection hypothesis. If rejected individuals' responses are motivated by a desire to actually enhance future social interactions, then they should be observed primarily when a future interaction is anticipated but not when there is no expectation of future interaction.

The crucial independent variable in Study 6, therefore, was the expectation of future interaction. The first part of the procedure replicated Study 5, manipulating whether a confederate departed the study either as a personal rejection of the participant or for irrelevant reasons. Then the participant was assigned to act as manager and evaluate a new partner's work, allocating that person rewards on the basis of the evaluation. Whereas some participants expected to meet the new partner and interact with him or her, others did not. If positive treatment of a new partner is motivated by a desire to prepare for a pleasant interaction and possibly a potential friendship, then it should occur only when one expects to meet that person. If there is no expectation of future contact, then behaving in a socially favorable fashion would not serve the same purpose.

Another refinement of Study 6 was to increase the apparent conflict of interest. Participants in Study 5 did not really have to

give up much to pay their interaction partner more. In Study 6, we told participants that there was a fixed amount of money to be divided between workers and managers. The more they gave to the worker, the less there would be left for themselves. This conflict was slightly blunted by saying that the leftover money for each session would be pooled and then divided equally among all the managers. Still, participants did face a direct trade-off between keeping money for themselves and giving it to their partner.

### Method

**Participants.** Fifty-three undergraduates (37 women and 16 men) participated in exchange for partial course credit. Two additional participants were excluded from analysis: 1 because of expressed suspicion regarding the rejection feedback and 1 because of equipment malfunction.

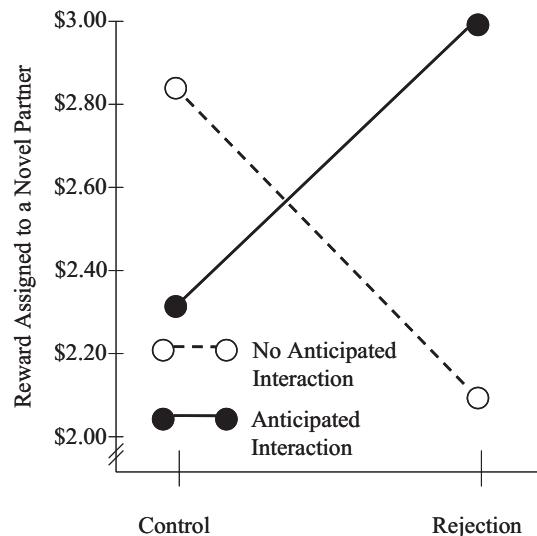
**Design and procedure.** Participants arrived at the laboratory for a study investigating the processes involved in meeting other people. As in Studies 4 and 5, participants were told that they would be sending video messages back and forth to a same-sex partner and that their partner would send the first video message. The rest of this initial procedure was identical to that used in Study 5. For participants assigned to the irrelevant-departure condition, the experimenter explained that their original partner had forgotten to do something and would need to leave the experiment early. Participants assigned to the personal rejection condition were told that after watching their video response, their partner did not want to meet them.

Participants then completed the Brief Mood Introspection Scale and PANAS (we used both scales in this study to provide an even stronger assessment of the potential role of affect). The experimenter returned and told participants that the next part of the experiment would involve one participant playing the role of the manager and another participant playing the role of the worker. All participants were led to believe that they would complete this task with another (same-sex) participant who was making up a credit for a previous experiment. For participants assigned to the meeting condition, the experimenter explained that they would complete this task before meeting and interacting face-to-face with their new partner. Participants in the no-meeting condition, however, were told that they would not actually meet their new partner. In both conditions, the experimenter had a digital camera and downloaded a photo of the partner onto a computer and showed it to the participant.

As in Study 5, a rigged drawing was used to assign participants to the manager role. The rest of the protocol for the resource allocation task was the same as in Study 5, with one exception. Participants were instructed to rate the drawing from 0 (*not at all creative*) to 20 (*very creative*) and to deposit one quarter in the cup labeled *creativity rating* for every point the partner earned and the rest of the money into a cup labeled *manager money* (instead of the *manager raffle* cup used in Study 5). The experimenter explained that money put in the “*manager money*” cup would be divided equally among participants who played the manager role in the study. Thus, any amount of money the participant gave to his or her partner would directly take away from money he or she would earn. When participants had completed the creativity rating task, the experimenter returned and debriefed the participant.

### Results

Hierarchical regression was used to predict reward assignments from rejection condition (rejection vs. control), partner condition (meeting vs. no meeting), and fear of negative evaluation ( $\alpha = .94$ ; each entered at the first step), the centered two-way interactions (second step) and the centered three-way interaction (third step). Results indicated a two-way interaction between rejection condition and partner condition ( $\beta = -.40$ ),  $t(46) = -2.91$ ,  $p = .006$  (see Figure 3), and a nonsignificant trend toward a three-way



**Figure 3.** Study 6: Effects of exclusion on behavior toward a new partner depended on whether participants anticipated meeting their partner. Compared with controls, excluded participants assigned greater rewards when a social interaction was expected but fewer rewards when no interaction was expected.

interaction between these manipulations and fear of negative evaluation ( $\beta = .23$ ),  $t(45) = 1.60$ ,  $p = .12$ .

To interpret the two-way interaction between rejection condition and partner condition, we evaluated the simple effect of rejection separately within the meeting and no-meeting conditions. These tests showed that, compared with control participants, rejected participants assigned (marginally) greater rewards to a new interaction partner only when there was an anticipated interaction ( $\beta = .40$ ),  $t(19) = 1.89$ ,  $p < .08$ . When no meeting was anticipated, excluded participants actually assigned fewer rewards to their partner than did control participants ( $\beta = -.40$ ),  $t(30) = -2.39$ ,  $p = .02$ . An alternative way of looking at this pattern of results would emphasize that personally rejected participants assigned significantly more money to a new social partner when they anticipated meeting the new partner than when they did not expect to meet the new partner ( $\beta = .46$ ),  $t(26) = 2.64$ ,  $p = .01$ . No such difference was observed in rewards assigned by participants in the control (irrelevant-departure) condition ( $\beta = -.31$ ),  $t(23) = -1.55$ ,  $p = .14$ .

Although the omnibus three-way interaction only trended toward significance, results of Studies 4 and 5 demonstrated that fear of negative evaluation moderated effects of rejection in the case of an impending social interaction. We therefore examined potential interactive effects of rejection and fear of negative evaluation on reward assignments in the meeting condition. Results indicated that, indeed, fear of negative evaluation did moderate responses to rejection. Among participants low in fear of negative evaluation (one standard deviation below the mean), rejection (vs. irrelevant departure) elicited a substantial increase in generosity toward the new partner ( $\beta = .74$ ),  $t(17) = 2.48$ ,  $p = .02$  (partial  $r = .52$ ). In contrast, no increase was observed among participants high in fear of negative evaluation ( $\beta = -.02$ ),  $t(17) = -0.06$ ,  $p = .95$ . It should be noted that no such moderating effect was observed in the no-meeting condition.

Additional analyses (using the Brief Mood Introspection Scale and PANAS) assessed whether the observed effects may have been mediated by affect. Once again, no evidence emerged to indicate any such mediating process. No effects of the rejection manipulation were observed on any of the mood measures, and none of these measures were significantly associated with participants' reward assignments (all  $r_s < .09$ ;  $p_s > .50$ ). Furthermore, the observed pattern of results remained when controlling for these measures.

### *Discussion*

Study 6 revealed that anticipation of future interaction is a crucial contributor to the generosity of rejected people toward new partners. Rejection increased the tendency to bestow rewards on a new partner, but only when there was an expectation for future interaction. When there was no anticipation of future interaction, rejection failed to increase people's level of socially favorable responding. In fact, when rejected participants knew they would not meet their new partner, they actually responded with less generosity, withholding rewards from their partner and keeping more for the manager fund (i.e., to be divided among themselves and their fellow managers). In addition to identifying another important boundary condition on affiliative responses to exclusion, these findings imply that the pattern of socially favorable responding by rejected participants is driven by a desire for positive social connection. These findings also help reconcile the present results with previous evidence for antisocial responses to rejection. Rejection made participants more friendly and generous toward some people but less friendly and less generous toward others, depending on the prospect of further interaction (and, as in Studies 4 and 5, on their own trait level of fear of negative social evaluation).

### **General Discussion**

Across these six studies, convergent findings suggest that the experience of social exclusion elicited a desire to renew affiliative bonds with other people. Recalling or experiencing some form of social exclusion caused people to express more interest in meeting others (see Study 1), to prefer to work with others rather than alone (see Study 2), to shift toward a more optimistic impression of other people as nice and friendly (see Studies 3 and 4), and to allocate more positive evaluations and cash rewards to new partners (see Studies 5 and 6). These studies provide the first direct evidence that exclusion can lead people to turn hopefully toward others as sources of renewed social connection. Taken together, these findings provide important confirmation that the so-called need to belong operates like many other motivations, at least in the sense that when it is thwarted, people look for new ways to satisfy it.

The finding that rejected people sought out and favored people who represent potential relationship partners is perhaps not intuitively surprising, although it does represent a meaningful break with the accumulated evidence of aggression, withdrawal, and selfishness among rejected persons (e.g., Twenge et al., 2001). Perhaps more surprising is the apparent resurgence of social optimism among at least some rejected persons. Our results confirmed not only a desire to reconnect but also a tendency to view other people as friendly and nice. Had we found that rejected persons became cynical and were accordingly reluctant to rate strangers as

likely to be friendly or nice, many readers may have shrugged the finding off as intuitively obvious. But we found and replicated the opposite pattern, at least among the majority of participants. There is seemingly no rational reason that an experience of rejection would cause people to change toward seeing people in general, or new interaction partners in particular, as socially welcoming. The observed pattern thus suggests the presence of motivated cognition (or wishful thinking).

How can the present findings be reconciled with other evidence of antisocial tendencies among excluded persons? It may be most accurate to characterize the recently excluded person as vulnerable but needy, and those two feelings may push in opposite directions. Excluded persons apparently want to protect themselves against being exploited or rejected any more, but they also desire new relationship partners. In general, the present measures involved minimal risks or costs to the self, and it is clear that most excluded participants felt comfortable making positive gestures toward others under those circumstances. But those responses may still be compatible with a generally guarded attitude toward others. Indeed, when risks to the self are greater, excluded persons seem concerned with protecting themselves and avoiding further costs. For example, Twenge and colleagues found that excluded participants donated less money to a student emergency fund and favored an antagonistic, self-protecting strategy on the Prisoner's Dilemma game, behaviors that both involve clear costs to the self, as in giving up one's own money (Twenge, Baumeister, DeWall, Ciarocco, & Bartels, 2006). Moreover, the selfishness of excluded participants in those studies was directed toward others who were perhaps unlikely candidates for real social connection, either because the participants never expected to meet the other person face-to-face or because the recipient was an indistinct entity, such as a charity, rather than a real person.

The generous actions performed by participants in the present research, in contrast, may not have been viewed as entailing a large personal sacrifice (e.g., in Study 6, the extra amount given to one's partner—less than 80 cents on average—would have cost one only about 8 cents when divided among 10 managers). Moreover, excluded participants' generosity was directed selectively toward others who seemed to be a good bet for forming a new social connection (e.g., when a face-to-face interaction was anticipated). Taken together, the accumulated sets of research findings seem to depict the excluded person as willing, and even eager, to explore the possibility of new friendships—but inclined to do so in a judicious manner. Excluded individuals seem unwilling to make sacrifices and do good deeds for people in general, and instead they explore specific and promising possibilities for new social connections.

Indeed, although the resurgent desire for social connection among excluded persons is the main finding of this work, we have also identified several important boundary conditions that help connect this research with other studies revealing less positive social responses. First, the people who did the rejecting were not treated with the optimism or generosity that was directed toward others, and in fact participants were fairly negative toward them in both perceptions and actions. Second, excluded participants withheld rewards from a person with whom they anticipated no contact, even though that person had done them no harm (see Study 6). These findings suggest an important limiting condition on the implications of the reconnection hypothesis: The socially favor-

able consequences of exclusion were observed only under conditions in which others could be reasonably judged to be potential sources of actual social connection. Thus, one key factor influencing people's responses to exclusion seemed to be the nature of the social target under consideration—whether this person represented a realistic and immediate possibility for renewed affiliation. These boundary conditions help reconcile the present findings with prior evidence of hostile and antisocial behavior among rejected persons (e.g., Buckley et al., 2004; Twenge et al., 2006, 2001). As we have previously suggested, rejection hardly breeds a broad, loving attitude toward all humanity; instead, it seems to foster a judicious warmth that is aimed selectively at promising targets.

A third boundary condition involved an individual-difference factor that appeared to reduce some socially excluded individuals' affiliative reactions to new, otherwise promising interaction partners: fear of negative evaluation. Participants who tend not to worry about negative social evaluation reacted to exclusion with responses suggesting increased interest in reconnecting with new sources of affiliation. Participants who tend to fear the sting of negative social evaluation, however, reacted in a very different fashion. These participants did not exhibit similar signs of wanting to restore social bonds and, in some cases, even appeared to view new partners with negative attitudes that could be characterized as skepticism, fear, or even disdain.

Among individuals fearful of negative social evaluation, the motivation to protect oneself from potentially threatening social encounters may have overwhelmed the desire to reconnect with others (see Heimberg et al., 1995). Salient experiences of exclusion, therefore, could cause socially anxious individuals, for whom fear of negative evaluation is a highly salient concern, to withdraw from others and to regard them negatively (see Beck et al., 1985). Such responses provide further evidence for our characterization of excluded persons as needy but vulnerable: Among people for whom the vulnerability is most strongly felt, the tendency to approach new partners is least evident.

In an important sense, the presence of these boundary conditions provides further converging evidence for the overarching conclusion that reactions to social exclusion depend on the perceived possibility of future connection. When excluded people perceived a good chance of making a new connection, either because the situation held promise for positive interactions with new partners or because their own dispositions were optimistic about social encounters, then they regarded new partners in a positive manner and tried to affiliate with them. In contrast, when rejected people did not see much chance for affiliating anew—either because they were interacting with someone who already rejected them, or because there was no clear prospect of future interaction, or because they dispositionally focused on the threat of negative social evaluation—then they viewed and treated other people more harshly. Hence, one key to how people respond to exclusion appears to be whether they perceive the next interaction as a promising opportunity for forging a new social bond, and both situational and dispositional factors shape that perception.

### *Limitations and Future Directions*

By distilling responses to exclusion into several of their component cognitive and behavioral parts, the present studies begin to provide a coherent picture of when people seek to reconnect, and

when they do not. Although experimental methods were ideal for testing causal hypotheses about rejected individuals' perceptions and behavioral inclinations, they can only begin to suggest eventual consequences that may unfold dynamically in the course of ongoing social interactions. These consequences are likely to be shaped by interpersonal feedback loops that can amplify, or sometimes dampen, socially favorable perceptions and actions (Christensen & Kashy, 1998). Still, the present findings shed promising light on how these cycles can get started toward either affiliative reconnection, antisocial withdrawal, or outright hostility.

For example, when a rejected person performs positive behaviors in order to make a new friend, those behaviors may evoke favorable responses on the part of the recipient that may, in turn, reinforce socially optimistic perceptions and behavior. In some circumstances, however, overt attempts to secure social acceptance may be perceived as disingenuous or just plain needy and thereby evoke negative social responses and further rejection (Joiner, Alafano, & Metalsky, 1992). If repeated over time and across persons, affiliative responses have the potential to transform social optimism (of the sort documented in our data) into eventual pessimism and withdrawal (e.g., Jones, Freemon, & Goswick, 1981). Indeed, repeated instances of exclusion do appear to precipitate depression and anxiety in the long term (Baumeister & Tice, 1990; Nolan, Flynn, & Garber, 2003; Leary, 1990; cf. DeWall & Baumeister, in press).

Thus, the dynamic interplay between the behavior of a rejected person and reactions on the part of others has implications for responses to social exclusion in both the short- and long term. Naturalistic observations of social exclusion and its consequences may provide some insight into these dynamic consequences. More rigorously, these consequences could be examined in laboratory studies of dyadic, face-to-face interactions that unfold over time. For example, it would be informative to systematically vary the responses of target persons in the laboratory (e.g., whether they are welcoming or dismissing) and examine whether rejected participants' attempts at reconnection persist even in the face of an aloof partner.

The manner in which efforts at social reconnection unfold could also be examined within the context of close personal relationships. Our studies, like many others in this area of research, were conducted with individuals who were unknown to one another before entering the laboratory. But instances of social rejection may involve highly meaningful others as well—friends, family, and romantic partners. Different types of relationships are valued to varying degrees by different individuals. This has at least two implications for conceptualizing the reconnection hypothesis. First, one's motivation to reconnect may vary with the perceived importance of a relationship. If one feels excluded from a romantic relationship perceived to be highly important, then this may evoke a particularly strong motivation to reconnect with others, perhaps, in particular, with other potential romantic partners. This latter speculation highlights the second implication: Responses to exclusion may be specific to particular interpersonal domains (see Kirkpatrick & Ellis, 2001). Different types of relationships serve different functions and fulfill different needs. Exclusion from one type of relationship may elicit a desire to connect with others who can fill the specific hole left by the relationship that was lost. Future research might profitably explore the extent to which rejection from one type of relationship (e.g., a romantic relationship)

elicits a desire to reestablish connections within that specific social domain (i.e., with another romantic partner), as well as a desire to reconnect with the social world more broadly (e.g., strengthening friendships in order to make up for a lost lover).

These speculations, like the novel findings observed in our studies, fit within a broader theoretical framework that integrates links among motivation, social cognition, and goal-oriented behavior. This framework is not limited to any single set of social goals or the operation of any single cognitive or behavioral output variable. People's needs and desires can influence a broad range of cognitive and behavioral processes, including attention (Maner, Gailliot, & DeWall, in press; Maner et al., 2003), evaluation and interpretation (Schaller, Park, & Faulkner, 2003), memory (Gardner, Pickett, & Brewer, 2000), aggression (Twenge et al., 2001), decision making (Fessler, Pillsworth, & Flamson, 2004), prosocial behavior (Maner & Gailliot, in press; Maner et al., 2002), and so on. Indeed, the integration of functionalist motivational perspectives with theories of social cognition and action reflects a fertile and expansive ground for future research.

### *Conclusion: Resolving the Porcupine Problem*

Schopenhauer's parable of the porcupines highlights an essential tension in a social species such as ours: People seek interactions with others in order to satisfy essential needs, and yet these interactions can cause people pain, including the pain of exclusion. So how do people respond to exclusion when it occurs? Do they respond primarily to the pain itself and therefore withdraw psychologically from future social interactions? Or, do they respond primarily to the unfulfilled social need and therefore redouble their efforts to connect with others?

There is no simple answer because apparently people do both. They withdraw from the specific people who are perceived to be perpetrators of past exclusionary acts, as indicated by a tendency to view those specific people in a harsher, more hostile light. But, apparently in response to the acutely unfulfilled need for affiliation, people seek to reconnect with new social partners, as indicated by a tendency to respond to others—even total strangers—in a more positive and beneficent way.

The answer is more complex still when one considers individual differences in chronic social schemas. The tendency for acts of exclusion to motivate positive social perceptions and behavior emerges most strongly among individuals who are socially optimistic. For these individuals, the pain of rejection appears to be transformed into strategic attempts to fulfill the unrequited need for social connection. No such tendency emerges, however, among individuals who are socially anxious and pessimistic about the consequences of future interactions. For these folks, it seems, the lingering fear of rejection outweighs the unrequited need for social connection.

This last point is worth remembering when one considers the answer that Schopenhauer himself supplied to the porcupine problem. Schopenhauer (1851/1964) suggested that people ultimately feel compelled to retain a safe distance from each other. "By this arrangement," he wrote, "the mutual need for warmth is only very moderately satisfied; but then people do not get pricked" (p. 226). Of course, Schopenhauer was known for his sour temperament—"It is hard to find in his life evidences of any virtue except kindness to animals . . . In all other respects he was completely

selfish" (Russell, 1945, p. 758)—and his philosophy was famous for its pessimism. So it is not surprising that he resigned his porcupines to a life spent shivering in the cold, fearing pain from other porcupines' sharp quills. In real life, however, the porcupine problem is often resolved in a far more sociable manner. For many people, the potential pain of prickly quills is trumped by the powerful need for social warmth.

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