Satiated With Belongingness? Effects of Acceptance, Rejection, and Task Framing on Self-Regulatory Performance

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Seven experiments showed that the effects of social acceptance and social exclusion on self-regulatory performance depend on the prospect of future acceptance. Excluded participants showed decrements in self-regulation, but these decrements were eliminated if the self-regulation task was ostensibly a diagnostic indicator of the ability to get along with others. No such improvement was found when the task was presented as diagnostic of good health. Accepted participants, in contrast, performed relatively poorly when the task was framed as a diagnostic indicator of interpersonally attractive traits. Furthermore, poor performance among accepted participants was not due to self-handicapping or overconfidence. Offering accepted participants a cash incentive for self-regulating eliminated the self-regulation deficits. These findings provide evidence that the need to belong fits standard motivational patterns: Thwarting the drive intensifies it, whereas satiating it leads to temporary reduction in drive. Accepted people are normally good at self-regulation but are unwilling to exert the effort to self-regulate if self-regulation means gaining the social acceptance they have already obtained.

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People have a strong motivation to form and maintain social relationships (Baumeister & Leary, 1995). One of the central tasks of the human self is to obtain social acceptance, and so many of its functions and activities are geared toward promoting that goal (Baumeister, 1998; Leary, Tambor, Terdal, & Downs, 1995; Schlenker, 1980). Self-regulation, in particular, is important for interpersonal success because it adapts the self to the demands and opportunities of the social environment (Finkel & Campbell, 2001; Higgins, 1996; Mischel, Cantor, & Feldman, 1996; Tangney, Baumeister, & Boone, 2004). The present research investigated the link between social acceptance versus rejection and self-regulation.

To characterize the human quest for social acceptance as a fundamental motivation has several implications. Motivation theory features standard patterns (e.g., Geen, 1995; Shah & Gardner, 2007). In particular, a drive that is satisfied should temporarily diminish in strength, whereas one that is thwarted may become more intense. By analogy, a hungry person may grow hungrier when food is denied but feels less hungry after a big meal. Thus,

when people receive feedback conveying a message of social acceptance, their motivation to make friends should be satiated and therefore should be reduced for a while, whereas when people are rejected, their desire to find acceptance may be intensified. These hypotheses were noted in a literature review by Baumeister and Leary (1995), but that review found relatively little relevant evidence. Arguments for satiation mainly invoked the fact that people restrict their social lives through obtaining and maintaining a small set of close, caring relationships instead of wanting a great many (e.g., Caldwell & Peplau, 1982; Reis, 1990; Wheeler & Nezlek, 1977). Evidence for intensified motivation following rejection was even sparser. The present investigation sought to provide the first direct tests of those hypotheses.

The self-regulation of task performance was the particular focus of the present research. Self-regulation is useful for improving performance in multiple ways, including maintaining or maximizing effort, checking for mistakes, sustaining persistence in the face of failure, and trading off speed against accuracy to find the optimal balance. By linking task performance to social acceptance, we sought to find evidence that social exclusion would stimulate improved regulation of performance, whereas social acceptance would satisfy the drive and therefore detract from such performance.

One previous investigation found that social exclusion or rejection had a detrimental effect on subsequent self-regulation (Baumeister, DeWall, Ciarocco, & Twenge, 2005). Acceptance, in contrast, had no effect on self-regulation. The self-regulation tasks in those investigations had no apparent relevance to social acceptance, however, and so motivational dynamics such as satiation would not be relevant. One study in that investigation

showed that offering a cash incentive for good performance did lead to good self-regulation even among recently rejected participants. But of course a cash incentive reveals nothing about a motivation to secure acceptance; it merely shows that rejected people can be motivated by a new, nonsocial incentive. In the present studies, we repeatedly manipulated whether the self-regulatory task was presented as relevant to social acceptance. That is, about half the participants in the present studies were told that the task was diagnostic of social skills that would foster good relationships and make one an attractive partner. The motivational dynamics of acceptance causing satiation and rejection intensifying the need to belong should influence subsequent performance only when that task is seen as relevant to belongingness. We turn now to elaborate these hypotheses.

The Puzzle of Poor Self-Regulation Following Exclusion

If the need to belong is a strong and pervasive drive, then one might expect that when that motivation is thwarted by social exclusion, people will redouble their efforts to secure acceptance, such as by exerting themselves to be friendly and likable. Much research has suggested the opposite, however. Socially excluded people often behave aggressively (Twenge, Baumeister, Tice, & Stucke, 2001; Warburton, Williams, & Cairns, 2006) and are less prosocial and cooperative with others (Twenge, Baumeister, DeWall, Ciarocco, & Bartels, 2007) compared with people who do not experience social exclusion. These studies suggest that social exclusion often leads people to engage in behaviors that may preclude social acceptance.

To be sure, the findings are not unanimous on this pattern of antisocial responding. Williams and Sommer (1997) found that ostracism led some participants to avoid social loafing and exert themselves on behalf of the group, although the effect was limited to female participants (whereas males showed the opposite). Williams, Cheung, and Choi (2000) found that victims of ostracism later showed increased conformity to an erroneous group opinion, which could be interpreted as a prosocial effort to impress the group by making oneself behave similarly to others, although other interpretations (e.g., passivity) are possible. Ouwerkerk, Kerr, Gallucci, and Van Lange (2005) showed that the threat of exclusion sometimes led to more cooperative behavior in a resource dilemma game. Pickett, Gardner, and colleagues found that traits associated with deficits in belongingness needs (i.e., need to belong, loneliness) were correlated with accurate judgments and recall of social cues, such as facial expression and vocal tone (Gardner, Pickett, Jefferis, & Knowles, 2005; Pickett, Gardner, & Knowles, 2004). Maner, DeWall, Baumeister, and Schaller (2007) demonstrated that rejection heightened desires to connect with potential sources of affiliation, which included judging neutral faces as sociable, choosing to work with others as opposed to alone, and behaving prosocially toward a person with whom an interaction was anticipated.

Thus, rejected people do seem to have a desire to forge new social bonds. Why, then, do they engage in so much antisocial behavior? Poor self-regulation may help explain the counterproductive—even self-defeating—shift into antisocial behavior at a time when the person may especially desire social connection. Social rejection impairs self-regulation (Baumeister et al., 2005). Self-regulation is a key trait for altering behavior to conform to standards, and the capacity for it quite possibly evolved for the

express purpose of enabling social animals to accommodate to each other. Previous work indeed demonstrates that poor self-regulation contributes to a host of interpersonal problems (e.g., Finkel & Campbell, 2001; Tangney et al., 2004; Vohs, Baumeister, & Ciarocco, 2005).

The Implicit Bargain

A speculative explanation for the decline in self-regulation among rejected people was offered by Baumeister et al. (2005). They proposed that an implicit contract exists between the individual and society. Self-regulation requires effort and sacrifice, insofar as one renounces getting what one wants in order to conform to externally imposed rules and other social demands. People are normally willing to make these efforts and sacrifices because the costs of not pursuing all their desires are offset by the immense rewards of belonging to the group. In essence, society offers the individual the benefits of belonging, and in exchange the individual agrees to regulate his or her behavior to conform to society's rules.

The bargain can break down on either side, however. Individuals who break society's rules are often excluded as a result, such as in childhood peer rejection, divorce, and termination of employment. Thus, people who frequently break promises, exhibit inappropriate emotional responses in social situations, or violate local laws often find themselves separated from others. Gottfredson and Hirschi (1990) suggested that self-regulation failure is a central cause of criminal behavior, which often leads to separation from society through imprisonment. Conversely, and more relevant to the present discussion, when society withholds belongingness and its rewards, the individual may come to feel that it is no longer worth making the efforts and sacrifices needed for self-regulation.

By that interpretation, the reason self-regulation fails after rejection is that people no longer perceive that regulating themselves will bring them any benefit. If this explanation is correct, then the decline in self-regulation could be prevented if people did perceive a possibility of being accepted. Some of the present studies were designed as direct tests of this hypothesis, which is that people can self-regulate effectively after rejection—provided they perceive good self-regulation as linked to the prospect of future acceptance. Hence we framed the self-regulation task as an ostensibly diagnostic indicator that would reveal whether the person had interpersonally helpful traits. That is, by doing well they could convince themselves that they had some traits that would supposedly increase their chances of social acceptance. Therefore, framing a task as diagnostic of interpersonally beneficial traits will likely motivate effective self-regulation among excluded people to a greater extent than would framing the task as diagnostic of positive traits unrelated to gaining social acceptance.

This line of reasoning may help explain why social exclusion frequently causes people to behave in undesirable and even antisocial ways: Socially excluded people are unwilling to behave prosocially when such behavior is not linked to a palpable promise of gaining acceptance. In the Twenge et al. (2007) experiments, for example, the help that socially excluded people could give was not linked to social acceptance. As a result, excluded people were unwilling to behave prosocially. Similarly, Maner et al. (2007) showed that excluded people behaved selfishly when their behavior had no bearing on gaining acceptance—but excluded people

behaved quite prosocially when such behavior could cause them to gain acceptance from another person, such as by creating a favorable attitude in someone with whom interaction was imminent. These findings suggest that the prospect of social acceptance may prove crucial in terms of determining whether social exclusion causes people to behave in desirable or undesirable ways.

Poor Self-Regulation Following Acceptance?

In the previous sections, we hypothesized that framing a self-regulation task as a diagnostic indicator of interpersonally helpful traits can overcome the negative effects of rejection. How might such a framing manipulation influence self-regulation in the wake of social acceptance?

To be sure, accepted people might self-regulate effectively regardless of task framing, because the implicit bargain between the person and society has not been broken. A variation on this idea would be that acceptance would improve self-regulation, perhaps especially when the test of self-regulation is presented as diagnostic of social skills. This outcome could stem from increased confidence and self-attribution. That is, acceptance conveys the message that the person has good social skills, and therefore the person should expect to perform well on a test of social skills, and this expectation could create a self-fulfilling prophecy.

If the need to belong fits standard patterns of motivation, however, then social acceptance should satisfy the need to belong. As a result, motivation would be temporarily reduced, and therefore performance might deteriorate on tasks linked to social acceptance.

Although the possibility that social acceptance may reduce self-regulation has not been investigated previously, there is some prior work suggesting that satisfaction of belongingness needs may reduce striving for inclusion. Optimal distinctiveness theory (Brewer, 1991) proposes that people have competing needs for assimilation (feeling included and accepted by members of one's group) and differentiation (feeling distinctive from members of one's group). As membership in a group becomes more and more inclusive, people have their need for assimilation satisfied and therefore lose the motivation to think and act in ways that help them to blend in with other group members (Brewer & Weber, 1994; Pickett, Silver, & Brewer, 2002; Simon & Hamilton, 1994). When people feel excluded from a group, in contrast, their need for assimilation becomes aroused, and they change their thoughts and actions to assimilate themselves to group members (Brewer & Pickett, 1999; Pickett, Bonner, & Coleman, 2002). Applied to the current investigation, socially accepted people have had their need for assimilation satisfied and therefore will have relatively low levels of motivation to perform well on tasks that will help them assimilate with others. In contrast, social exclusion will arouse the need for assimilation, leading excluded people to exert effort on tasks that are linked to the prospect of gaining acceptance.

Indirect support for the satiation hypothesis can be found in prior work investigating the role of moral credentials in reducing the motivation to behave in socially appropriate ways (Monin & Miller, 2001). In those studies, participants who established themselves as having nonprejudicial attitudes were less motivated to present themselves as nonprejudiced on subsequent occasions as compared with participants who had not previously earned moral credentials of being nonprejudiced. The implication is that most people are motivated to avoid being labeled as prejudiced and therefore exert control over responses that could be prejudicial. Once people have satisfied their goal of not being labeled prejudicial, however, their motivation to exert control over their responses becomes reduced, and as a result, they are less likely to control responses that could be perceived as conflicting with standards for nonprejudicial responding.

Additional theoretical support for the prediction of poor self-regulation among accepted people comes from what Carver (2004) has described as the "coasting" process in the self-regulation of affect. According to Carver, positive moods signal that one is making good progress toward a particular goal, and so it is possible to reduce effort on it (possibly in order to allocate limited resources such as time and effort to other goals). Applied to the present context, social acceptance satisfies the need to belong and should reduce the motivation to expend effort on tasks designed to make oneself feel accepted.

Thus, there is theoretical and empirical support for the prediction of reduced self-regulation among accepted people as a result of satiated motivation. When people have satisfied their goal of gaining inclusion, they should have a reduced drive to exert effort on tasks that are linked to gaining social acceptance. Their motivation to self-regulate should become reduced only when a task is associated with belongingness, because motivational dynamics of satiation apply only to tasks that are linked to the specific goal that has been satisfied. Accepted people should retain the ability to self-regulate on tasks that are relevant to gaining social acceptance and therefore should perform well when presented with a new, nonsocial incentive.

Present Research

In the current investigation, we presented the dependent measures to some participants (but not others) as diagnostic indicators of interpersonally appealing traits, including empathy and social sensitivity, or as being predictive of healthy and successful relationships, including the quality and quantity of friendships. Our prediction was that rejected participants would perform better at these tasks when they were presented as diagnostic of strong social skills or good future relationship outcomes, as compared with nonrejected participants or as compared with when the tasks were presented without the supposed interpersonal payoff. Linking effective self-regulation to possible future social acceptance should at least eliminate the pattern of poor self-regulation following social exclusion. That is, exclusion should stimulate the drive to gain acceptance. Furthermore, if self-regulation is seen as a means or sign of getting along well with others, then excluded people should want to do well at it.

Meanwhile, the motivational satiation hypothesis would predict that acceptance feedback would detract from subsequent performance, especially when it was presented as diagnostic of socially desirable traits, because the motivation to prove one's appeal would have been satisfied.

To rule out the possibility that observed impairments in self-regulation were due to emotional distress, we measured mood and emotion in all of the experiments. Previous research has generally shown that emotional distress does not mediate the behavioral effects of rejection (Buckley, Winkel, & Leary, 2004; DeWall, 2007; Twenge et al., 2001), and recent evidence suggests that social exclusion produces widespread emotional and physical

numbness as opposed to acute distress (DeWall & Baumeister, 2006). However, some previous experiments have shown that people respond to social exclusion with emotional distress (e.g., Williams et al., 2000). Other research has shown that emotional distress leads to decrements in self-regulation (Grilo, Shiffman, & Wing, 1989; Tice, Bratslavsky, & Baumeister, 2001; Wegener & Petty, 1994). It was therefore necessary to include measures of mood and emotion to be certain that self-regulation failure or success was due to the social exclusion and social skills diagnosis manipulations and not differences in emotional response.

Experiment 1

Experiment 1 tested the hypothesis that the effects of social exclusion on self-regulation depend on the prospect of future acceptance. Social exclusion was manipulated with bogus feedback. Participants took a personality test and were randomly assigned to receive feedback predicting that their future lives would be either relatively isolated and lonesome or marked by a rich network of warm relationships (from Twenge et al., 2001).

Self-regulation was measured using performance on the game Operation. Operation is a commercially available game that involves using hand–eye coordination to avoid making mistakes. Performance requires moving one's hand slowly and carefully across the game board, shaped like a human body, so as not to touch the sides of openings while extracting organs from inside the patient. In our experiment, pressure to perform quickly challenged participants to balance speed and accuracy goals so as to maximize speed without losing accuracy. Optimizing the trade-off between speed and accuracy has been used as a measure of performance self-regulation in past work (Schmeichel, Vohs, & Baumeister, 2003) and is also a common challenge in nonlaboratory performances (e.g., shooting a moving target, hitting a fastball, getting the maximum number of correct answers on a timed test). The combination of the number of errors and the length of time it took to complete the game was used to create a composite measure of self-regulation (see Bushman & Baumeister, 1998). We also analyzed the number of errors and time to completion separately to determine whether our manipulations had a larger influence on accuracy or speed.

We manipulated the prospect of future acceptance by telling half of the participants that performance on an upcoming self-regulation task was diagnostic of traits that were good for relationships. Participants who most desired future acceptance should therefore have exerted maximum effort on this task. If the need to belong conforms to standard motivational patterns, then the desire for acceptance (and therefore performance on the ostensibly diagnostic measure) should increase after rejection but decrease after acceptance.

To be sure, performing well on the diagnostic task would not actually guarantee or even directly promote social acceptance. Indeed, the self-regulation task was presented as independent from the personality test that participants completed earlier in the study and on which their future forecast of social acceptance or exclusion was based. Hence, framing the self-regulation task as diagnostic of interpersonally helpful traits did not objectively repudiate participants' diagnostic forecast of social acceptance or exclusion. More likely, performing well on the diagnostic task would provide a means for excluded participants to convince themselves that the future would not necessarily be as dismal as predicted. Accepted participants had little motivation to convince themselves that they had social skills, and therefore they would experience reduced motivation to perform well on the diagnostic task. Quattrone and Tversky (1984) demonstrated that framing the cold pressor task as an indicator of good health led participants to willingly endure the painfully cold water for a longer duration relative to framing task performance as a sign of ill health. In that study also, holding the hand in cold water had no causal utility but rather was essentially a self-signaling strategy. Self-signaling is an important form of motivated cognition and hence a useful way to test motivational hypotheses.

Method

Participants.   Thirty-six undergraduates (25 women, 11 men) participated in this study in exchange for partial course credit.

Materials and procedure.   Participants were told that the purpose of the experiment was to gain understanding of different aspects of personality and their relation to verbal and nonverbal performance. After giving informed consent, participants completed a brief demographic questionnaire and the Eysenck Personality Questionnaire (Eysenck & Eysenck, 1975). In a procedure developed by Twenge et al. (2001), participants were randomly assigned to one of two social feedback conditions: future belonging and future alone. To bolster credibility, we gave participants correct feedback about their level of introversion versus extraversion. Future belonging participants were then told that they had a personality type according to which they could anticipate positive and lasting relationships throughout life. Future alone participants, in contrast, were informed that they had a personality type according to which they would end up alone later in life.

After receiving their personality feedback, participants completed the Brief Mood Introspection Scale (BMIS; Mayer & Gaschke, 1988). Participants then played the Operation game. To all participants, the experimenter said,

> Now I would like you to complete a board game. In this game, your job will be to extract 11 different objects from holes using tweezers without touching the side of the holes. If you make an error by touching the side of the holes, a buzzer will sound. You will get three chances to extract each object without making an error. If all three attempts result in errors, I will instruct you to move on to the next object. I will be timing you and keeping track of how many errors you make. Please try to work as quickly and as accurately as possible.

Thus, the instructions emphasized both speed and accuracy. No further instructions were given in the nondiagnostic control condition. Participants in the social skills diagnosis condition received the same instructions, but the experimenter added that performance on the task was associated with traits that are beneficial in relationships, such as empathy and social sensitivity.

Then the participant completed the game. The experimenter recorded the number of errors and the number of seconds it took participants to complete the game. After finishing the game, participants were debriefed, thanked, and dismissed.

Results

Operation performance.   Self-regulation was measured by performance on the Operation game, which had two components:

number of errors made and number of seconds it took participants to finish the game. The two variables (errors and time) were converted to z scores and then summed to serve as a composite measure of self-control performance. Lower numbers indicate better performance (less time to completion and fewer errors). We also analyzed the data separately for number of errors and time to completion.

A 2 (social skills diagnosis vs. nondiagnostic control) × 2 (future alone vs. future belonging) analysis of variance (ANOVA) on the composite measure of Operation game performance revealed a significant interaction between the social skills diagnosis condition and the social exclusion manipulation, $F(1, 32) = 4.91$, $p = .03$. Planned comparisons revealed that future alone participants ($M = 0.58$, $SD = 1.73$) performed significantly worse than future belonging participants when the instructions were not diagnostic of traits that were good for relationships ($M = -0.89$, $SD = 0.86$), $F(1, 32) = 4.71$, $p < .05$. Future belonging participants who were assigned to the social skills diagnosis condition ($M = 0.44$, $SD = 1.31$) had composite performance scores that were not different from those of future alone participants ($M = -0.12$, $SD = 1.43$) in the social skills diagnosis condition ($F < 1$, ns).

Follow-up analyses suggested that the effects were mainly due to accuracy. ANOVA on the number of errors yielded an interaction quite similar to the overall performance measure, $F(1, 32) = 11.47$, $p = .002$. Planned comparisons confirmed that the social skills diagnostic information stimulated accurate self-regulation performance among future alone participants. Future alone participants assigned to the social skills diagnosis condition ($M = 7.82$, $SD = 5.76$) made significantly fewer errors on the Operation game than did future alone participants in the nondiagnostic control condition ($M = 14.44$, $SD = 4.98$), $F(1, 32) = 5.54$, $p = .03$. In contrast to the pattern observed among future alone participants, future belonging participants assigned to the social skills diagnosis condition ($M = 15.00$, $SD = 6.59$) committed significantly more errors on the Operation game than did future belonging participants in the nondiagnostic control condition ($M = 9.25$, $SD = 3.99$), $F(1, 32) = 6.39$, $p = .02$. In addition, future alone participants assigned to the social skills diagnosis condition made significantly fewer errors than did future belonging participants assigned to the social skills diagnosis condition, $F(1, 32) = 7.38$, $p = .01$.

Additional analyses examined the relationship among the time participants spent on the Operation game, rejection manipulation, and social skills diagnosis conditions. No significant effects emerged from these analyses (all $ps > .12$). We also found no significant effects on mood valence or arousal (both $Fs < 1$, ns).[1] Thus, the observed effects in self-regulation performance were not due to differences in reported mood valence or arousal.

Discussion

Experiment 1 replicated previous evidence that self-regulation is impaired in the wake of social exclusion (from Baumeister et al., 2005). However, this effect was eliminated when the measure of self-regulation was presented as diagnostic of social skills. The implication is that excluded people may indeed desire to be accepted and are willing to exert themselves at a self-regulation task if they believe good performance will increase the promise of future acceptance.

Our results also supported the prediction that social acceptance satiates the need to belong and renders people unwilling to exert themselves on tasks that are diagnostic indicators of social skills. Poor self-regulation performance was not limited to rejected participants—rather, performance also suffered among participants who received acceptance feedback and then faced a task that had been framed as diagnostic of social skills. To our knowledge, this is the first study to show negative or detrimental effects of social acceptance on any sort of measure.

Experiment 2

Experiment 2 was a replication of Experiment 1 using a different measure of self-regulatory performance. The measure was dichotic listening, which is a popular and effective measure of attention control (e.g., Bonanno, Davis, Singer, & Schwartz, 1991; Velmans, 1991). Participants listened to a recording that contained a different voice in each ear and were instructed to monitor and record certain words that were heard in their nondominant ear. Attentional control was required to ignore the information presented in their dominant ear so as to identify correctly the words spoken in their nondominant ear.

Method

Participants. Forty right-handed undergraduates (32 women, 8 men) participated in exchange for partial course credit.[2] One additional participant was excluded from analyses owing to a hearing impairment that prevented completion of the dichotic listening task.

Procedure. The design, cover story, manipulation of exclusion, and mood measurement were the same as in Experiment 1. After these, participants donned headphones and were told that their job was to write down each word spoken in their left ear that had the letter m or the letter p in it. For participants in the social skills diagnosis condition, the instructions for performing the task further stated that good performance on this task was related to empathy, active listening skills, and social sensitivity and that these things were good for interpersonal relationships. In the nondiagnostic condition, no such framing was provided.

In the left ear, participants heard a female voice reciting a list of the 255 most common English words, of which 38 contained the letter m and 10 contained the letter p. At the same time, in the right ear they heard an irrelevant speech about copyright law. Good performance thus required effective self-regulation of attention to ignore the speech and track the word list. Upon completion of this task, participants were debriefed, thanked, and dismissed.

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[1] We measured current emotional response in each study using either the BMIS or the Positive and Negative Affect Schedule (Watson, Clark, & Tellegen, 1988). We did not find any evidence that the self-regulation effects were attributable to differences in emotional state between participants in the social acceptance, exclusion, or control conditions.

[2] Dichotic listening studies frequently use right-handed individuals because of their relative uniformity in left-sided language representation (Geffen & Caudrey, 1981), which is commonly associated with right-ear dominance. The present study examined self-regulated attention following social exclusion, and it was therefore necessary to be certain that all participants possessed similar aural preferences in terms of their dominant and nondominant ears.

Results and Discussion

ANOVA on the number of correct responses revealed a significant interaction between exclusion and diagnostic framing, $F(1, 36) = 17.04$, $p < .001$. As predicted, future alone participants performed significantly better when the task was ostensibly diagnostic of social skills ($M = 43.67$, $SD = 3.50$) than when it was not thus framed ($M = 37.91$, $SD = 4.99$), $F(1, 36) = 8.51$, $p = .009$. The reverse was found in the future belonging condition: These participants performed significantly worse when the task was presented as diagnostic of traits that were good for relationships ($M = 38.18$, $SD = 5.78$) than in the nondiagnostic condition ($M = 44.00$, $SD = 1.58$), $F(1, 36) = 8.53$, $p < .01$. Thus, we replicated the detrimental effects of social acceptance found in Experiment 1 with a different measure.

Experiment 3

At this point our investigation diverged into two paths, one pursuing the findings about rejection, the other about acceptance. We begin with the rejection findings.

Experiment 3 sought to answer two questions about the effects of rejection on self-regulatory performance. What was it about receiving rejection feedback that produced the effects seen in Experiments 1 and 2? Were the effects due to the basic fact of being left alone, or were the effects due to some implied threatening message? To answer this question, in Experiment 3 we manipulated whether participants were left alone for an arbitrary, nonthreatening reason (i.e., the interaction partner had to leave because of an unexpected appointment) or for a more personally relevant reason (i.e., the interaction partner interacted with the partner briefly and on that basis decided to avoid the participant). The latter was threatening because it contained the implication that something about the participant was off-putting and, by implication, might lead to rejections in the future.

The second question was whether the beneficial effects of framing the task as indicative of social skills stemmed merely from the positivity of that link; in other words, would framing the test as indicative of any future good outcome be effective at motivating rejected persons to perform well? The appeal of having good social skills is presumably that social skills hold the promise of benefits for future well-being, but social skills are not the only trait that can improve well-being. To test this notion, we included a condition in which participants were told that good performance on the dependent measure was diagnostic of good physical health and visual perception. Others received the same message as in the preceding studies, namely, that the task was diagnostic of good social skills and interpersonal appeal. Clearly both incentives signified a positive future outcome, but only the social skills diagnosis incentive was directly related to satisfying a need to belong.

We also sought to increase generality by changing the measure of self-regulation. Experiment 3 used the Stroop task as the measure of self-regulation (Stroop, 1935). The Stroop task requires participants to override their natural inclination to read a word, so that they can say the color of ink in which the word is printed. Stroop task performance thus provides an index of cognitive flexibility and control that has often been viewed as the extent to which a person can "modify or shift his or her perceptual set to conform to changing demands and suppress a habitual response in

favor of an unusual one" (Spreen & Strauss, 1991, p. 52). Insofar as self-regulation requires people to override automatic responses in order to remain in line with higher order standards, Stroop task performance provides a measure of the extent to which participants regulate their responses effectively.

Additional refinements for Experiment 3 were the use of an alternative mood measure and inclusion of manipulation checks. Participants completed the Positive and Negative Affect Schedule (PANAS; Watson et al., 1988) and were asked to report how much the Stroop task was related to physical health and visual abilities and interpersonal relationships and friendships.

Method

Participants. Fifty-seven undergraduates (29 female) participated in exchange for extra course credit. Two participants (one from each rejection condition) were excluded from analyses because they expressed suspicion regarding the reason for the confederate's absence.

Materials and procedure. Participants came to the laboratory individually for an experiment purportedly concerning learning and health processes. The experimenter began by explaining that the session contained two unrelated experiments. The experimenter told participants that the first study involved learning processes and the second measured different kinds of health. The experimenter then introduced a female confederate (named Susan) who was ostensibly an assistant to the experimenter and would be helping with the learning aspect of the experiment by reading information to the participant. Susan looked somewhat quizzically at the participant but then smiled slightly when introduced. This small facial expression was intended to set the stage for the rejection condition later, but it was ambiguous enough to be ignored by participants assigned to the irrelevant departure condition.

After completing several preliminary forms unrelated to the experiment, participants were told that the learning task was next and that it involved the participant memorizing information given by the laboratory assistant. The experimenter left the participant purportedly to bring in the assistant (confederate) but then returned alone.

For participants assigned to the rejection condition, the experimenter said,

> I am not sure what happened, but Susan won't be reading the cards to you. . . . Um, have you guys met before? [The experimenter waited for participants to say no, which they all did.] This is weird because we did this study all last term and this never happened. . . . Well, anyway, I guess we won't be doing the reading task, because I cannot ask my assistant to do anything that makes her uncomfortable and she said that she is not comfortable with this.

For participants assigned to the irrelevant departure condition, the experimenter told participants that Susan would not be doing the reading task because she had to leave unexpectedly:

> I am not sure what happened, but Susan won't be reading the cards to you. . . . I guess she had to leave all of a sudden to go to something she forgot about. Well, I guess we won't be doing the reading task, because I don't have another assistant here to do the task with you.

In both conditions, the experimenter ended by telling participants that the next step would be to go on to the remainder of the experiment.

Participants completed the PANAS, which yielded no differences between the rejection and irrelevant departure conditions in terms of positive and negative affect (see footnote 1), and then were given instructions for the Stroop color-naming task. The Stroop task provided the opportunity to manipulate participants' motivations regarding the meaning of their performance on the test. By random assignment, half of the participants were assigned to the physical health condition, whereas the others were assigned to the social skills diagnosis condition. In the physical health condition, participants were told the color-naming task involves overriding the automatic reading of the color name with the color of the ink and thus "requires good perceptual accuracy . . . and has been used to predict physical health later in life, such as visual acuity and perceptual abilities." In the social skills diagnosis condition, participants were told that the color-naming task involves seeing beyond what is immediately apparent—akin to the notion of "reading between the lines"—and thus "requires good social and interpersonal accuracy . . . and has been used to predict healthy, successful relationships later in life, such as quality and number of friendships."

Participants were then shown trial examples of the Stroop task. The Stroop stimuli were printed on a glossy sheet of paper in two columns of 25 words each (for a total of 50 words), and participants were timed on each column separately. After performing the Stroop task, participants read the color names of a set of matched controls in which the color name and ink were the same. The set of matched control words also appeared on a glossy sheet of paper in two columns of 25 words each (for a total of 50 words), and participants were timed on each column separately. After participants had finished the matched control version of the Stroop task, they completed a postexperimental questionnaire, were debriefed, were thanked for their time, and were dismissed.

Results

Manipulation checks. Participants assigned to the physical health condition ($M = 6.50$, $SD = 2.79$) rated the Stroop task as significantly more important for physical health and visual abilities than did participants assigned to the social skills diagnosis condition ($M = 4.97$, $SD = 3.02$), $F(1, 53) = 7.15$, $p = .01$. Conversely, participants assigned to the social skills diagnosis condition ($M = 5.48$, $SD = 3.32$) rated the Stroop task as more important for interpersonal relationships and friendships compared with participants assigned to the physical health condition ($M = 4.15$, $SD = 3.32$), $F(1, 53) = 4.56$, $p < .04$. The main effect of rejection condition and the interaction term were nonsignificant for these two measures (Fs < 3, ps $> .09$). Thus, the social skills diagnosis manipulation was successful in altering participants' perceptions of the meaning of their performance on the Stroop task.

Self-regulation performance. Self-regulation performance was computed by taking the amount of time it took participants to complete the Stroop trials (incongruent words and colors) and subtracting their time on the matched control trials (Richeson & Trawalter, 2005). An ANOVA on these difference scores, representing how much longer it took participants to complete the incongruent than the control (matching) version of the color-naming task, revealed the predicted Rejection Condition × Social Skill Diagnosis Condition interaction, $F(1, 53) = 9.42$, $p < .01$ (see Figure 1). (Similar results were found for analyses using only the incongruent Stroop trials rather than the difference scores.)

Rejected participants performed worse when the task was framed as a measure of physical health ($M = 38.00$, $SD = 16.80$) than when it was presented as diagnostic of social skills ($M = 19.79$, $SD = 23.56$), $t(57) = 3.90$, $p < .001$. The corresponding difference was not significant in the irrelevant departure condition, indicating that framing had no effect on performance ($t < 1$, ns). Further analyses indicated that when the task was framed as a measure of physical health, rejected participants ($M = 38.00$, $SD = 16.80$) performed significantly worse on the Stroop task than did irrelevant departure participants ($M = 22.53$, $SD = 10.50$), $t(57) = 3.12$, $p < .01$.

Discussion

Experiment 3 focused on the rejection conditions and did not have an acceptance condition. The detrimental effects of rejection appear to depend in part on the personal threat represented by the rejection or exclusion experience. Participants who ended up alone in the study because their partner had to leave for an irrelevant appointment did not show the poor self-regulatory performance that we found for those who were rejected for personal reasons. This result suggests that many laboratory findings about rejection reflect a concern about possible future rejections rather than any direct effect of being left alone for a few minutes on a laboratory task.

Experiment 3 replicated the finding that (personally) rejected persons perform well on a task that is presented as diagnostic of social skills. The motivation to do well did not generalize to other good outcomes, however. Presenting the task as diagnostic of future good health and vision failed to elicit good performance. The implication is that rejection and belongingness really are the specific motivational focus of these findings. Excluded people want specifically to improve their chances of being accepted, rather than improving their chances of attaining other good, desirable outcomes.

Experiment 4

With Experiment 4, we turned our focus from rejection to acceptance. Experiment 4 included only acceptance and no-feedback
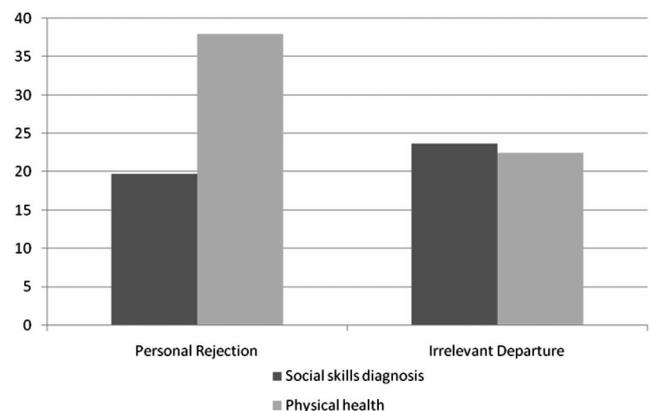

Figure 1. Interactive effect of feedback and social skills diagnosis manipulation on Stroop performance, Experiment 3. Values represent the mean difference score between Stroop version and control version of the color-naming task. Lower scores indicate better self-regulation performance.

control conditions. It is possible that the poor performance observed among accepted participants in the social skills diagnosis condition in Experiments 1 and 2 was due in part to the patterns of responding in the social exclusion condition, especially given the crossover interaction. A more conservative test would compare responses of accepted participants with responses of participants who had not been given feedback that would reduce their willingness to self-regulate or who would not be particularly motivated to perform well to convince themselves that they had interpersonally helpful traits. Therefore, participants in Experiment 4 all received either social acceptance feedback or no feedback.

In Experiment 4, the cold pressor task was used as the measure of self-regulation. For this, participants had to hold their lower arm in nearly freezing water for as long as possible. Tolerating discomfort on the cold pressor task requires self-regulation because people have to override their natural tendency to pull their arm out of the uncomfortable, frigid water. If social acceptance causes a decrease in motivation because it (at least temporarily) satisfies the need to belong, then accepted participants should pull their hands out of the water relatively quickly when the task is presented as diagnostic of social skills.

Method

Participants. One hundred forty-five participants (103 women, 42 men) participated in this study in exchange for partial course credit. They were randomly assigned among conditions.

Procedure. Participants arrived at the laboratory individually for a study purportedly concerning the relationship between personality and nonverbal performance. Participants were told that they would complete an initial measurement of physical endurance. They were asked to hold their arm up to the elbow in a tub of water for as long as possible. The water temperature was kept at approximately 34 °F (1 °C) using a mixture of ice and water. To prevent a warm pocket of water from forming around the participant's hand, the tub was equipped with an aquarium pump that maintained a continuous circulation of water. The experimenter used a stopwatch to record the number of seconds the participant held his or her arm in the water. This number (in seconds) served as the baseline measure of pain tolerance.

After the baseline measure, participants completed the Eysenck Personality Questionnaire and then received accurate extraversion feedback. By random assignment, half of the participants received future belonging feedback, the same as in Experiment 1, whereas the other half received no feedback. Participants then completed the PANAS emotion measure.

The dependent measure was a second cold pressor trial. For the nondiagnostic condition, the instructions were the same as for the baseline measure. For the social skills diagnostic condition, the experimenter gave those instructions and then added that performance on the task signaled the presence of interpersonally helpful performance. The experimenter explained that interpersonal relationships can sometimes be painful and that people who can endure the pain of relationships also have high levels of empathy and social sensitivity. All participants then completed the second pain tolerance measure and were debriefed.

Results and Discussion

Socially accepted participants in the social skills diagnosis condition showed decrements in self-regulation compared with participants in the other conditions. To control for individual differences in persistence, we entered baseline pain tolerance scores as a covariate and the second pain tolerance assessment as the dependent variable. Results from analysis of covariance revealed the predicted interaction between social acceptance and diagnosticity, $F(2, 140) = 7.39$, $p < .01$ (see Figure 2). Among participants in the social skills diagnosis condition, future belonging participants ($M = 34.32$, $SD = 22.58$) showed less pain tolerance on the cold pressor task than did no-feedback control participants ($M = 53.22$, $SD = 81.65$), $F(1, 71) = 3.92$, $p = .05$. In addition, future belonging participants in the social skills diagnosis condition showed less pain tolerance compared with future belonging participants in the nondiagnostic condition ($M = 62.74$, $SD = 68.28$), $F(1, 70) = 9.50$, $p < .01$. Diagnosticity of the test had no effect on pain tolerance in the no-feedback condition, $F(1, 69) = 1.38$, $p = .25$.

Experiment 4 provided further, converging evidence that social acceptance caused decrements in self-regulation when the task was framed as a diagnostic indicator of interpersonally helpful traits. The design of Experiment 4 strengthened the findings of Experiments 1 and 2 by comparing performance of accepted participants with performance of participants who received no feedback related to their future social status. Thus, the decrements in performance caused by social acceptance appear important in their own right and not merely relative to the improved performance of rejected persons.

Experiment 5

Given the novelty of our finding of negative effects of social acceptance, we sought to replicate the finding with a different measure. Experiment 5 measured self-regulation as persistence on unsolvable problems, as many previous studies have done (e.g., Muraven, Tice, & Baumeister, 1998; Vohs & Heatherton, 2000).
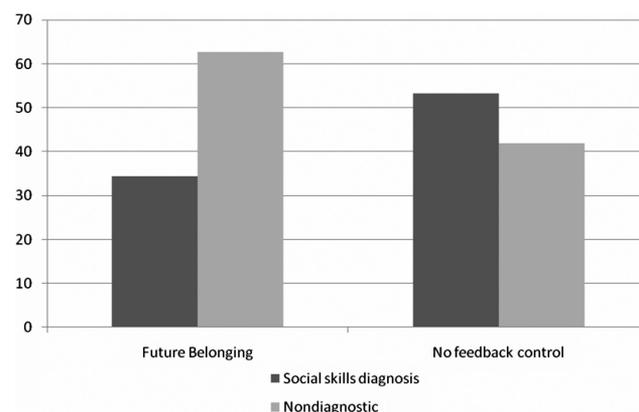
Figure 2. Interactive effect of personality feedback and social skills diagnosis manipulation on the second measure of cold pressor persistence (controlling for baseline cold pressor persistence), Experiment 4. Values represent the mean number of seconds participants persisted on the second cold pressor measure (controlling for baseline cold pressor persistence). Higher scores indicate better self-regulation performance.

Working on such problems is frustrating and presumably gives rise to the impulse to quit, which must be overcome in order to continue striving. Experiment 5 also used the full design of acceptance, rejection, and no feedback.

Method

Forty-seven undergraduates (31 women, 16 men) participated and were randomly assigned among future alone, future belonging, and no-feedback conditions. Participants subsequently completed the BMIS and then were given a packet of 80 anagrams, of which, unbeknownst to participants, 95% were unsolvable. Participants in the nondiagnostic control condition were told to spend as much time as they wanted solving the anagrams and to ring a bell to alert the experimenter that they had completed as many anagrams as possible. Participants in the social skills diagnosis condition were given the standard instructions given to nondiagnostic participants and were also told that performance on the anagram task was diagnostic of traits that were good for relationships, such as empathy and social sensitivity. The experimenter then left the room and timed how long participants' persisted on the anagram task. A 30-min limit was set as the maximum.

Results and Discussion

Experiment 5 confirmed that social acceptance impairs self-regulatory performance on a task designated as a measure of social skills. ANOVA revealed a significant interaction, $F(2, 41) = 6.38$, $p = .004$ (see Figure 3). Future alone participants persisted longer on the unsolvable anagrams in the social skills condition than in the nondiagnostic condition, $F(1, 41) = 5.07$, $p = .04$. In contrast, future belonging participants performed worse when the task was diagnostic of social skills than when it was ostensibly nondiagnostic, $F(1, 41) = 11.69$, $p = .004$. Diagnosticity had no effect among participants in the no-feedback condition ($F < 1$, ns).

Experiment 6

With Experiment 6 we began to investigate possible reasons for the detrimental effects of social acceptance on self-regulation. Our
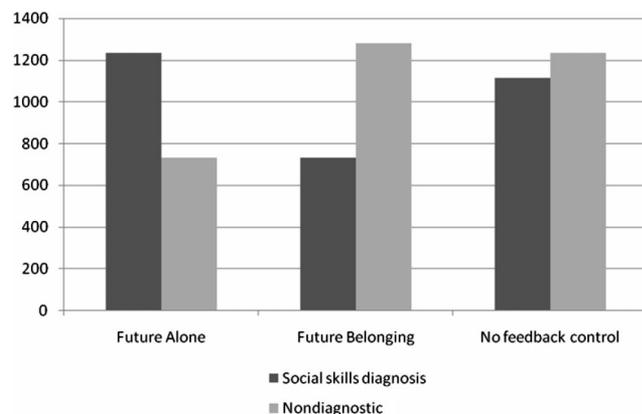

Figure 3. Interactive effect of social exclusion feedback and social skills diagnosis manipulation on persistence on the unsolvable anagram task, Experiment 5. Values represent the mean number of seconds participants persisted on the unsolvable anagrams. Higher scores indicate better self-regulation performance.

hypotheses, as outlined in the introduction, focused on motivation, but it was possible a priori that impaired capacity (e.g., ego depletion; Baumeister, Bratslavsky, Muraven, & Tice, 1998; Vohs & Heatherton, 2000) rather than loss of motivation was behind the decrements.

Hence a first goal of Experiment 6 was to establish whether social acceptance rendered people unable or merely unwilling to self-regulate (on a task that was presented as a further test of social skills). Some participants were offered a monetary incentive for good performance, whereas others were not. If the performance decrements among accepted participants are due to an inability to self-regulate, then these participants should perform poorly regardless of whether they are offered a financial incentive to perform well. If the deficits in performance are due to reduced motivation, however, then accepted participants should perform well when given additional motivation in the form of the cash incentive.

Experiment 6 also tested the alternative explanation that the negative effects of social acceptance on self-regulation were due to self-handicapping as opposed to satiated motivation. Self-handicapping refers to any action designed to jeopardize performance quality as a means of preserving a favorable identity after failure and gaining favor for overcoming an obstacle to achieve success (Berglas & Jones, 1978; Tice, 1991). Self-handicapping theory was initially proposed by Jones and Berglas (1978) as an explanation for alcohol abuse and underachievement. The underachievement thesis, which is most relevant to the present work, is that once people are able to claim a favorable identity, they become reluctant to jeopardize it by putting it to the test. One consequence is that they may withhold effort on subsequent tests, such that possible failure can be attributed to low effort rather than low ability. In the present context, self-handicapping theory would predict that participants who receive favorable feedback about social acceptance would subsequently put forth low effort on tests of social skills because they want to have an excuse (i.e., low effort) that would preserve their identity as a socially appealing person in case they fail on the task. Self-handicapping requires fairly public demonstration of low effort (Kolditz & Arkin, 1982), which means that the low effort would have to be manifest in some visible manner, such as not completing many problems out of the set or visibly goofing off during the test.

A self-handicapping explanation would be relevant insofar as participants viewed social acceptance as conveying a favorable message about the self that participants were reluctant to put to the test. Hence, so as not to disconfirm that image of self as being highly socially attractive, they would handicap themselves prior to any further test of their social skills or social appeal.

Experiment 6 used a procedure adapted from previous self-handicapping research (Berglas & Jones, 1978; Sheppard & Arkin, 1989; Tice, 1991). Prior to the self-regulation test, participants were invited to select music to play during their performance, and they were told that some of the musical selections were known to impair performance. Performance-impairing music would be an ideal vehicle for the self-handicapper because it would offer a useful excuse in case the person fails (and in addition it would enhance credit for success). If social acceptance makes people want to self-handicap, then they should choose the performance-impairing music rather than the alternatives.

Self-regulation was measured using solvable anagrams. Completing solvable anagrams requires self-regulation insofar as participants

must override the impulse to give up despite experiencing several initial failures. Also, the very nature of anagram solving entails frequent overriding, insofar as the person must begin forming sequences of letters and then abandon them to recombine the letters in other sequences.

Method

Participants and design. Fifty-five undergraduates (37 women, 18 men) participated in exchange for partial course credit. They were randomly assigned among five cells. Those who received social acceptance feedback were distributed among 2 × 2 cells, based on whether the anagram task was presented as diagnostic of social skills and whether a cash incentive for performance was offered. The fifth cell was intended as a pure control condition: It involved no feedback about social acceptance (or rejection), had a nondiagnostic task framing, and included no cash incentive.

Procedure. Participants arrived at the laboratory individually and, after completing a personality test, received social acceptance or no feedback as in Experiments 4 and 5. After the feedback manipulation, participants completed the mood measure (the BMIS).

The experimenter then presented participants with the anagram task. Participants were randomly assigned to either the nondiagnostic or the social skills diagnosis condition. The experimenter handed the participants a packet that contained 80 anagrams, all of which were solvable. Participants in the nondiagnostic condition were instructed to form words using the letters they were given. Participants in the social skills diagnosis condition were given the same instructions but were also told that performance on the anagram task was diagnostic of traits that were good for relationships, such as empathy and social sensitivity.

Before beginning the anagram task, participants were told that the researchers were interested in the effects of different types of music on performance. Participants were told that they would be given a choice as to which type of musical recording they would prefer listening to while they completed the anagram task. Following procedures used by Sheppard and Arkin (1989), participants were told that one of the tapes (labeled *performance impairing*) had been shown previously to impair performance on the anagram task, whereas the other tape (labeled *neutral performance*) had been shown previously to have no influence on anagram performance. The participant made a selection, and the experimenter inserted the tape into the cassette player while donning headphones, ostensibly in order to check the volume. He feigned difficulty hearing the music and told the participant that the headphones were malfunctioning, and so he said the participant would have to complete the anagram task without music.

Participants in the no cash incentive condition were told that they would be given a certain amount of time to complete as many anagrams as possible. Participants in the cash incentive condition were given the same instructions but were also told that they could earn up to $20 for successful anagram performance. Participants were not told the exact number of words they would have to solve in order to receive cash payments. (We refrained from setting precise, explicit goals to prevent possible changes in motivation as participants approach or surpassed targets.) After 5 min had elapsed, the experimenter returned and stopped the task. Partici-

pants were then debriefed, thanked, and given their appropriate compensation (cash-incentive participants were paid according to how well they performed; all other participants did not receive payment).

Results

Number of correctly completed anagrams. The number of anagrams solved was the main dependent measure. A one-way ANOVA on the five cells indicated significant variation among conditions, $F(4, 50) = 2.73$, $p < .05$. Participants in the pure control condition (no feedback, no task framing, no cash incentive) solved significantly more anagrams ($M = 14.25$, $SD = 6.14$) than the future belonging participants who had no cash incentive and for whom the task was presented as diagnostic of social skills ($M = 7.67$, $SD = 3.94$), $F(1, 18) = 5.56$, $p = .02$.

To test the hypotheses about the effects of monetary and social incentives, we then conducted a 2 × 2 ANOVA (excluding the pure control group). It revealed the predicted interaction between diagnostic feedback condition and cash incentive condition, $F(1, 42) = 5.89$, $p = .02$. A planned contrast showed that future belonging participants in the social skills diagnosis condition who had no cash incentive ($M = 7.67$, $SD = 3.94$) solved significantly fewer anagrams correctly than future belonging participants in the other three conditions ($M = 13.21$, $SD = 4.84$), $F(1, 44) = 12.71$, $p = .001$.

Further comparisons showed that participants in the social skills diagnosis condition solved more anagrams when they had a cash incentive ($M = 14.27$, $SD = 3.82$) than when they did not ($M = 7.67$, $SD = 3.93$), $F(1, 21) = 16.60$, $p = .001$. Participants in the nondiagnostic condition did not differ in the number of anagrams they completed correctly regardless of whether they were given a cash incentive ($M = 12.64$, $SD = 5.78$) or not ($M = 12.75$, $SD = 4.97$), $F < 1$, *ns*. Among participants who were assigned to the cash incentive condition, the diagnostic versus nondiagnostic framing made no difference, $F < 1$, *ns*. Thus, future belonging participants performed poorly on the anagram task when performance was ostensibly diagnostic of traits that were good for relationships, but they performed well when successful performance could earn them a monetary reward.

Tape selection as a measure of self-handicapping. To test whether the observed effects were due to social skills diagnosis participants in the no cash incentive condition engaging in self-handicapping strategies, we compared the number of future belonging participants in each condition who chose the performance-impairing tape versus the neutral performance tape. Responses were coded such that the performance-impairing selections received a 1 and neutral performance selections received a 0. Results indicated no significant differences between conditions in terms of the number of participants who chose the performance-impairing tape compared with the neutral performance tape (all χ^2s < 1, *ns*). The lack of any effect can be further appreciated by inspecting the data. The self-handicapping hypothesis focused mainly on the condition in which participants received social acceptance and had the upcoming task framed as a measure of social skills (but had no cash incentive), because that is the condition in which we have repeatedly observed the poorest levels of performance. In that condition, 58% of participants chose the performance-impairing tape. That result was right in the middle of corresponding figures

for the other four conditions, which were 64%, 50%, 58%, and 50%. These data clearly fail to support any notion that participants in the focal condition were unusually prone to self-handicapping.

It was possible that the decrements in performance were due to denying participants who chose the performance-impairing tape the option of self-handicapping. To test this possibility, we compared anagram performance between future belonging participants who chose the performance-impairing tape (and thus chose to self-handicap) and future belonging participants who chose the neutral performance tape. Results revealed that anagram performance was independent of tape selection. Participants who chose the performance-impairing tape ($M = 12.11$, $SD = 7.14$) solved as many anagrams as did participants who chose the neutral performance tape ($M = 12.70$, $SD = 5.92$), $F < 1$, ns. Hence any difference in self-regulation was not due to denying participants the option of self-handicapping.

Discussion

Experiment 6 yielded three main outcomes. First, we replicated once again the finding that social acceptance leads to poor performance on a subsequent test of social skills. Second, this decrement appears to reflect motivation rather than ability: Offering additional motivation in the form of a cash incentive eliminated the decrement. In other words, accepted people can still self-regulate and perform well on another task if they have a personally motivating incentive.

Third, the decrement does not appear to be due to self-handicapping. We used a standard measure of behavioral self-handicapping, namely, the opportunity to select music that would offer a plausible excuse for poor performance. Socially accepted participants (with no cash incentive) taking a test of social skills did not endow themselves with that readily available excuse, contrary to the main prediction of the self-handicapping hypothesis.

Experiment 7

Experiment 6 demonstrated that accepted participants underperformed on social skills tests relative to other participants but that this underperformance was not attributable to self-handicapping. Experiment 7 tested the alternative hypothesis that recently accepted participants show decrements on ostensible social skills tests because of overconfidence. According to the overconfidence hypothesis, social acceptance causes a reduction in motivation and effort because the accepted person already expects to succeed at a task that measures social skills. The acceptance feedback conveys the message that one's ability to attract others is high, and therefore the upcoming measure of social skills is sure to confirm this; hence it is not necessary to exert maximum effort. The low effort may, however, then produce relatively poor performance.

Experiment 7 tested the overconfidence hypothesis by assessing participants' specific expectations and confidence about their performance on the upcoming task. The overconfidence hypothesis would predict that participants would express the most favorable performance expectations when (a) they had received social acceptance feedback and (b) the upcoming task was framed as a measure of social skills.

Method

Participants. One hundred fifty-three undergraduates (119 women, 34 men) participated in exchange for partial course credit.

Procedure. Participants were randomly assignment to receive bogus personality feedback indicating that they could anticipate a future of aloneness (future alone), a future filled with meaningful relationships (future belonging), or a future marred by frequent physical accidents and injuries (misfortune control). Participants then reported their mood valence and arousal using the BMIS.

Participants were then presented with 36 three-digit by three-digit multiplication problems. Participants were given two blank sheets of paper, which they could use to aid in their performance. Participants assigned to the social skills diagnosis condition were told that performance on the math problems was associated with interpersonally beneficial traits such as empathy and social sensitivity. Participants assigned to the financial incentive condition, in contrast, were told that they would earn 75 cents for each problem they solved correctly. Before beginning the math task, participants completed a questionnaire on which they predicted the total number of problems (out of 36) they would solve correctly. Participants also provided a percentile estimate of their upcoming math performance relative to other undergraduate students at the university. These questions were adapted from prior research on overconfidence and self-perceptions (Ehrlinger & Dunning, 2003).

After participants had completed the confidence measures, the experimenter told them to work on the math problems. The experimenter then left the room for 10 min. Upon returning, the experimenter collected the sheet with the math problems, provided participants with their appropriate compensation (financial incentive participants were paid according to how well they performed; social skills diagnosis participants did not receive payment), and debriefed them.

Results

Math performance. Performance could be measured by the simple number correct or by the proportion correct out of all the problems attempted. These two measures were highly correlated ($r = .79$, $p < .001$). However, ANOVAs yielded somewhat different patterns. We emphasize the proportion correct because that is most relevant to self-regulation: The regulatory executive monitors the performance and ensures that mistakes are corrected. Unlike solving anagrams, in which self-regulation may be required to override one line of inquiry to start over and try a different combination, solving arithmetic problems has no direct use for self-regulation, because it is simply a matter of accessing rote memory for the basic multiplication tables and following standard computational rules for combining the simple products into the larger units. For the sake of completeness, however, we note that the ANOVA on correct solutions alone yielded significant main effects for feedback (rejection) condition, $F(2, 147) = 6.05$, $p = .003$, and for diagnosticity framing, $F(1, 147) = 9.63$, $p = .002$, but the interaction was not significant ($F < 1$, ns). Although the interaction was not significant, the pattern of means for both analyses was quite similar. Most important, by far the lowest mean number of correct solutions was for accepted (future belonging) participants in the social skills diagnostic condition. They solved a mean of 4.08 problems, whereas the means for the other five conditions ranged from 6.16 to 7.92. Indeed, the mean number of

correct solutions by future belonging participants in the social skills diagnosis condition was lower than the mean for each of the other five conditions (all $ps < .02$). Means for the number of problems solved correctly, number of problems attempted, and proportion of correct solutions are presented in Table 1.

ANOVA on proportion of correct solutions (number of problems correct divided by the number of problems attempted) revealed a significant interaction between acceptance/rejection feedback and diagnosticity, $F(2, 147) = 3.25$, $p = .04$. There was also a significant main effect of social exclusion condition, $F(2, 147) = 7.12$, $p = .001$, which indicated that accepted participants in general performed worse than did nonaccepted participants, and a main effect of incentive condition that approached significance, $F(1, 147) = 3.18$, $p = .08$, which indicated that participants performed somewhat better in the financial incentive condition than in the social skills diagnosis condition.

To clarify the interaction, we compared math performance among participants in the social skills diagnosis condition. As expected, there was significant variation among the three conditions, $F(2, 74) = 9.18$, $p < .001$. Planned comparisons revealed that compared with future alone participants, future belonging participants answered a significantly lower proportion of math problems correctly, $F(1, 74) = 12.66$, $p = .001$. The future belonging condition mean was also lower than that for the misfortune control group, $F(1, 74) = 14.68$, $p < .001$. There was no significant difference between performance among participants in the future alone and misfortune control conditions ($F < 1$, ns). Thus, a future diagnostic forecast of social acceptance led to impaired math performance when performance was ostensibly associated with interpersonally helpful traits.

To test whether decreases in performance among accepted participants were specific to a social incentive, we compared performance among all participants in the financial incentive condition. A one-way ANOVA revealed no difference ($F < 1$, ns). Thus, when performance was linked to earning money, accepted participants performed as well as excluded and control participants.

Overconfidence. To test the hypothesis that poor performance among accepted participants in the social skills diagnosis condition was due to overconfidence, we compared the extent to which participants differed in terms of how well they thought they would perform on the math task. We created a single index of performance estimates by standardizing and then summing participants' percentile estimate and the number of problems they predicted they would solve correctly. Results from a 3 (future alone, future belonging, misfortune control) × 2 (social skills diagnosis, finan-

cial incentive) ANOVA revealed no significant main effects or interactions ($Fs < 1.61$, ns). As in past research (e.g., Ehrlinger & Dunning, 2003), performance estimates were unrelated to actual math performance ($r = .08$, $p = .30$). These findings disconfirm the hypothesis that accepted participants in the social skills diagnosis condition underperform because they are overconfident about how they will perform on the upcoming math task.

Discussion

Experiment 7 provided evidence that social acceptance caused decrements in self-regulation among participants in the social skills diagnosis condition, using yet another performance measure. The findings also demonstrated that these decrements in performance were not attributable to overconfidence regarding anticipated performance on the upcoming task. There were no significant differences in confident expectations about performance, and moreover, expectations were unrelated to actual performance. (Both findings are incompatible with a mediation hypothesis.) On actual performance, this study demonstrated that future alone and misfortune control participants performed well regardless of whether the task was linked to monetary reward or interpersonally helpful traits. Future belonging participants, in contrast, performed poorly when the task was linked to social skills but performed well when successful performance could earn them an immediate financial reward. Thus, acceptance leads to poor self-regulation when performance is ostensibly diagnostic of traits that are desirable for interpersonal relationships, and this underperformance is not attributable to overconfidence.

One possible question about this study is whether participants would believe the cover story that solving arithmetic problems is predictive of good social skills. There is at least one reason to think they did, even though sophisticated psychologists might have been considerably less credulous than our undergraduate participants. The debriefing contained probing for suspicion, and participants did not voice skepticism of the link when it was revealed to be false. Hence we have reason to believe that participants believed the link between solving arithmetic problems and good social skills.

In this study, a cash incentive counteracted the effects of rejection on self-regulatory performance, whereas in Study 3 a health incentive failed to do so. Are monetary incentives somehow more compelling than the desire for health (and good vision)? Possibly, but we would speculate that the discrepancy should more likely be attributed to the difference between the ways the two incentives

Table 1

Arithmetic Problem Performance as a Function of Social Exclusion Feedback and Social Skills Diagnosis Manipulation, Experiment 7

	Future alone		Future belonging		Misfortune control	
Variable	Social skills	Cash incentive	Social skills	Cash incentive	Social skills	Cash incentive
Solved correctly	6.28 (2.09)	7.12 (3.20)	4.08 (2.64)	6.16 (3.05)	6.27 (3.04)	7.92 (3.89)
Attempted	9.16 (1.97)	10.27 (2.91)	8.88 (3.42)	9.72 (3.57)	8.50 (2.86)	11.40 (4.39)
Proportion solved correctly	.68 (.18)	.68 (.21)	.43 (.26)	.64 (.26)	.69 (.28)	.70 (.18)

Note. Values represent mean number of problems solved correctly, number of problems attempted, and proportion of problems solved correctly. Standard deviations appear in parentheses.

were offered. In Study 7, we offered actual cash, to be earned and received immediately. In Study 3, in contrast, the manipulation merely said that good performance was diagnostic of good prospects for future health and vision. Thus, the difference was between an immediate, tangible reward and an abstract reassurance of vague promises about the distant future. Abundant evidence has shown that immediate, tangible rewards are much more motivating than distal and abstract ones, especially to persons whose capacity for self-regulation is already compromised (see Mischel, 1974). In that connection, though, the findings regarding social acceptance seem all the more remarkable, because participants *were* motivated by vague reassurances of good prospects for future belongingness. This is perhaps yet another sign that the need to belong is an especially central and powerful motivation. At least, it is apparently more compelling and inspiring to our sample than the desire for good physical health.

General Discussion

Human physical and psychological well-being is heavily dependent on positive and lasting relationships with others. Therefore, people should be motivated to seek social acceptance, and social acceptance should lead to positive outcomes. Consistent with that view, the existing theoretical and empirical work in the social belongingness literature has been close to unanimous in finding that social acceptance causes positive outcomes, whereas rejection produces negative outcomes (e.g., Baumeister & Leary, 1995; Twenge et al., 2001; Williams et al., 2000). The current findings constitute a rare exception, especially insofar as we have found negative effects of social acceptance on task performance and self-regulation.

We can summarize our findings as follows: Participants who experienced a rather abstract form of social acceptance, as in being told that they were likely to go through life surrounded by a warm, rich network of good social relationships, later performed poorly on a variety of tasks. The poor performance occurred only when the tasks were presented as tests of social skills or as otherwise diagnostic of traits that are helpful and desirable for having good relationships. When no task framing was mentioned, socially accepted people performed just fine. Thus, the drop in performance was not due to an impaired capacity to perform. Most likely, it reflected a motivational deficit. Other findings also indicated motivation was key. Socially accepted participants performed well when they were offered a financial incentive. Only the social incentive for good performance was demotivating.

What was the motivational basis for poor performance being caused by the good news of social acceptance? We began with the satiation hypothesis, which was that social acceptance temporarily satisfies the need to belong, thereby reducing motivation to try hard on tasks where performance is linked to gaining social acceptance. Several findings supported the satiation hypothesis. First, we found that if we provided another sort of motivation to perform well (i.e., a cash incentive), accepted participants performed quite well, even on the social skills task. In other words, they performed well but lacked only a motivational incentive.

Second, and crucially, the results from the rejection conditions also pointed toward a motivational explanation as the most parsimonious and integrative explanation. The general motivational pattern is that when a person desires something, receiving it produces a temporary reduction in desire, whereas being denied it can increase the desire. By analogy, a hungry person feels hungrier when the food is denied but feels less hungry after a large meal. In multiple experiments, we thwarted the need to belong among some participants. They tried harder and performed better on our next task if—and only if—we presented that next task as a test of socially appealing traits. The implication is that their desire for social acceptance was whetted by the rejection experience, and so they strove to prove themselves to be the sort of person whose chances of social acceptance are high. Improved performance among rejected participants was found only under those conditions. If the next task was not framed as relevant to social skills, rejected persons did not perform well on it.

We also tested two other motivational explanations. One was self-handicapping: Acceptance might make people reluctant to undertake a fair test of their social appeal because poor performance would contradict and discredit the good news they had just received. A standard measure of self-handicapping, in which participants could choose an officially sanctioned handicap (performance-impairing background music) and thereby gain a valid excuse for possible poor performance, failed to show effects, even though we replicated the performance decrement. Hence the self-handicapping explanation was rejected.

A second possible explanation was overconfidence. It was plausible that the acceptance feedback made people feel that their social skills were sufficiently high that they did not need to exert great effort in order to do well on a test of social skills. Social acceptance did not elevate expectations of success on the upcoming test of social skills. Hence the overconfidence hypothesis was rejected.

Thus, the present findings go a long way toward reconciling the evidence on the effects of acceptance and rejection with the standard motivational model of the need to belong. Much previous work has seemed inconsistent with that view. For example, rejected persons have been shown to become aggressive, relatively antisocial, selfish, impulsive, and undercontrolled (e.g., Baumeister et al., 2005; Twenge et al., 2001; Warburton et al., 2006; see Williams, 2007, for a review), none of which seems likely to make them new friends. At best, a few findings have pointed toward possible wishes for social connection (Gardner et al., 2005; Maner et al., 2007; Williams et al., 2000), but these have tended to be ambiguous or low-risk responses. The present work builds on these previous findings by showing changes in motivated behavior and effortful performance on multiple measures.

Consistent with much past work, the simple and broad effects of rejection were negative and the effects of acceptance were (mildly) positive. We found those patterns when the next task required exertion but had no particular or relevant framing. But (and mostly unexplored in past work) when the next task was presented as directly relevant to social acceptance—and thus relevant to the motivation that had just been thwarted or satisfied—responses conformed to the standard motivational pattern: Rejected persons performed better, and accepted persons performed worse.

Alternative Explanations and Limitations

The seven experiments reported in the current article provide consistent evidence that framing a self-regulation task as diagnostic of interpersonally beneficial traits impaired self-regulation

among accepted participants and facilitated effective self-regulation among excluded participants. There are alternative explanations and limitations, however, that warrant consideration. A first possibility is that the current effects were attributable to changes in mood or emotion. The results of all seven experiments contradict this explanation. There was no sign that excluded participants felt particularly distressed or that accepted participants felt especially positive. Recent work suggests that social exclusion causes widespread physical and emotional insensitivity, as opposed to distress (DeWall & Baumeister, 2006). Social pain theory suggests that the analgesia that accompanies social exclusion is beneficial in terms of warding off a potentially distressing mood, which allows the excluded person to seek out potential sources of safety and acceptance (MacDonald & Leary, 2005). Work in support of the social monitoring hypothesis has shown that deficits in belongingness are associated with increased sensitivity to social cues, which could indicate a search for a safe promise of acceptance (Lakin & Chartrand, 2005; Pickett et al., 2004). The current results provide indirect support for these theories by showing that excluded participants, compared with accepted and control participants, were highly motivated by an incentive that could increase their chances of gaining future acceptance.

A second alternative explanation is that the effects among excluded participants were due to receiving a negatively valenced future diagnostic forecast. The results of Experiment 7 provided evidence contrary to that alternative explanation. In that experiment, participants in the misfortune control condition performed well on the self-regulation tasks regardless of whether the task was framed as a diagnostic indicator of interpersonally helpful traits, was linked to gaining a monetary reward, or was not linked to any potential interpersonal or financial benefit. Excluded participants, in contrast, performed poorly on the self-regulation tasks unless the tasks were framed as indicators of desirable interpersonal traits or linked to gaining a monetary reward.

Another potential limitation to the current work is that none of the self-regulation tasks was explicitly related to garnering social acceptance. For example, the dependent measure of self-regulation in Experiment 3 was the Stroop color-word task, and doing well on it was certainly not a direct or obvious way to make friends. The only link between Stroop performance and acceptance was that we gave (some) participants instructions saying that good performance was diagnostic of good social skills, which by implication conveyed a broad but vague promise that the person would be a good partner and therefore might be successful at relationships. In our view, however, this potential limitation of the methods can also be regarded as a strength, because it makes the findings rather more remarkable. In study after study, participants did alter their self-regulatory performance (both up and down) in response to precisely these vague and abstract reassurances of social eligibility. Participants did not respond to similarly vague promises regarding good health and vision (Experiment 3), but they seemed quite responsive when belongingness was invoked, even in these subtle and distal ways.

Furthermore, the power of these abstract manipulations to stimulate and satiate the need to belong in the present studies suggests that the focus is on satisfying motivations in the self-concept. Monin and Miller (2001) used the concept of moral credentials to explain why people had less striving to appear nonprejudiced after an initial experience that affirmed that they were free from prejudice. In a similar manner, participants in the present studies were given or deprived of credentials associated with acceptance and belongingness. To be sure, the concept of credential is used metaphorically here (as in Monin & Miller, 2001). What was literally at stake in these studies was beliefs about one's traits associated with the likelihood of future acceptance. The concern with these beliefs is presumably based on the fundamental importance of being accepted, as well as the understanding that one important job of the self is to garner acceptance. Hence even abstract, temporally distal feedback about acceptance and rejection can satiate or stimulate that motivation and change one's efforts to prove oneself to be worthy of acceptance.

The current work was also limited by the various methods used. Regarding the exclusion manipulations, we manipulated exclusion by providing participants with a diagnostic forecast of aloneness (Experiments 1, 2, and 4–7) or by telling participants that another person had refused an interaction with them (Experiment 3). To be sure, there are many other forms of exclusion that people experience, such as teasing, being ignored or ostracized, unrequited love, and social stigma. We did not investigate whether our effects generalize to these other forms of exclusion, but we have no reason to believe that the effects are limited to the two types of exclusion to which we exposed our participants. Although the need to belong may become thwarted (or satiated) in many different ways, the drive should become stronger when thwarted and diminished in strength when satiated. Hence we would expect similar results using different manipulations of social exclusion and social acceptance. Regarding the measures of self-handicapping and overconfidence, we note that there are other assessments that may have been used. We chose the music selection measure because it has a long history of use in social psychology (Berglas & Jones, 1978; Sheppard & Arkin, 1989; Tice, 1991), and the overconfidence measure also has been used successfully in past work (Ehrlinger & Dunning, 2003).

Concluding Remarks

Most theories of personality have proposed that people have a basic motivation to be accepted and perhaps loved by others. Often this motivation has been treated as a background or minor drive, but Baumeister and Leary (1995) found it to have widespread impacts on cognition, emotion, and behavior, and they concluded it should be considered one of the most powerful and centrally important drives. Still, their review and subsequent research found only scattered hints that the need to belong conformed to the standard motivational patterns of satiation and intensification. That is, there were only occasional findings that thwarting the need to belong led to increased striving to find acceptance elsewhere, and there was even less evidence that when the need to belong is satisfied, the drive subsides for a time. The present research addressed this neglected aspect of belongingness theory. We confirmed previous findings that rejection has broadly negative effects and acceptance has positive ones, but we also found that when circumstances are directly relevant to satisfying that desire, the standard motivational pattern was observed: Thwarting the need to belong led people to exert all the more effort on tests relevant to belongingness, and satisfying the need to belong caused people to reduce subsequent effort at proving their social skills.

The dependent measures in these studies generally involved self-regulation, which is one of the most important and broadly adaptive inner processes. Indeed, the case for its supreme importance was made by Higgins (1996) in his article "The Sovereignty of Self-Regulation," and likewise Baumeister (2005) proposed self-regulation was among the core adaptations that were needed to make possible the uniquely advanced and complex forms of social and cultural life that distinguish human beings from their evolutionary forebears. Previous work had suggested that social rejection impairs self-regulation, and we replicated those findings, but with a crucial twist: When the new opportunity for self-regulation is linked to proving one's social desirability, rejected people can and do self-regulate very well.

In the introduction we alluded to the implicit bargain by which the efforts and sacrifices involved in self-regulation are compensated by the rewards of belongingness. The present results fit that bargain very well. In general, rejected people feel the bargain has been violated and they withdraw self-regulatory effort, whereas accepted people continue to self-regulate. But when proving oneself to be socially desirable is explicitly at stake, rejected people seem willing to put forth self-regulatory effort, which means that, in effect, they are paying more into their side of the bargain, presumably with the hope that it will be rewarded with eventual social acceptance. In contrast, recently accepted people seem to feel that they are comfortably in the black with respect to that bargain and therefore can relax and enjoy their acceptance without having to pay more dues.

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