Self-Regulation and Self-Presentation: Regulatory Resource Depletion Impairs Impression Management and Effortful Self-Presentation Depletes Regulatory Resources

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Self-presentation may require self-regulation, especially when familiar or dispositional tendencies must be overridden in service of the desired impression. Studies 1–4 showed that self-presentation under challenging conditions or according to counternormative patterns (presenting oneself modestly to strangers, boastfully to friends, contrary to gender norms, to a skeptical audience, or while being a racial token) led to impaired self-regulation later, suggesting that those self-presentations depleted self-regulatory resources. When self-presentation conformed to familiar, normative, or dispositional patterns, self-regulation was less implicated. Studies 5–8 showed that when resources for self-regulation had been depleted by prior acts of self-control, self-presentation drifted toward less-effective patterns (talking too much, overly or insufficiently intimate disclosures, or egotistical arrogance). Thus, inner processes may serve interpersonal functions, although optimal interpersonal activity exacts a short-term cost.

The attentive pupil who wishes to be attentive, his eyes riveted on the teacher, his ears open wide, so exhausts himself in playing the attentive role that he ends up by no longer hearing anything.
—John Paul Sartre

One of the most vital skills in human social life involves presenting oneself effectively to others. Managing the impression one makes has been recognized as a vital aspect of romantic attraction, occupational and organizational success, claiming desired identities, making friends, and other desirable outcomes (Baumeister, 1982a, 1982b; Jones & Wortman, 1973; Leary, 1995; Leary & Kowalski, 1990; Schlenker, 1975, 1980; Schlenker & Leary, 1982). To label self-presentation a skill is to imply that it is

difficult, that some people are better at it than others, and that with practice people can learn to do it better. By adulthood, most people probably have some familiar styles of presenting themselves but may find it strenuous and difficult to make a desired impression under novel or pressured conditions, such as during a job interview or when meeting prospective in-laws. At other times, however, people communicate information about themselves to others in a seemingly effortless fashion and easily get the desired image across.

Thus, some information about the self may be conveyed using familiar, well-learned behaviors, whereas other forms of self-presentation may require carefully and actively managing one's expressive behavior. As an example, Paulhus and colleagues (Paulhus, Graf, & Van Selst, 1989; Paulhus & Levitt, 1987) proposed that people have an "automatic egotism" pattern that immediately presents the self in a highly favorable light, whereas a balanced, even modest, depiction of the self comes afterward and requires effort to produce.

The present investigation began by assuming that some active forms of self-presentation require some modification and monitoring of behavior to achieve a certain public image, which means that many active impression management responses are self-regulatory in nature. A second and more nuanced prediction was that various styles of self-presentation are differentially strenuous. We invoked a recent model of self-regulation that suggests that people consume a global—but limited—resource when they override habitual or natural responses (for reviews, see Baumeister & Vohs, 2003). A central argument underlying this investigation is that impression management uses this generalized resource, with difficult or effortful self-presentation consuming more resources than familiar or typical self-presentations.

Several hypotheses flow directly from the core idea that effortful self-presentation consumes self-regulatory resources. When self-regulatory resources are depleted, people should become less effective at presenting themselves in socially desirable or normative ways, especially when these images run counter to habitual tendencies. Moreover, effortful self-presentations should deplete the self's resources, which should cause subsequent impairments in the ability to control and regulate one's behaviors. The central hypothesis of this investigation was that self-presentations demand and deplete self-regulatory resources. We tested this in two major ways. Studies 1–4 sought to show that presenting oneself in an unfamiliar way or under difficult circumstances (as compared with easy or familiar self-presentations) would result in subsequent impairments of self-regulation, indicating depleted resources. Studies 5–8 sought to show that when resources are depleted because of recent acts of self-regulation, then people would be less effective at presenting themselves in an optimal or successful manner, especially if the self-presentational demands were difficult or unusual.

Self-Regulation as Governed by a Limited Resource

A recent model has suggested that self-regulation depends on a limited resource, akin to energy or strength (Baumeister & Heatherton, 1996; Heatherton & Baumeister, 1996). The current research draws on the self-regulatory resource model for theoretical and conceptual ideas regarding the role of self-regulation in self-presentation.

In the language of a test–operate–test–exit (TOTE) loop (Carver & Scheier, 1982), the self-regulatory resource model fleshes out the "operate" phase of the loop. Self-regulation occurs within a feedback system, but success in operating on the self and bringing about the desired changes depends on a finite pool of resources. Some evidence suggests that the same resource is used for widely different self-regulatory tasks, including regulation of cognition and thought, of emotion, of impulsive and appetitive behaviors, and of performances (e.g., Baumeister, Bratslavsky, Finkenauer, & Vohs, 1998; Muraven, Tice, & Baumeister, 1998; see also Vohs & Baumeister, 2004). Accordingly, the limited-resource model predicts that if a person attempts to engage in several demanding self-regulatory tasks simultaneously or consecutively, the chance of success at any one of them is significantly reduced.

Research using the self-regulatory resource model typically uses a two-task design to test for the effect of performing one self-regulation task on performance of another, subsequent task. First, participants perform either a target task designed to consume regulatory resources (e.g., resisting temptation, regulating thoughts) or a control task thought to consume few or no regulatory resources. Second, all participants perform a second regulatory task, which represents the dependent measure (e.g., persistence on an unsolvable puzzle; see Vohs & Heatherton, 2000). Depletion of resources is indicated when people who performed the first task do worse on the second compared with people who did not engage in self-regulation on the first task.

Most treatments of self-regulation have emphasized the intrapsychic processes, with sparse treatment of interpersonal processes (e.g., Baumeister, Heatherton, & Tice, 1994; Carver & Scheier, 1982; Higgins, 1996). However, self-regulatory resources may be especially needed for interpersonal processes that demand attentional, emotional, and cognitive control. The present investigation focused on self-presentation as an important dimension of interpersonal functioning that may often demand regulatory resources.

Self-Presentational Processes and Self-Regulation

Self-regulation is essentially the ability to alter the self's responses. Self-presentation consists of behaviors designed to make a desired impression on others. Self-regulation is thus more needed for some acts of self-presentation than for others. When people must effortfully plan and alter their behavior so as to convey the intended image of self, then success at self-presentation will depend heavily on effective self-regulation. This may be most common when people have to present themselves under difficult circumstances or in unfamiliar ways. Other times, however, self-presentation may follow habitual or well-learned patterns of behavior, and in those cases, it may not require much in the way of self-regulation.

To elaborate, we assumed that success at self-presentation predicts success in human groups and relationships (e.g., Baumeister, 1982a; Hogan, 1982). People learn from early in life that they must convey a positive image of self that conforms to their group's values of social desirability and admired traits. Therefore, most people develop some skill at self-presentation, and this skill is contained in overlearned or automatic patterns of self-presentation. However, given that social life (especially modern social life) is marked by irregular encounters with social contexts and relationship partners, it is probably impossible for self-presentation to become entirely automatized, and as a consequence, the person has to use effortful and deliberate control over his or her behavior to select and convey the optimal image—thus, self-regulation.

Leary and Kowalski (1990)[1] depicted impression construction, which is the active process of creating a public image, as combining two processes that can both require deliberate, effortful self-regulation: the selection of self-images for public portrayal and the strategic conveying of those images. For example, if a person's habitual mode of self-presentation is as a flirt, an aggressive athlete, or a hard drinker, then a job interview or meeting with prospective in-laws might motivate the person to override that by-now-easily-conveyed image in favor of another, more promising version of the self (such as an ambitious hard worker or a doting caregiver). By the same token, many people might moderate their extreme attitudes on sensitive issues to make a better impression on a new colleague who is found to have quite different views. In these ways, self-presentation can benefit from self-regulation, but again mainly when circumstances call for a departure from the person's habitual style and image.

Linking self-regulation with self-presentation helps explain the perplexing question of why people fail at self-presentation. If evolution and cultural competition both favor effective impression managers, why do some people still make bad impressions? For example, university professors are sometimes asked to take part in discussions with members of the community at large. These occasions require the use of an infrequently used set of social skills

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[1] Following Leary and Kowalski (1990) we use the terms *self-presentation* and *impression management* interchangeably.

and a style of self-presentation that differs greatly from that used among colleagues, friends, and family members. All too often, we fear, professors give the impression to others that we are an arrogant, uncooperative, and defensive group of know-it-alls. Whereas the traditional answers provided by self-presentation theory to explain poor self-presentation have focused chiefly on lack of motivation (not caring about the audience) or lack of knowledge (not knowing how to get one's desired image across), this investigation sought to add a third explanation—namely, that some self-presentations depend on self-regulatory resources, and when these valuable resources are depleted, self-presentation becomes less effective.

When Does Self-Presentation Consume Regulatory Resources?

Given the importance and pervasiveness of self-presentation, it is hardly surprising that people develop standard, familiar ways of presenting themselves to others. After all, most interpersonal behavior involves communicating some information or some image of self to others (Baumeister, 1982a; Schlenker, 1980). For instance, one study reported that people spend more than 3 hr every day consciously directing their public images (Leary et al., 1994). Most often, people probably present fairly uniform versions of themselves, versions that consist of some degree of truth and some degree of editing to depict a favorable, socially desirable image (e.g., Leary & Kowalski, 1990; Schlenker, 1975, 1980; Tesser & Moore, 1986). They also learn to conform to specific rules denoting how to be seen favorably by others, including adherence to gender- and audience-specific norms (e.g., Leary et al., 1994; Tice, Butler, Muraven, & Stillwell, 1995).

As self-presentations become more practiced and habitual, they also become more efficient, and thus require less effort. Support for this notion comes from evidence on the automatization of psychological processes. Bargh (1994) has theorized that processes that are frequently engaged become automatized, a transformation that results in greater efficiency. Indeed, research has shown that when people's usual routines are disrupted or when people find themselves in an unfamiliar situation, they are pulled out of an inattentive, mindless state and must exert increased attentional and behavioral control to enact the desired response successfully (Vallacher & Wegner, 1987).

Hence, occasions when people deviate from standard, familiar patterns of self-presentation should require more self-regulation, because these acts involve overriding familiar responses and actively controlling one's behavior. People may use volition and self-regulation in selecting the image they want to present, in choosing the strategic behaviors by which they will get that message across, or both (see Leary & Kowalski, 1990). These more effortful forms of self-presentation should drain more self-regulatory resources compared with presenting oneself in a standard, familiar, or habitual manner or engaging in only minimal self-presentation.

The two main predictions of the present investigation follow from this line of reasoning. First, when people are induced to present themselves in an unfamiliar manner, they have to regulate their behavior to do so, and as a result, their regulatory resources are reduced. More precisely, people are worse at regulating themselves after they have made a challenging or unfamiliar self-presentation. These deficits should be observable even in self-regulatory efforts that have nothing to do with the effortful self-presentations. The second hypothesis is the converse of the first. To the extent that self-presentation requires effort, its success depends on having sufficient resources to regulate the self. Therefore, when these resources have already been depleted by prior acts of self-control, self-presentation is less successful. That is, people present themselves in less appealing or less effective ways when their regulatory resources are depleted.

The Present Research

We tested the overarching hypothesis that some self-presentations require self-regulatory resources. In the current research, we both measured and manipulated self-regulation and self-presentation. We used this hybrid approach to offset drawbacks associated with either approach alone and to obtain converging multimethod evidence for the relatedness of self-regulation and self-presentation.

In Studies 1 through 4, we assessed whether various forms of self-presentation differentially tax self-regulatory resources. In Study 1, participants were asked to present themselves either modestly or very favorably to either a friend or a stranger. Then, participants' persistence on a tedious mathematical task was measured to assess self-regulatory ability. We predicted that participants who were asked to be modest in front of a stranger and enhancing in front of a friend (atypical and unfamiliar patterns) would persist less than participants who were modest in front of a friend and enhancing in front of a stranger. In Study 2, male and female participants were asked to present their outstanding competencies or outstanding interpersonal qualities. Afterward, we assessed their ability to keep a handgrip squeezed in the face of mounting muscle fatigue, which is one indicator of self-regulation. We predicted that men who had been instructed to emphasize their outstanding interpersonal qualities and women who had been instructed to emphasize their outstanding competencies (as forms of gender-inconsistent self-presentations) would show greater decreases in handgrip stamina as an indication of resource depletion compared with men who presented their outstanding competencies and women who presented their outstanding interpersonal qualities. In Study 3, participants were asked to make a speech that would present an image that is likable and competent or simply to make a speech behaving naturally. These speeches were made for an audience who was said to be either skeptical or accepting. Emotion control was the dependent measure, and we expected that those who tried to act competent and likable for a skeptical audience would display more emotional expressions. In Study 4, participants were led to believe that they were a token member of their race or one of many people of their race, and they were asked to give their opinions on a race-related topic or an environmental topic. We predicted that persistence on an unsolvable cognitive task would be lowest in the condition in which participants believed they were acting as a token member of their race in a discussion of racial policies.

In Studies 4 through 8, we reversed the independent and dependent variables: We manipulated self-regulatory resource depletion by asking participants to engage in a task that used high or low levels of self-regulatory resources, and then we assessed subsequent self-presentation to see whether depleted resources led to

differential impression management outcomes. In Study 5, participants were given mental control instructions or no control instructions and then were given a state measure of verbal loquaciousness (Swann & Rentfrow, 2001). Given that people generally have a desire to talk but hold back to varying degrees (Swann & Rentfrow, 2001), we predicted that prior depletion of regulatory resources would result in higher "blirtatiousness." In Studies 6 and 7, participants engaged in a task that was high or low in self-regulatory demand (emotion regulation in Study 6; Stroop color-naming task in Study 7). Afterward, participants chose topics of conversation varying in intimacy for an upcoming discussion with an unacquainted peer. We predicted that after having engaged in self-control, participants would be less effective at choosing appropriate, moderate levels of intimacy for their self-disclosures. Specifically, we predicted that depleted participants who have anxious–ambivalent or avoidant attachment styles would favor highly intimate or highly impersonal topics, respectively. In Study 8, participants were given either attention-control or no attention-control instructions before watching a video with irrelevant words scrolling across the screen. Then, participants' narcissism, social desirability, and self-esteem were measured. We predicted that participants who had to control their attention, relative to those who behaved naturally, would describe themselves more narcissistically (i.e., they would show "automatic egotism"; Paulhus et al., 1989) because they were less likely to regulate their behavior toward a socially desirable image.

Study 1: Friends and Strangers as Audiences

The goal of most self-presentation attempts is to make a positive impression on people (Jones & Wortman, 1973; Leary & Kowalski, 1990). However, the method by which this goal is best achieved differs according to audience and circumstance. When interacting with a stranger, it is sensible to present oneself in a favorable light, in the hopes of maximizing the positivity of others' perceptions. Person perception research suggests that when presenting to strangers, one should err on the side of presenting oneself very positively instead of presenting a more balanced view: With no prior information about a target, perceivers can come to hold a negative impression of a target with the mention of even one unfavorable trait about oneself (see Farkas & Anderson, 1976). With strangers then, the idiom, "you only get one chance to make a first impression," really means that one should use this chance to present a highly favorable self-image.

Although most empirical research on self-presentation has involved two unacquainted participants, people spend a great deal of time interacting with acquaintances, friends, and intimate others (Leary et al., 1994), and self-presentation is important in those interactions too. The goal of being seen positively must be achieved differently with friends than with strangers, however, because acquaintances and close others have knowledge about the person's past, thereby constraining the types of images a person can expect to be accepted by the audience (Baumeister, 1982b; Baumeister & Jones, 1978; Leary, 1995; Schlenker, 1980).

As a result, people habitually adjust the positivity of their self-presentations as a function of how familiar and well-acquainted they are with the audience. In one study, participants were instructed to project either a highly favorable or a modest self-image to an unacquainted interaction partner. Modest participants were less able to remember the interaction correctly compared with participants who presented themselves favorably (Baumeister, Hutton, & Tice, 1989). The researchers speculated that this effect occurred because presenting a modest self-image to a stranger is contrary to the standard, well-learned pattern of presenting oneself very positively and therefore occupies resources otherwise used to monitor the interaction. Extending these findings, Tice et al. (1995) showed that people spontaneously adopted a robustly positive self-presentational style when interacting with strangers, but when talking with friends, they spontaneously presented themselves in a modest fashion.

In the current study, we tested the idea that self-presentation consumes more self-regulatory resources when it goes against the standard, overlearned pattern of modesty with friends and positivity with strangers. We asked pairs of friends to come to the laboratory, where they were met by a same-sex confederate who acted as another naive participant. Prior to engaging in a structured interaction (Baumeister et al., 1989) with either a friend or a stranger (i.e., the confederate), participants were instructed to present themselves either modestly or very favorably.

After the interpersonal interaction was done, participants engaged in a self-control task of completing 3-digit $\times$ 3-digit multiplication problems by hand (e.g., $234 \times 889 = ?$). Pretesting showed that this task is quite tedious and the desire to stop arises quickly; hence, persistence requires that one override the urge to quit and exert extra effort to continue. We predicted that the unfamiliar, unaccustomed style of presenting oneself modestly to strangers but favorably to friends would have required more self-regulatory resources than being modest with friends and self-enhancing with strangers. Participants in these conditions should therefore experience self-regulatory resource depletion by the end of the interpersonal interaction. They would have fewer resources to help them continue working on the multiplication problems, and as a result, we predicted that they would give up faster than participants in the other conditions.

Method

Participants. Sixty-nine undergraduates (41 men, 28 women) participated in exchange for partial course credit. Persistence data from 1 participant were discarded because of failure to follow instructions.

Procedure. All participants were required to bring a same-sex friend with them to the experiment. The interview portion of the experiment included either two naive participants (i.e., the participant and a friend) or the naive participant and a confederate. Because our interest was on the self-presenter and not on the recipient of the self-presentation, we use the term *participant* to denote only the person instructed to give a modest or favorable self-presentation during the interview, even though half of the interviews were actually conducted between 2 naive participants (i.e., two friends).

Prior to each trial, participants were randomly assigned to interact with their friend or a stranger (i.e., a confederate) and also given instructions to present themselves either modestly or very favorably during the structured interview. Seated in the waiting area at the beginning of each trial was a same-sex confederate posing as a naive participant. At the start of each trial, the experimenter entered the waiting area and asked only the participant to follow her into a laboratory room, while the friend and the confederate remained in the waiting area. She explained to participants that the current research investigates what interviewers are able to detect during an interview and that they were assigned to act as the interviewee while one

of the other two students in the experiment (i.e., their friend or the confederate) acted as the interviewer.

The interview consisted of 15 questions regarding various aspects of personal life (e.g., creativity, social skills, hobbies). In the modest condition, participants were asked to answer the questions in such a way that would make them appear modest to the interviewer. They were told not to lie, but to draw on real experiences and slant them to appear modest. In short, participants were told, "when responding to each question, think about a time when you were not at your best."

In the self-enhancing condition, participants were asked to answer the questions in a manner that would make them stand out in a very positive fashion to the interviewer. Participants were again told not to lie, but to draw on real experiences and slant them to appear positive and favorable. In short, participants were told, "when responding to each question, think about a time when you were at your absolute best." In both conditions, participants were told veridically that the interviewer was unaware of the experimenter's instructions to skew their answers.

At this point, the participant's friend or the confederate entered the room and was given brief instructions on how to interview the participant. To ensure that participants followed the instructions, the interviews were audiotaped, and to statistically control for time spent self-presenting, the experimenter recorded the length of the interview. Afterward, the interviewer was led away and participants completed the Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988).

Next, participants were told that they were moving on to a different phase of the experiment. Participants were told that this segment concerned "numerical cognition." Participants were presented with 140 3-digit × 3-digit multiplication problems and asked to work on them until "they had completed the problems or decided to stop working" (see Vohs & Heatherton, 2000). After participants signaled that they had decided to stop or when they had reached a ceiling of 30 min, they completed a postexperimental questionnaire, after which they were debriefed and thanked.

Results

Manipulation checks. An analysis of variance (ANOVA) with gender, audience condition (friend vs. stranger), and self-presentation condition (modest vs. enhancing) as predictors was conducted on a postexperimental questionnaire item asking how close the participant felt to the person conducting the interview. This analysis confirmed differences in closeness between participants and their friends versus the confederate, $F(1, 68) = 343.83$, $p < .001$, and showed no other main effects or interactions, all Fs < 1.35, so there was little question the audience manipulation was effective. We predicted no mood differences as a function of audience or self-presentation condition. To ensure that our manipulation did not affect participants' mood, we conducted an ANOVA using audience condition, self-presentation condition, and gender as predictors of the Positive and Negative Affect subscales of the PANAS. This analysis confirmed our expectation that we did not manipulate mood by showing no significant main effects or interactions on either subscale, all Fs < 3.04, ps ≥ .10.

We also asked two coders who were blind to condition to rate the audiotapes on the degree of embarrassment and comfort that were exhibited by participants during the presentations. Their judgments were satisfactorily correlated, αs = .82 and .84, respectively. Analyses of these measures showed no differences as a function of self-presentation condition, audience condition, or their interaction, Fs < 1.6, *ns*. These results suggest that the self-presentations were not differentially distressing or uncomfortable for the participants but primarily varied in their typicality.

Self-regulatory ability after self-presentation. The main hypothesis was that persistence on the 3-digit × 3-digit multiplication problems would depend on the depletion of self-regulatory resources during the interaction. We predicted that participants who presented themselves in the more unfamiliar, effortful fashion (specifically, boastfully to friends or modestly to strangers) would quit faster on the mathematics problems. To test this hypothesis, we conducted an ANOVA with self-presentation condition (modest vs. enhancing), audience condition (friend vs. stranger), and gender as predictors of time spent persisting. This analysis revealed the predicted two-way interaction of Self-Presentation Condition × Audience Condition, $F(1, 67) = 9.81$, $p < .01$, and no other significant predictors, all Fs < 2.05, ps > .16.

A breakdown of the conditions revealed patterns consistent with our predictions (see Figure 1): Participants induced to self-present modestly were able to persist much longer when doing so to a friend than to a stranger, $t(67) = 2.74$, $p = .01$, whereas participants induced to self-present favorably were able to persist much longer when doing so to a stranger than to a friend, $t(67) = 1.97$, $p = .05$. Planned comparisons within audience condition also showed the expected pattern of results: When presenting to friends, participants who had been induced to act modestly were able to persist longer on the multiplication task than those who presented themselves favorably, $t(67) = 3.06$, $p < .01$. Likewise, when presenting to a stranger, participants who had been induced to act favorably were able to persist somewhat longer than those who presented modestly, $t(67) = 1.69$, $p = .096$.

Analyses using time self-presenting as a covariate. A possible alternative explanation for the present results is that presenting oneself in an unfamiliar fashion took longer (as opposed to draining more resources). To investigate this possibility, the experimenter took note of the length of the interview so that time spent self-presenting could be statistically controlled in our main analyses. First, we note that length of the interview was not significantly predicted by either self-presentation condition, audience condition, or their interaction, all Fs < 1. Next, we conducted an analysis of covariance (ANCOVA) with self-presentation and audience conditions as predictors and interview length as the covariate on time spent persisting on the multiplication problems. This analysis revealed no significant effect of interview length, $\beta = -.08$, $t(67) < 1$, and most important, the two-way interaction of self-presentation condition and audience condition remained significant after we controlled for duration of interview, $F(1, 67) = 8.84$, $p < .01$ (compare with $F = 9.81$, $p < .01$, in the analysis without interview time). Hence, length of time self-presenting did not appear to account for differences in persistence.

Discussion

The results of Study 1 supported our predictions regarding the relative efforts of presenting oneself favorably or modestly to an audience of strangers or friends. On the basis of prior findings, we assumed that it requires extra effort to present oneself modestly to a stranger or favorably to a friend (as compared with the reverse). Participants who we assigned to present themselves in these ways showed subsequent decrements in self-regulation. Specifically, they gave up faster on a tedious, strenuous, and aversive multiplication task relative to participants who presented themselves in more familiar, standard ways. These results confirmed our hypoth-
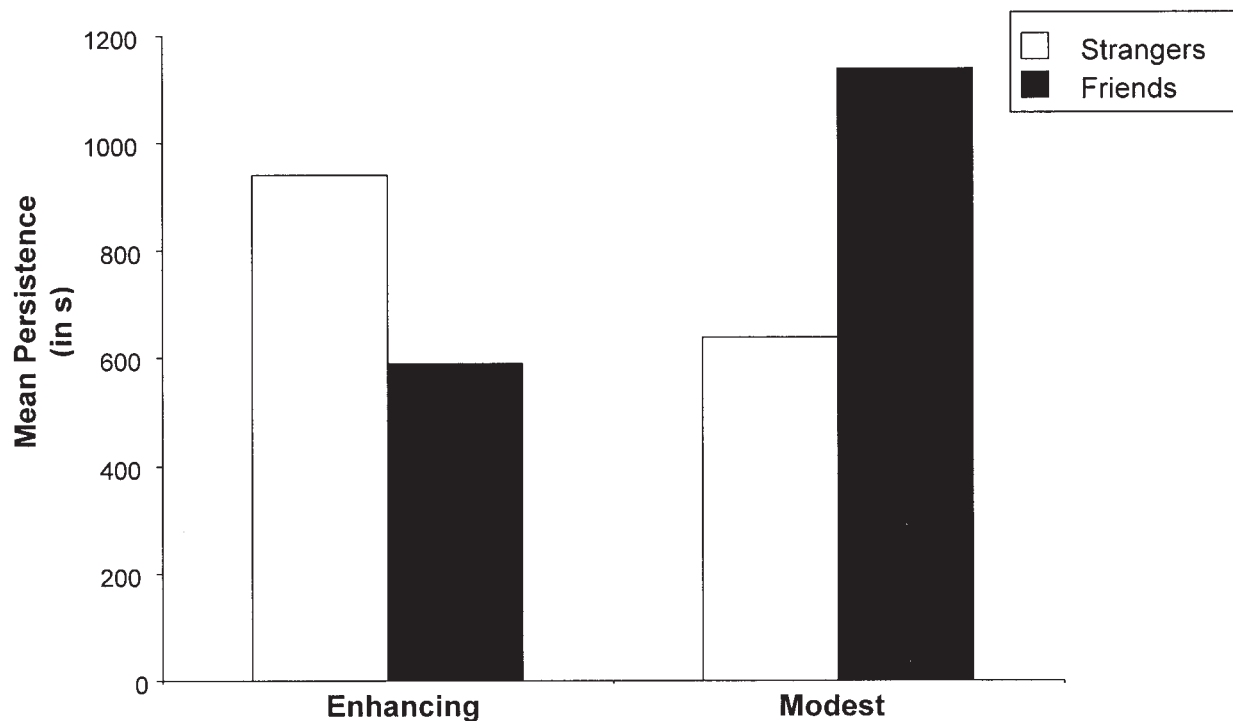
Figure 1. Mean persistence as a function of self-presentational style and audience, Study 1. Mean persistence = the amount of time participants spent on a lengthy mathematical task; strangers = the condition in which participants were interviewed by a previously unknown confederate; friends = the condition in which participants were interviewed by their friend; enhancing = the condition in which participants were induced to present their most favorable self-attributes; modest = the conditions in which participants were induced to present their rather moderate self-attributes.

esis that engaging in atypical self-presentational styles demands more regulatory effort and depletes the self's resources more than engaging in standard, familiar self-presentational styles.

Time spent self-presenting was not a key factor, ruling out the alternative explanation that an atypical style of self-presentation may have required longer to enact and that this factor, not the style itself, accounted for differences in subsequent persistence behavior. In sum, the findings of Study 1 are consistent with the idea that certain forms of self-presentation are more taxing than others, which consequently disrupts people's attempts to reach other goals, such as maintaining self-control.

Study 2: Gender-Linked Self-Presentations

Study 2 was a conceptual replication of Study 1, but used gender roles and domains of self-knowledge instead of audience and favorability of self-presentation. Although both men and women have a strong need to be a part of close relationships and be accepted into groups (Baumeister & Leary, 1995), the methods by which men and women seek to do this may differ. Past research suggests that men are more likely than women to emphasize their competencies and women are more likely than men to emphasize their interpersonal abilities (Leary, Robertson, Barnes, & Miller, 1986), although, of course, there is much variability in each gender's behavior, and thus, there is significant overlap in the range of each gender's self-presentation styles. Accordingly, we

proposed that engaging in the less-familiar style—that is, women attempting to be seen as competent and men attempting to be seen as interpersonally oriented—would consume more self-regulatory resources, resulting in poorer self-regulation subsequently.

Several theoretical and empirical lines support the idea that men and women highlight different aspects of the self, especially for self-presentational purposes. Research by Josephs, Markus, and Tafarodi (1992) found support for the idea that men's self-esteem is derived from having successful accomplishments, whereas women's self-esteem is derived from having a multitude of satisfying relationships. Leary et al. (1986) showed that men publicly portray themselves as highly competent, whereas women publicly portray themselves in terms of their relational, socioemotional abilities. Cross and Madson (1997) incorporated these findings and others into a theory of gender and self-construals, in which they asserted that an emphasis on independence and achievement characterizes men's self-concepts, whereas an emphasis on interrelatedness and social harmony characterizes women's self-concepts. Hence, there is ample evidence to suggest that it is more familiar and normative for men to project a competent self-image and for women to project an interpersonal self-image (although, again, there is much overlap between the genders in their interaction styles). Indeed, the smoothness of an interaction may hinge on presenting the self in a gender-consistent manner, given that perceivers expect that men should be assertive, outspoken, and not

reassurance seeking, whereas women should be reserved and ac-commodating (Joiner, Alfano, & Metalsky, 1992, 1993; Unger & Crawford, 1996).

We also used a different assessment of regulatory resource depletion in Study 2. Whereas Study 1 measured voluntary per-sistence on an aversive, tedious cognitive task, Study 2 measured physical stamina, using a handgrip-squeezing task. Keeping a handgrip closed is an ideal measure of self-regulation because it involves continuous exertion, requires overriding the urge to relax and cease effort, and has been shown to be sensitive to self-regulatory demands (Muraven et al., 1998). In the present study, our prediction was that presenting oneself in a gender-incongruent manner would lead to reduced stamina (greater decrements in handgrip ability) compared with presenting oneself in the familiar, gender-congruent manner.

Method

Participants. Fifty-eight undergraduate students (20 men, 38 women) participated in exchange for partial course credit.

Procedure. Prior to arrival, participants were randomly assigned to discuss either their outstanding competencies or interpersonal qualities. Participants were told that they would be asked to participate in several independent tasks and that their first task involved collecting data on a new task to be used in future experiments. Handgrip ability was measured by the number of seconds that participants exerted enough pressure to hold a sponge between the handles.

Participants were then told they would be making a "first impression video" to be shown to another participant during which they would be answering a specific set of questions about themselves. Then participants were given one of two lists of questions related to competencies or likability and were given 5 min to prepare themselves for filming. They were told to think of an answer for each question and elaborate on reasons for their answers. After the 5-min preparation period, participants were reminded that others would view and judge their tape, after which the experimenter started the videotape and exited the room. Length of time participants spent making the video was recorded by the experimenter.

Questions on both lists pertained to participants' most outstanding abilities in one of the two domains. Because simply asking participants about their accomplishments or interpersonal skills left open the possibility that participants would relay their inadequacies in a given area (such that consequently participants would feel neither competent nor interpersonally skilled), we worded all questions so that participants were induced to discuss their strengths. On the outstanding-accomplishments list were 10 items pertaining to personal qualities likely leading to career success, efficient work habits, academic success, and qualities that helped them overcome obstacles (e.g., "Discuss a quality that you possess that will mostly likely lead to fulfillment and success in your career"). On the outstanding-interpersonal list were 10 items pertaining to participants' personality traits that have led to successful relationships as well as their social skills and communication abilities (e.g., "Talk about a quality you have that makes others want to be your friend").

After making the video, participants were told that their next task was to squeeze the handgrip again because the handgrip measure is more accurate when the average of two trials is used. This task has been used as a measure of self-regulation in previous work, because it requires the performer to continue squeezing despite muscular ache and fatigue that make the person want to release the grip (Muraven et al., 1998). The person must therefore override the initial response of relaxing the grip to perform effectively, and overriding is a defining feature of self-regulatory operations. As before, the experimenter recorded length of time participants were able to keep the handles of the handgrip squeezed together. Participants were then asked to complete the PANAS and a follow-up questionnaire. Last, participants were debriefed and thanked.

Results

Manipulation checks. Participants completed the PANAS to ensure that there were no mood differences at the time of the second handgrip test. In support of this expectation, an ANOVA with gender and self-presentation condition (outstanding accom-plishments vs. outstanding interpersonal skills) showed no main effects or interactions in predicting positive or negative affect, $Fs < 1.20$.

In a postexperimental questionnaire, we asked participants to give self-ratings of competence and interpersonal skills. Consistent with our expectations, we found that competency and interpersonal ratings were both predicted by the main effect of self-presentational condition, $F(1, 56) = 4.00$ and $F(1, 56) = 4.16$, $ps \leq .05$, with participants rating themselves as more competent and more interpersonally skilled after having made videos that emphasized these traits (see Jones, Rhodewalt, Berglas, & Skelton, 1981). For interpersonal skills, there was also a main effect of gender, $F(1, 56) = 9.89$, with women rating themselves more skilled than did men. Importantly, there was no interaction be-tween gender and self-presentational condition for either measure, $Fs < 1.97$, indicating that our instructions did not differentially affect self-perceptions of competency or interpersonal abilities.

It is possible that the ability to self-present as interpersonally skilled or as competent differs with gender, as opposed to the typicality of self-presenting in these ways, which would mean that we may have asked the gender-inconsistent participants to perform a task that they could not perform well and that this, not the unusualness of the self-presentation, accounted for the expected results. We asked two independent judges who were blind to condition and hypotheses to rate each tape on the following at-tributes: degree of embarrassment, humiliation, shame, interest, excitement, anxiety, discomfort, efficacy of executing the self-presentation, and difficulty of delivering the presentation on a scale from 1 (*not at all*) to 7 (*very much so*). Interrater reliabilities were acceptable, $\alpha s = .80-.92$. ANOVAs with gender and self-presentation condition as predictors revealed no effects of the two main effects or of their interaction, $Fs < 1.65$. Thus, it did not appear that participants had more or less difficulty performing the specified self-presentation, thus clearing an alternative explanation for the anticipated results.

Self-regulation after competent or interpersonal self-presentations. Our primary prediction was that presenting one-self in a manner that is unfamiliar or infrequently enacted requires more self-regulatory resources, which should result in poorer self-regulatory performance on the handgrip task. To test this predic-tion, we used an ANOVA with gender and self-presentation con-dition (outstanding accomplishments vs. outstanding interpersonal skills) as predictors on change in time spent holding the handgrip from pre- to postmanipulation. Change in handgrip ability was computed by subtracting premanipulation length from postma-nipulation length. Supporting our prediction, this model yielded a significant interaction between gender and self-presentational style, $F(1, 57) = 9.95$, $p < .001$, but no other significant predic-tors. To confirm these results, we conducted a mixed-factors ANOVA with condition and gender as between-subjects factors

and handgrip assessment (pre- vs. postmanipulation) as a within-subject factor. As expected, this model revealed a significant three-way interaction of Assessment Time × Self-Presentation Condition × Gender, $F(1, 54) = 14.07$, $p < .01$, whereas the three main effects were not significant, $Fs < 1.2$.

Breakdowns of the omnibus effect (using difference scores) also supported our predictions. We found that self-regulatory (i.e., handgrip) ability was significantly different for men and women who were induced to emphasize their competencies, $t(57) = 2.53$, $p < .01$, as was handgrip ability for men and women who were induced to emphasize their social skills, $t(57) = 1.96$, $p = .055$. An examination of the means (see Figure 2) showed that men exhibited reduced handgrip ability after they had presented themselves as socially skilled, whereas women exhibited reduced handgrip ability after they had presented themselves as competent.

A similar set of analyses conducted within self-presentation condition also yielded results consistent with our hypotheses. Self-regulatory (i.e., handgrip) ability decreased among men who were induced to present themselves as socially skilled relative to those induced to present themselves as competent, $t(57) = 1.98$, $p = .053$. In contrast, handgrip ability decreased among women who were induced to present themselves as competent relative to those induced to present themselves as interpersonally skilled, $t(57) = 2.85$, $p < .01$ (see Figure 2).

Analyses using time and self-perceptions as covariates. To ensure that differences in self-regulatory ability were not a function of having spent varying amounts of time self-presenting, we tracked the length of time participants spent recording their video. First, we confirmed that length of time spent presenting was not predicted by gender, condition, or their interaction, $Fs < 1.3$. Next, we included video length as a covariate in an ANCOVA with gender and self-presentational condition as predictors of change in handgrip ability and found that the effect of the predicted Gender × Condition interaction remained significant, $F(1, 57) = 9.67$, $p < .01$ (cf. the interaction term without the covariate, $F(1, 57) = 9.95$), and length of the video was again a nonsignificant factor, $\beta = .09$, $p > .45$. Thus, the effects obtained were not due to differences associated with the amount of time spent self-presenting but rather were associated with the type of self-presentation required.

Another possible contributing factor was that presenting oneself as more competent would directly cause people to show more stamina on the handgrip task because they internalized the self-presentations of competence. To test this possibility, we used an ANCOVA with competency and interpersonal skill ratings as covariates and gender and self-presentation condition to predict change in handgrip ability. This model yielded only the expected Gender × Self-Presentation Condition effect, $F(1, 56) = 10.30$, $p < .01$, all other $Fs < 1$. The effects of self-rated competence and social skills were not significant, $\beta s = -.04$ and $-.01$, respectively, $ps > .74$.

Thus, the effect of self-presentational style and gender on subsequent self-regulatory ability appeared to have been the result of difficulty of the presentation and were not due to the amount of time engaged in self-presentation or to any changes resulting from participants seeing themselves as competent or socially skilled.
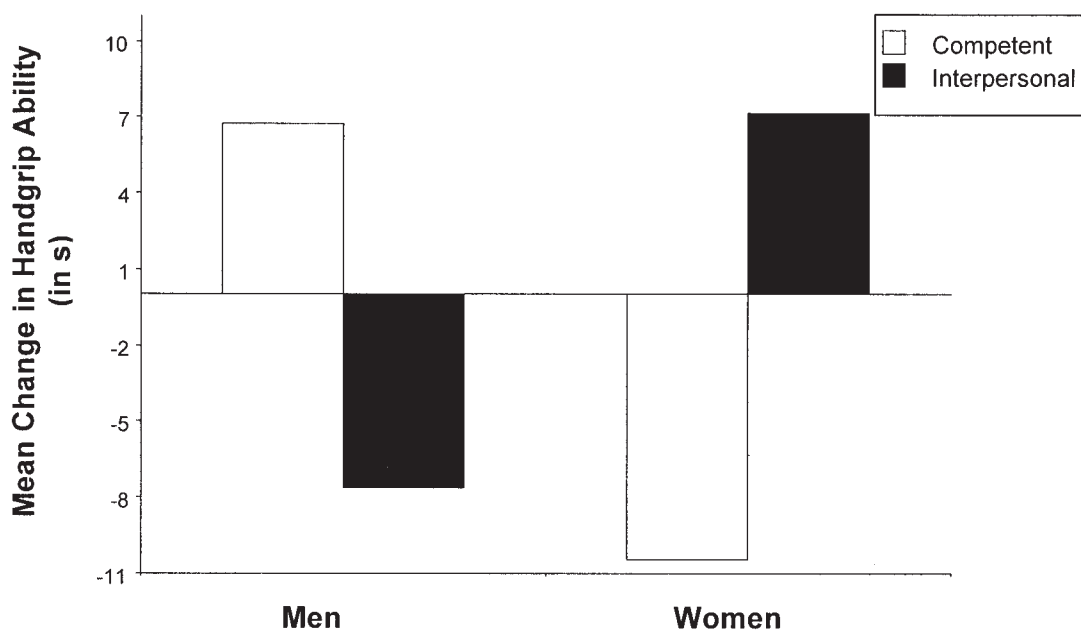

Figure 2. Mean change in handgrip ability as a function of self-presentational style and gender, Study 2. Mean change in handgrip = the difference in length of time participants squeezed a handgrip from pre- to postmanipulation, coded such that negative numbers indicate a shorter time holding the handgrip after the depletion manipulation, relative to before the manipulation; competent = manipulations that induced participants to present their outstanding accomplishments; interpersonal = experimental manipulations that induced participants to present their outstanding interpersonal qualities.

Discussion

Study 2 supported the hypothesis that different self-presentational styles require different amounts of self-regulatory resources, and the difference is a function of the familiarity and, hence, the ease with which one can project a specific self-image. On the basis of previous work, we assumed that men and women generally emphasize different qualities when presenting themselves to an unfamiliar audience, with men underscoring their accomplishments and competencies, whereas women highlight their interpersonal skills and relational qualities. We proposed that inducing men and women to engage in the less-preferred self-presentational style, relative to the more familiar style, would demand greater self-regulation. We found support for these hypotheses in results showing that decrements in self-regulatory ability (in terms of reduced stamina on a handgrip task) followed from participants presenting themselves in the manner opposite to the standard pattern for their gender.

This finding constitutes a conceptual replication of Study 1. A particularly important aspect of the replication is that Study 2 encouraged favorable self-presentations by all participants, unlike Study 1. This result helps rule out any alternative explanation that the results of Study 1 were directly affected by favorability of thoughts about the self. In Study 2, only the domain of emphasis was manipulated. Everyone was encouraged to present him- or herself favorably, the difference being only in whether the domain of emphasis was standard for that person's gender or for the opposite gender.

Differences in self-regulatory ability were not due to the length of time participants spent self-presenting or to any change in self-perceptions caused by the self-presentation. Additionally, the effects cannot be accounted for by the possibility that discussing one's outstanding accomplishments primed the construct of performance that then led to increased efforts on the handgrip task: First, there was no main effect of self-presentation condition on handgrip performance but rather a crossover interaction of gender and self-presentational style. Second, analyses controlling for self-rated competencies and self-rated interpersonal skills did not demonstrably change the Gender × Self-Presentation interaction. Last, we also ruled out the possibility that it was uncomfortable, distressing, or otherwise difficult for people to self-present in a gender-inconsistent manner; indeed, there is much variability and overlap in men's and women's self-presentations, and thus, our gender-inconsistent instructions seemed to have prompted a shift into a lesser used (but not completely foreign) self-image.

Although the present work suggests that there are intrapersonal costs to engaging in certain forms of self-presentation, the extant literature suggests that there may be interpersonal sanctions as well, against which men and women may guard by engaging in gender-consistent forms of self-presentation. A recent longitudinal study found that women who interpersonally accentuated their relational skills were liked increasingly more by their roommates, whereas men who emphasized their personal competencies were seen as more unlikable by their roommates (Joiner, Vohs, Katz, Kwon, & Kline, 2003). Indeed, the styles of self-promotion and ingratiation, which represent the desire to appear competent versus likable, have meaningfully different consequences on interpersonal perceptions as a function of the actor's gender. Work by Rudman (1998) indicates that when women engage in self-promotion and

(to a lesser extent) when men engage in relational self-presentations, they suffer the interpersonal costs of being judged by others as less socially attractive. The results of Study 2 therefore suggest that the aspects of self that men and women choose to portray to others can affect intrapersonal or interpersonal well-being or both.

Study 3: Challenging Impressions and Skeptical Audiences

Study 3 provided further tests of the hypothesis that self-presentational demands can deplete regulatory resources and render people less able to control themselves subsequently. In the most challenging condition in this study, participants were confronted with a self-presentation task that was made demanding in three ways, hence presumably draining self-regulatory resources threefold. First, they had to present themselves in a specified manner, which presumably called for increased thought control, attention regulation, and an overall higher level of coordinated behavior compared with control participants, who could present themselves in a manner they found convenient and appealing.

Second, the self-presentation instructions called for participants to try to come across as both likable and competent. Likability and competence may be somewhat inconsistent, and at least, they invoke different classes of behavior and evidence (e.g., Rudman, 1998) so that active regulation by the self is required for the effortful task of reconciling the competing demands of the two components of the desired image.

Third, and most unlike the first two studies, Study 3 manipulated self-presentational difficulty by varying the ostensible attitude of the audience. The procedure was adapted from prior work by Schlenker, Weigold, and Hallam (1990). Some participants were told that the audience would be skeptical and, therefore, making the desired impression would be especially difficult. We predicted that this too would call forth greater efforts to present oneself carefully, resulting in greater depletion of self-regulatory resources.

Self-regulatory depletion was also measured in a manner different from the procedures of the first two studies. Specifically, participants were instructed to try to remain emotionally neutral (and to keep their faces from expressing any feelings) while watching an emotionally evocative, upsetting videotape. Effortful suppression of emotional responses is an important category of self-regulation. Hence, we predicted that participants would be less successful at stifling their emotional reactions to the extent that they had used self-regulation previously to respond to the self-presentational challenges. The most depleted would be the participants who were assigned both the challenging image to present (i.e., both likable and competent) and who faced the ostensibly skeptical audience.

Method

Participants. Sixty undergraduate students (30 men, 30 women) participated in exchange for partial course credit.

Procedure. Participants came to the laboratory individually, where they were told that they were taking part in two experiments. The first experiment involved making an audiotape about oneself for use in graduate student training in the clinical psychology program. They were told that they would be making an audiotape to which the graduate students would

listen and make some basic personality ratings. Following Schlenker et al. (1990), participants were randomly assigned to one of two self-presentation image conditions. In the act-natural condition participants were told to "be yourself," whereas participants in the challenging self-presentation condition were told to "be competent and likable." This factor of self-presentation image condition was crossed with a manipulation of the audience's acceptance of people's self-statements. Participants in the accepting audience condition were told that the graduate students have been trained to believe that people are generally truthful about what they say about themselves, whereas participants in the skeptical audience condition were told that the graduate students have been trained to believe that people are not truthful in what they say about themselves (also taken from Schlenker et al., 1990). Following these instructions, participants were given a tape recorder and left alone in a room to talk about themselves for 6 min.

After the self-presentation task, participants completed the PANAS and then were led into a different room to watch a short video. The video was presented as part of the second experiment, which concerned "facial topography" and the structure of the facial muscles in the presence of external stimuli. To this end, participants were seated 6 ft (1.83 m) in front of a video camera that was aimed at their face, and they were told that the camera would be recording their facial expressions during the video. Participants were told that they should watch the video but remain neutral, both "on the inside and outside"; that is, they should remain facially and affectively neutral. The experimenter started a 7-min clip from the documentary *Mondo Cane* (Jacopetti, 1961), a film that illustrates the effects of radioactive waste on wildlife and humans. The repellent scenes of mutilated and dying animals bring about an emotional reaction in almost all viewers, thus making it a self-control task for participants to conceal their emotional expressions when watching the film (see also Vohs & Schmeichel, 2003). After the video was over, participants completed a postexperimental questionnaire and were debriefed and thanked.

Results

Manipulation checks. Participants completed the PANAS to assess whether there were mood differences after the manipulation. An ANOVA with audience (skeptical vs. accepting) and self-presentation image conditions ("be yourself" vs. "be competent and likable") showed no main effects or interactions in predicting positive or negative affect scores, $Fs < 1.60$. (Gender was neither a main effect nor entered into the interactions when included in models predicting the manipulation checks or main analyses.) Difficulty ratings (on a Likert scale from 1 to 10, representing *not at all difficult* to *very difficult*) of the speech task as a function of self-presentation image condition and audience condition also supported the validity of our manipulations in revealing a main effect of self-presentation image condition, $F(1, 55) = 7.88$, $p < .01$, a main effect of audience type, $F(1, 55) = 4.45$, $p < .04$, and a nearly significant interaction, $F(1, 55) = 3.83$, $p = .071$. An examination of the means showed that the task was seen as most difficult in the combined skeptical audience and challenging (competent and likable) self-presentation condition, $M = 6.33$, $SD = 2.53$, with the two middle conditions with one self-presentation demand falling in the middle, $M = 3.59$, $SD = 2.12$ (for a skeptical audience and act-natural instructions), and $M = 4.00$, $SD = 2.16$ (for supportive audience and challenging self-presentation image). The theoretically least demanding condition, being oneself for an accepting audience, was indeed considered to be least difficult by participants ($M = 3.43$, $SD = 2.24$). Last, we asked a coder who was blind to hypotheses and condition to rate the "naturalness" of the speeches on a scale from 1 (*not at all natural*) to 7 (*very*

natural), and we found that this rating was predicted by the self-presentation image condition, as we expected, $F(1, 53) = 2.14$, $p < .04$, with the act-natural condition (participants who were told to "be yourself") delivering the most-natural speeches. Thus, we felt assured that the self-presentation demands did vary in difficulty, both with respect to audience type and to challenging versus nonchallenging self-presentation instructions.

Self-regulation after highly demanding or less demanding self-presentations. The dependent measure of self-regulation was the ability to keep facial expressions neutral while watching the emotional video. Facial expressions were coded at three time periods throughout the 7-min viewing time, at Min 0:00–1:00, 3:00–4:00, and 6:00–7:00, and at each point were rated on a scale from 1 (*not at all expressive*) to 5 (*very expressive*). One coder, who was blind to hypotheses and condition, coded expressiveness, and a portion of her codings (10 of 60) were double coded by another judge unaware of the study's intent. For this measure of self-regulation ability, we aggregated the primary coder's set of ratings to make an overall expressiveness index that combined all three measures of expressiveness. Agreement between the two coders at the three rating points was satisfactory, $\alpha s = .80, .69,$ and $.78$, for the first, second, and third ratings, respectively.

An ANOVA with audience condition (skeptical vs. accepting) and self-presentation image condition (challenging [competent and likable] vs. not challenging [be yourself]) revealed the predicted two main effects, $F(1, 56) = 5.30$, $p < .03$, for audience and $F(1, 56) = 15.21$, $p < .01$, for self-presentation image condition. It also revealed the expected interaction, $F(1, 56) = 5.90$, $p < .02$.

Breakdowns of the means by condition showed that facial expressiveness (i.e., self-regulation failure) was greatest after participants had to present themselves as competent and likable for a skeptical audience (see Figure 3). Follow-up tests revealed that participants who had to present as both competent and likable to a skeptical audience were more expressive than their relevant counterparts: $t(55) = 4.37$, $p < .01$, for comparisons between unchallenging versus challenging self-presentation image conditions to a skeptical audience; $t(55) = 4.20$, $p < .01$, for comparison of the skeptical versus accepting audience conditions within the challenging self-presentation image group. The other two pairwise comparisons were not significant, $t(55) = 1.14$, $p < .26$, for comparisons of the unchallenging versus challenging self-presentation image conditions to the accepting audience, and $t(55) < 1$, for comparisons of the skeptical versus accepting conditions within the act-natural self-presentation image group.

Discussion

Study 3 provided further support for the view that effortful self-presentations place heavy demands on self-regulatory resources, therefore leaving individuals less able to control themselves afterward in a seemingly unrelated context. Participants rated the most challenging condition to be the one in which they had to present themselves as both likable and competent and had to do this to a supposedly skeptical audience. Participants in that same condition showed the greatest subsequent impairments in self-regulation, as indicated by their inability to stifle or conceal their emotional reactions to a distressing film clip.
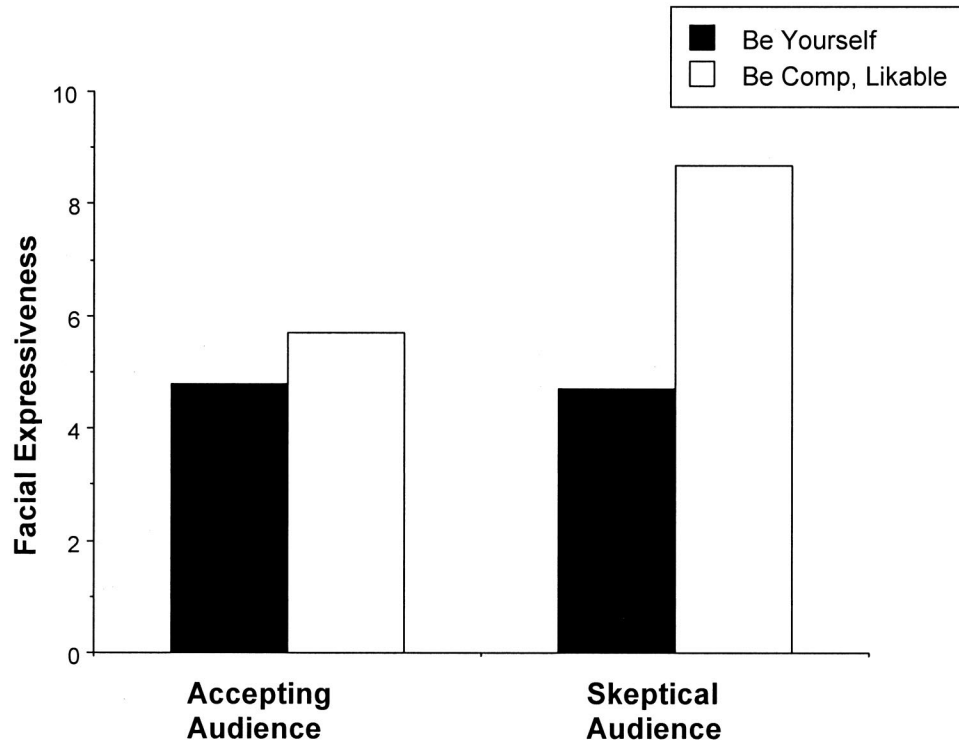
Figure 3. Total facial expressiveness as a function of audience and self-presentational instructions, Study 3. Expressiveness = degree of emotional expressiveness participants revealed while watching an emotional video under instructions not to show emotions; be yourself = instructions to behave naturally; be comp, likable = instructions to present an image both competent and likable; accepting audience = manipulations in which participants were led to believe that their self-presentations would be heard by a supportive audience; skeptical audience = manipulations in which participants were led to believe that their self-presentations would be heard by a highly evaluative audience.

Study 4: Tokenism and Sensitive Topics

In Study 4, we examined a different type of self-presentational demand on self-regulatory abilities. We focused in Study 4 on the difficult, demanding, and sometimes demeaning task of being a token member of a group in an interpersonal setting. In earlier research (Lord & Saenz, 1985), women and minorities demonstrated limited recall for the contents of a roundtable discussion of everyday topics, but only if they believed they were the only member of their race or gender present. Lord and Saenz speculated that tokens "may be overly concerned with the image that they project to others, and may shift attention toward self-presentation and away from the ongoing exchange of information" (p. 923), which anticipates the present hypothesis. We predicted that being a token would increase the pressure to present oneself carefully, and so people would invest more self-regulatory effort in managing their self-presentations. The task was further complicated by our second manipulation, namely the topic of the discussion. Some tokens had to discuss a topic that highlighted their token status, namely race relations, whereas others had to discuss an irrelevant topic (environmental protection). We predicted the greatest depletion of regulatory resources would be found among racial tokens who had to discuss race relations. Regulatory depletion was measured in terms of persistence on unsolvable tasks. This measure has

been used in many prior studies on regulatory depletion (e.g., Vohs & Heatherton, 2000), because unsolvable tasks are frustrating and discouraging, and so making oneself keep trying requires one to override impulses to quit.

Method

Participants. Participants were 60 undergraduates (26 women, 34 men) who participated in exchange for partial course credit.

Procedure. Participants came to the laboratory individually for a study on "symbols and political psychology." They were told that they would be partaking in a focus group to discuss various political topics. Participants were told that they would report their responses to opinion questions into an audiotape that would later be combined with tapes being gathered from other universities and given to a counsel of academics to review the arguments on the tapes. Participants in the token condition were told that they would be the only tape from a _____ (insert participant's race; e.g., White) student that the counsel would hear. Participants in the nontoken condition were told the same information about the way the tape would be used; however, they were told that their tape would be one of many tapes from _____ (insert participant's race; e.g., White) students that the counsel would hear.

Participants were then asked to speak on one of two topics. In the racial policies condition, participants were told: "People in all situations are affected by racial equality. Please talk about your thoughts about discrim-

ination against your race as the result of racial policies, and how it affects you and others of your race." Participants in the environmental policies condition were told: "People in all situations are affected by environmental damage. Please talk about your thoughts about damage against your environment as the result of environmental policies, and how it affects you and others in your area." Participants were left alone for 4 min to speak their thoughts into a tape recorder.

Subsequently, participants were given the PANAS to complete, after which they were given a task that asked them to find one of five target figures embedded in 16 larger figures (adapted from Snyder, Smoller, Strenta, & Frankel, 1981). By removing key lines from the drawings, we were able to make 12 of the 16 items impossible to solve. Participants were told to continue working on the task until they had "solved it or could not continue trying anymore." This task has been used as a measure of persistence in past self-regulation research (see Vohs & Heatherton, 2000). Last, participants completed a postexperimental questionnaire and were debriefed and thanked.

Results

Manipulation checks. Participants' mood states, as measured by the PANAS, were entered into an ANOVA model with token status (token vs. nontoken) and topic condition (racial vs. environmental) as predictors. (Gender did not predict or interact with the conditions to predict mood states, difficult scores, or persistence, so it is not discussed further.) The two main effects and the interaction were not significant predictors of positive affect scores, all $Fs(1, 56) < 1$, or negative affect scores, $Fs(1, 56) < 1.90$, $ps < .17$. Thus, mood states did not systematically vary with condition. Difficulty ratings of the opinion task were, however, predicted by the conditions. Topic (racial vs. environmental) was a significant predictor, $F(1, 56) = 13.92$, $p < .01$, as was token status, $F(1, 56) = 9.17$, $p < .01$. The interaction of the two factors was a marginally significant predictor, $F(1, 56) = 3.03$, $p < .09$. An examination of the means showed that difficulty scores were highest when participants in the token condition had to speak their minds on racial policies ($M = 6.44$, $SD = 1.67$) and lowest when participants thought they were one of many of their race speaking on environmental policies ($M = 2.78$, $SD = 1.69$). Speaking about racial policies when being a nontoken was moderately difficult ($M = 3.86$, $SD = 1.90$), as was speaking about environmental policies as a token individual ($M = 3.8$, $SD = 1.72$). In sum, it seemed that the manipulations were differentially difficult but did not alter participants' mood states, conditions that are in line with our past manipulations of self-regulation and self-presentation tasks.

Persistence after token versus nontoken self-presentations. Time spent attempting the embedded figures task was the dependent measure, which was entered into an ANOVA model with token status and topic condition as predictors. As predicted by the work of Lord and Saenz (1985), the token condition was a significant predictor, $F(1, 52) = 17.94$, $p < .01$, as was topic condition, $F(1, 52) = 5.05$, $p < .03$. As we expected, the combination of token status and topic condition was also a significant determinant of time spent attempting the unsolvable problems, $F(1, 52) = 4.80$, $p < .04$ (see Figure 4).

Discussion

Study 4 again supported the hypothesis that self-presentation demands deplete regulatory resources and make it harder for

people to self-regulate subsequently. In Study 4, we operationalized self-presentational demands in terms of token status and talking about racial or environmental policies. As expected, we found that participants were most depleted and therefore regulated themselves least effectively when they had to give their opinions on a racial topic while believing that they were the only member of their racial group present. Having to speak about racial policies, in addition to the general stressor of being a solo group member as identified by Lord and Saenz (1985), placed extraregulatory demands on participants, who were later less persistent on an unsolvable cognitive task. Much like the new findings that stereotype threat reduces cognitive capacity (Schmader & Johns, 2003), which are similar to arguments made by Lord and Saenz (1985) regarding the mental effects of being solo members of a social category, the present findings implicate interpersonal functioning as a major determinant of people's ability to perform well on tasks requiring controlled and coordinated responses.

Study 5: On Being Blirtatious

The results of Studies 1 through 4 are consistent with the view that some forms of self-presentation—specifically, presenting oneself in a way that differs from one's normal, standard patterns—deplete self-regulatory resources, as indicated by impaired self-regulation on a subsequent task. With Study 5, we shifted to test the converse hypothesis; namely, that prior depletion of self-regulatory resources would cause self-presentations to suffer.

Study 5 manipulated thought control to deplete self-regulatory resources. Using a procedure pioneered by Wegner, Carter, Schneider, and White (1987), we instructed some participants to try to suppress any thoughts of a white bear for 6 min. Effortful suppression of forbidden thoughts has been shown to consume self-regulatory resources, leaving them depleted afterward (see Muraven et al., 1998).

As a first step in testing the idea that self-presentations would suffer under regulatory depletion, in Study 5 we administered a questionnaire measure of underregulated verbosity, the Brief Loquaciousness and Interpersonal Responsiveness Test (BLIRT; Swann & Rentfrow, 2001). People high in blirtatiousness talk much and speak very quickly, whereas people who are low in blirtatiousness are more restrained in their speaking style, are slower talkers, and take longer to respond verbally. The central idea is that people differ as to whether they speak everything on their minds as opposed to sometimes holding their tongues and keeping their thoughts to themselves. Swann and Rentfrow concluded that fear of negative evaluation underlies the restraint shown by people with low BLIRT scores, which suggests that such people have things they could say but self-regulate for the sake of impression management. An impairment of self-regulation might therefore be expected to produce an increase in blirtatiousness.

Becoming more blirtatious thus makes self-presentations less effectively managed. In principle, this could either help or hurt the quality of the impression one makes on others. Swann and Rentfrow (2001) concluded that blirtatiousness acts as a multiplier of other personal characteristics in interpersonal perceptions, based on evidence that people with high BLIRT scores were rated somewhat more favorably if they had good grades but less favorably if they had bad grades. However, the negative effect was stronger, in the sense that blirtatiousness intensified the bad im-
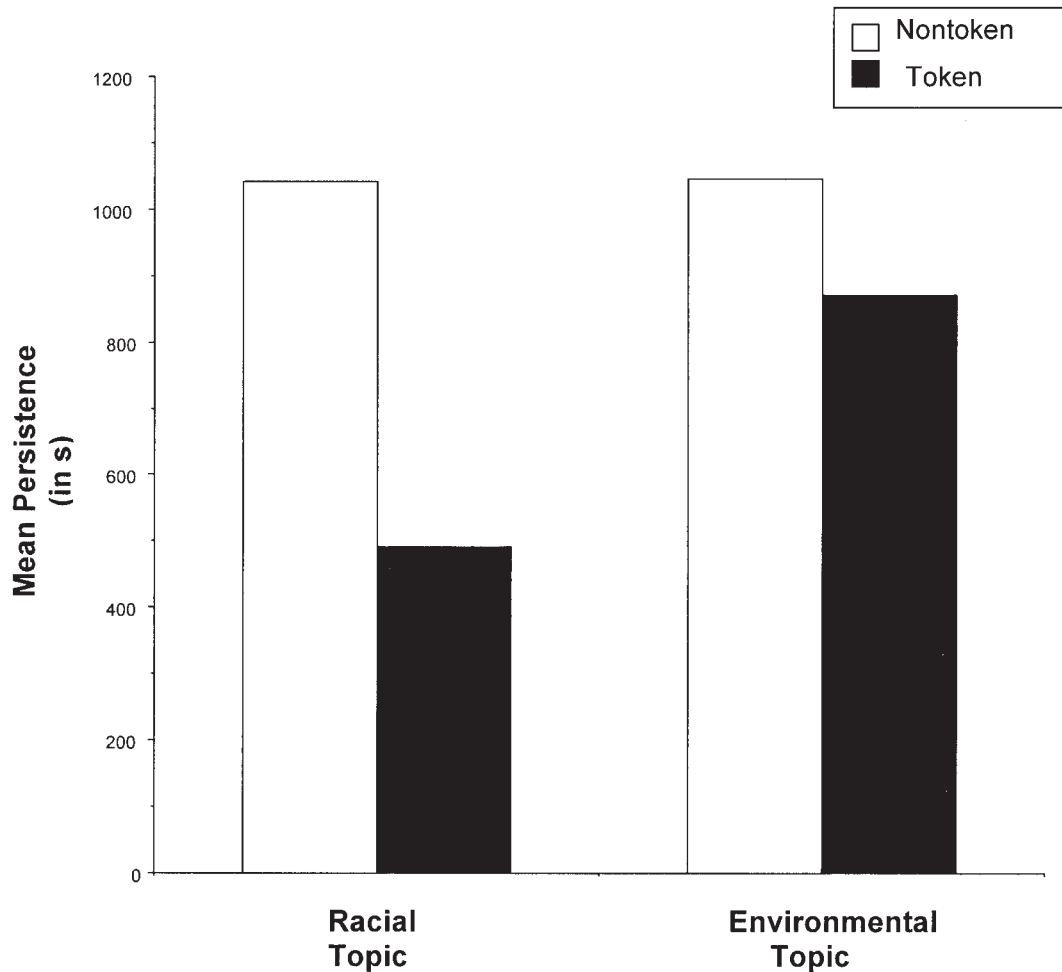
Figure 4. Mean persistence as a function of topic and token versus nontoken status, Study 4. Mean persistence = the amount of time participants spent on an unsolvable performance task; token = instructions that led participants to believe that they would be the only one of their racial group giving an opinion; nontoken = instructions that indicated that participants would be one of many of their racial group giving an opinion; racial topic = instructions that asked participants to give their opinions on racial policies; environmental topic = instructions that asked participants to given their opinions on environmental policies (i.e., a topic not germane to racial issues).

pression more strongly than it intensified the good impression, which is consistent with the general pattern that bad is stronger than good (Baumeister, Bratslavsky, Finkenauer, & Vohs, 2001). Hence, it seemed both intuitively and empirically plausible to assume that the tendency to blurt out any and all thoughts, as opposed to regulating one's speech carefully, would by and large do more harm than good.

Method

Participants. Participants were students (17 men and 17 women), who participated in exchange for partial course credit.

Procedure. Participants came to the laboratory individually, where they were told that they would be involved in an experiment on language use. They were first asked to perform a thought-listing task, in which we told them that we were interested in "how people form thoughts naturally—keeping in mind that what you write is completely anonymous" (see

Vohs & Schmeichel, 2003). Participants were asked to list all their thoughts for the next few minutes. For participants in the thought suppression condition, they were told that they could think about anything they wanted, except for a white bear. They were told that if they did happen to have any white bear thoughts, they should make a check mark on the side of their page as they were writing. For participants in the no suppression condition, participants were told that they could think about anything they wanted, including a white bear. They were told that if they did happen to have any white bear thoughts, they should make a check mark on the side of their page as they were writing. Participants were left for 6 min to complete the writing task.

After the writing task, participants completed the PANAS and then were asked to complete a scale on "conversation styles." Participants were given a version of the BLIRT Scale (Swann & Rentfrow, 2001) that had been modified to include state-like instructions and phrasing. For instance, the instructions were changed to read, "Please indicate how YOU WOULD react to these events RIGHT NOW by choosing a number from the

following scale." (The original trait version also includes the capitalized *you*; the modified state version added the capitalized words *would* and *right now*.) A sample modified item is, "If I had something to say, I would not hesitate to say it." (The original trait version of this item is, "If I have something to say, I don't hesitate to say it.") Participants completed the BLIRT Scale and afterward a postexperimental questionnaire. They were then debriefed and thanked.

Results

Manipulation checks. Participants' mood states were analyzed as a function of their thought control condition. On the basis of past research (e.g., Muraven et al., 1998), we expected no differences in mood states. Replicating past research, this is what we found: Scores on the positive and negative subscales of the PANAS were equivalent across groups, Positive Affect, $t(33) < 1$, Negative Affect, $t(33) = 1.41$, $p < .16$. As expected, our manipulation did not change participants' moods.

BLIRT scores as a function of thought suppression condition. Our primary hypothesis was that BLIRT scores would be predicted by mental control condition, and this hypothesis was confirmed by the results of a *t* test, $t(33) = 2.34$, $p < .03$. As seen in Figure 5, participants reported higher blirtatiousness on the modified version of the BLIRT Scale (Swann & Rentfrow, 2001) after they had engaged in thought control relative to when they were allowed to think freely.

Discussion

Study 5 was an initial test of our second hypothesis, that prior depletion of self-regulatory resources would impair subsequent control over self-presentation, thereby undermining the person's ability to make an optimal impression. We found that participants whose resources were depleted by a thought suppression task subsequently scored higher on the BLIRT, indicating that they would be more prone to speak whatever thoughts they might have.

One alternative explanation, however, is that suppressing thoughts about a white bear made people subsequently less willing or able to suppress the tendency to speak other thoughts. This could arise either from reactance (Brehm, 1966) or from the so-called rebound effect, in which suppressed thoughts later resurface (Wegner et al., 1987). Such a pattern would not be entirely inconsistent with our hypothesis that initial acts of self-regulation can lead to self-presentational impairments, but it would suggest an alternative mechanism to regulatory depletion, and it would also, presumably, be somewhat limited to behaviors in the same domain (in this case, suppressing thoughts). Hence, it was important for the subsequent studies to be designed such that the independent and dependent variables were in different domains.

Study 6: Emotion Regulation and Self-Disclosure

In Study 6, we hypothesized that depletion would cause some people to drift toward socially inappropriate, nonoptimal levels of
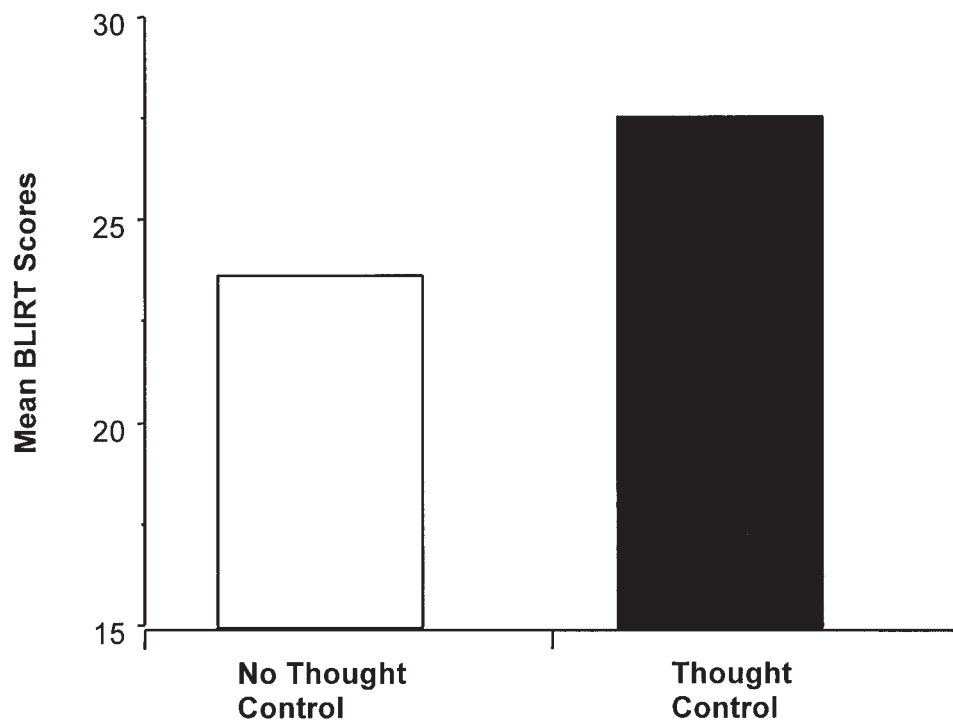

Figure 5. Mean of Brief Loquaciousness and Interpersonal Responsiveness Test (BLIRT) modified to a state measure, scores as a function of thought control condition, Study 5. No thought control = conditions in which participants were told to think about anything they wanted during a thought-listing task; thought control = conditions in which participants were told to think about anything they wanted *except* about a white bear during a thought-listing task.

self-disclosure. The disclosure of appropriate information about the self is an important determinant of likability and interpersonal perceptions (for a review, see Collins & Miller, 1994). Appropriateness of self-disclosures depends on achieving a particular level of intimacy. Both highly intimate and highly impersonal disclosures elicit negative reactions, with the former being seen as needy and possibly neurotic and the latter being seen as aloof and rejecting (Jones & Wortman, 1973). Hence, in a first meeting or more generally in the early stages of a relationship, a moderate level of intimacy of self-disclosure is seen as most likable because it signals that the discloser wants to increase the level of closeness in the relationship without overwhelming the recipient with intimate details (Altman & Taylor, 1973; see also Jones & Wortman, 1973).

Theories of self-disclosure (e.g., Altman & Taylor, 1973) have highlighted the importance of appropriate levels of information exchange, especially in the beginning stages of a relationship. In these early stages, an optimal level of intimacy for interactions with a new acquaintance would be a medium level of intimacy. Insofar as people regulate their self-presentations effectively, they should disclose at medium levels. However, if people's ability to self-regulate is impaired, for example, because of depletion of regulatory resources, they may deviate from this level in either direction.

However, not everyone would automatically drift toward overly intimate or overly aloof self-disclosures under the influence of resource depletion. Some people might naturally and easily prefer to disclose at an intermediate level of intimacy, regardless of depletion. Others might, however, normally have to exert self-control to disclose at the appropriately intermediate level, and when regulatory resources are depleted, they would be more likely to disclose inappropriately.

In this study, we used attachment style as the trait predictor of disclosure tendencies. Attachment style differences are rooted in different attitudes toward intimacy. Mikulincer and Nachshon (1991) found that people with an avoidant attachment style (thus prone to avoid closeness) tended to disclose at impersonal, low-intimacy levels, whereas people with an anxious–ambivalent attachment style (thus eager for closeness) preferred to disclose at highly intimate levels, at least when interacting with peers. People with a secure attachment style favored moderate intimacy.

The central prediction for Study 6 was that differences in self-disclosure intimacy would be subdued when people were in full possession of their self-regulatory resources but would emerge when those resources were depleted. More precisely, we predicted that all participants would disclose at an optimally intermediate level of intimacy if they had not previously engaged in self-regulation. However, after an act of self-regulation designed to deplete regulatory strength, people with an avoidant attachment style would drift toward low-intimate disclosures, whereas those with an anxious–ambivalent style would favor highly intimate disclosures. People with a secure attachment style would presumably continue to favor medium-intimate disclosures regardless of regulatory depletion.

In this study, we used two different forms of emotion regulation to manipulate depletion of self-control resources. Both exaggerating and suppressing emotional responses have been shown to consume self-regulatory resources (Muraven et al., 1998; Vohs & Schmeichel, 2003), and so we used both exercises to deplete

regulatory resources. We predicted that after engaging in either form of emotion control, people with an anxious–ambivalent attachment style would want to disclose highly intimate information, whereas people with an avoidant attachment style would prefer to disclose impersonal, superficial information. People with a secure attachment style were predicted not to change their self-disclosure patterns after depletion, given their proficiency in regulating intrapersonal and interpersonal processes and their natural preference for appropriately intermediate disclosures.

Method

Participants. Fifty-eight undergraduate students (34 women, 23 men, and 1 participant who neglected to indicate gender) participated in exchange for partial course credit.

Procedure. Participants came to the laboratory individually and were met by an experimenter. To bolster the idea (mentioned to participants later in the experiment) that the current study involved an interaction with another participant, the experimenter gave participants a set of questionnaires and indicated that she had to attend to a participant who was in a room down the hall. Participants' first task was to complete an attachment styles questionnaire (adapted from Hazan & Shaver, 1987). The attachment styles questionnaire asks participants to select a description that typifies their feelings regarding interpersonal relationships. The three descriptions represent the secure, avoidant, and anxious–ambivalent attachment styles. In the current study, participants' selection of attachment styles revealed that 50% of participants selected the secure style, whereas 26% chose the avoidant style and 24% chose the ambivalent style ($ns = 29, 15,$ and 14, respectively).

After the self-report measures, participants were given instructions corresponding to one of three self-regulatory resource conditions. We manipulated regulatory resource expenditure with instruction to regulate emotions (i.e., to suppress or exaggerate emotional reactions) versus no instruction to regulate emotions during a comedic film. Participants watched a 9-min clip of Robin Williams performing a stand-up routine (Mischer, 1982). This clip is generally rated as highly amusing, and previous studies of self-regulatory resources have used this clip to manipulate emotion-control efforts (Muraven et al., 1998).

Participants in the suppress emotion condition were instructed to "remain completely neutral. . . . Please try your best not to let any feelings or responses you may have show on your face." Participants in the natural emotion condition were asked to be "as natural as possible. . . . If you have any feelings or reactions to the movie, let them flow naturally." Participants in the exaggerate emotion condition were told to "express your feelings as much as possible. . . . . Please try your best to show all of your feelings and responses in your facial expressions" (Vohs & Schmeichel, 2003). All participants were seated approximately 3 ft (0.91 m) in front of a video camera that was in full view. Participants were told that they would be videotaped while watching the video for record-keeping purposes. This visual record of participants' facial expressions during the videoclip served as a check of their compliance with instructions (see Vohs & Heatherton, 2000). After watching the videoclip, participants completed the PANAS as a mood measure.

Next, participants were told that they were going to be conversing with the student down the hall. The experimenter told participants that because it can be difficult for new acquaintances to know what to talk about when first meeting, the participant would be given a list of questions on which they could indicate the topics they would like to discuss. Participants were then given a list of topics from the Relationship Closeness Induction Task (RCIT; Sedikides, Campbell, Reeder, & Elliot, 1998).

The RCIT is typically used to create an atmosphere of intimacy among unacquainted interaction partners (Sedikides et al., 1998; also Heatherton & Vohs, 2000; Vohs & Heatherton, 2001), with participants first asking and answering low-disclosure questions, then moving to moderate-

disclosure questions, and finally, discussing high-disclosure questions. In its current use, the 29 items from the RCIT were randomly ordered, such that low-, moderate-, and high-disclosure topics were intermixed throughout the list. Participants were asked to indicate their desire to discuss each topic using a 10-point Likert scale (where 1 = *not at all*; 10 = *very much*). Because of the topics have been empirically predetermined to vary in intimacy (Sedikides et al., 1998), the RCIT provided us with an ideal set of topics with which to measure desired intimacy of self-disclosure. After completing the self-disclosure measure, the experimenter asked participants to complete another questionnaire (actually, the postexperimental questionnaire) to allow the other student time to finish a task. Afterward, the experimenter fully debriefed and thanked participants.

Results

Manipulation checks. We conducted several manipulation checks to ensure that the instructions had their intended effects. First, all participants correctly described the instructions they were given prior to watching the film clip on the postexperimental questionnaire. Second, a coder blind to condition rated participants' facial expressions for intensity using a coding system that had been developed in previous research using an emotion regulation paradigm (see Vohs & Heatherton, 2000). An ANOVA with gender and emotion control condition (exaggerate vs. neutral vs. suppress) showed only a significant effect of condition, $F(2, 51) = 10.99$, $p < .001$, such that participants in the exaggerate condition were the most expressive ($M = 9.18$, $SD = 4.00$), followed by participants in the act-natural condition ($M = 5.82$, $SD = 4.17$), and those in the suppress condition ($M = 4.11$, $SD = 2.40$). Expressiveness in both the act-natural and the suppress conditions was significantly different from the exaggerate condition, $t(32) = 2.39$, $p < .03$, and $t(34) = 4.67$, $p < .001$. Expressiveness in the act-natural and suppress conditions was marginally different, $t(34) = 1.53$, $p = .13$, which is consistent with past research using these three conditions (Vohs & Schmeichel, 2003). Gender and the two-way interaction of gender and condition were not significant predictors of expressiveness, Fs < 1.70. Third, we asked participants to rate the difficulty of the emotion regulation task and found that emotion regulation condition was a significant predictor, $F(2, 51) = 4.33$, $p < .05$, with participants in the exaggerate and suppress conditions reporting that their tasks were more difficult, $M = 4.45$, $SD = 1.10$, and $M = 4.56$, $SD = 1.54$, respectively, versus the act-natural condition, $M = 2.09$, $SD = .98$, but there was no effect of attachment style or of the Attachment Style × Condition interaction, Fs < 2.0, $p > .17$.

Last, it was necessary to determine whether our manipulation of self-regulation demands differentially affected mood states. Given that previous research (Baumeister et al., 1998; Vohs & Heatherton, 2000) has found no mood effects of self-regulation manipulations, we predicted no mood differences as a function of condition. An ANOVA with gender and condition supported this expectation by showing no effect of condition on either the Positive or Negative Affect subscales of the PANAS, Fs < 2.10. There was a main effect of gender on positive affect reports, $F(1, 56) = 4.73$, $p < .04$, with men reporting more positive affect than women. The two-way interaction of gender and condition was not significant, $F < 1.50$. In total, then, these analyses indicate that our emotion-control instructions effectively manipulated facial expressions of emotion but did not influence felt emotion, an effect that has also been observed in past depletion research (e.g.,

Schmeichel, Vohs, & Baumeister, 2003; Vohs & Heatherton, 2000; Vohs & Schmeichel, 2003).

Self-disclosure preferences as a function of emotion regulation condition: Relative comparisons. Participants' ratings of the topics they wanted to discuss with their partner served as the measure of self-disclosure preference. Prior to performing analyses, all topics were coded with respect to their intimacy level (guided by writings from Sedikides et al., 1998). Low-, moderate-, and high-disclosing topics were dummy coded as 1, 2, and 3, respectively, and participants' ratings of desire to discuss each topic were multiplied by these codings. Next all ratings, now adjusted for intimacy level, were summed to represent a total intimacy score for each participant across all discussion topics.

This measure of intimacy of self-disclosure was then subjected to an ANOVA with emotion control condition (exaggerate vs. act-natural vs. suppress) and attachment style (secure vs. avoidant vs. ambivalent) as predictors. (There was no effect of gender, so this variable was not included in subsequent analyses.) This analysis revealed a whopping main effect of attachment style, $F(2, 57) = 28.74$, $p < .001$, that was qualified by the interaction of condition and attachment style, $F(4, 57) = 3.60$, $p < .02$. There was no main effect of emotion control condition, $F(2, 57) < 1$.

A breakdown of effects of attachment style within self-regulatory resource conditions supported our predictions in showing that there was no effect of attachment style in the act-natural condition, $F(2, 19) < 1$, but there was a significant effect of attachment style in the suppress, $F(2, 19) = 33.40$, $p < .001$, and exaggerate, $F(2, 17) = 13.96$, $p < .01$, conditions.

Given that we found the predicted omnibus pattern of self-regulatory resource effects across attachment styles, we aggregated across the suppress and exaggerate conditions to better understand resources depletion combined with attachment style.[2] As seen in Figure 6, there is little difference in desired self-disclosure level as a function of attachment style when participants had ample self-regulatory resources. However, after expending self-regulatory resources on controlling emotions, participants with an avoidant attachment style preferred the least intimate disclosure topics, whereas those with an ambivalent style preferred the most intimate disclosure topics (see Figure 6).

Planned comparisons (using the combined suppress and exaggerate conditions) regarding intimacy level revealed that participants who rated themselves as predominantly securely attached were not affected by depletion versus nondepletion conditions, $t(57) = 1.17$, $p > .25$. However, among participants who rated themselves as avoidantly attached, we found the predicted significant difference in disclosure intimacy between those in the natural and those in the depletion conditions, $t(57) = 2.25$, $p < .03$, with depleted avoidant participants desiring less-intimate disclosures than those who were not depleted. Also as predicted, we found a significant difference in disclosure intimacy among participants who rated themselves as ambivalently attached, $t(57) = 2.53$, $p <$

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[2] We conducted planned comparisons using both the dichotomous (i.e., depletion vs. no depletion) and tripartite (i.e., natural vs. suppress vs. exaggerate emotion) experimental condition classifications and found that our predictions were similarly supported with both analytic strategies. For information on results using the tripartite experimental condition classifications, please contact Kathleen D. Vohs.
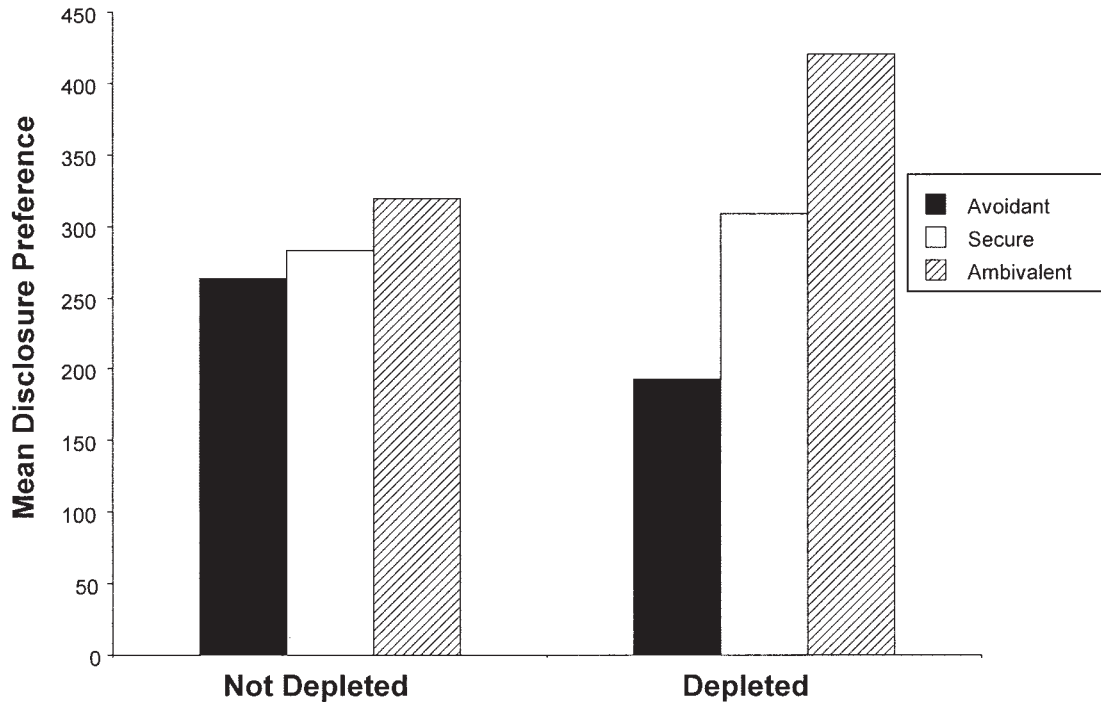
Figure 6. Mean disclosure preferences as a function of attachment style and emotion regulation condition, Study 6. Mean disclosure preference = participants' desire to discuss topics that varied in intimacy with an unacquainted interaction partner (higher numbers indicate a desire to discuss more-intimate topics); not depleted = a no-emotion regulation condition; depleted = a combination of the suppress- and exaggerate-emotion conditions; avoidant, secure, and ambivalent = participants' self-reported categorical attachment style as measured by the Attachment Styles Questionnaire.

.02, with depleted ambivalent participants desiring much more intimate self-disclosures than those who were not depleted.

Discussion

Study 6 provided further evidence that ego depletion can affect self-presentation, possibly in adverse ways. It is well established that disclosures of intermediate intimacy elicit the most favorable reactions among people who are meeting for the first time (Altman & Taylor, 1973; Collins & Miller, 1994; Jones & Wortman, 1973). All participants regardless of their personal attachment style were able to keep their self-presentations oriented toward this optimal, intermediate level of intimacy in the present study—provided that they were in full possession of their self-regulatory resources. In contrast, when resources were depleted by prior efforts at emotion regulation, people with insecure attachment styles drifted toward the less optimal levels of disclosure. Specifically, participants with avoidant attachment styles reverted toward low-intimate disclosures, whereas those with anxious–ambivalent attachment styles favored highly intimate disclosures. (Securely attached individuals were unaffected, as we predicted.) These preferences correspond closely to the broader preferences these individuals possess.

The results suggest that meeting new people can create a self-presentational dilemma for some people, because their natural or habitual inclinations come into conflict with the normative demands of the situation. The optimal response is apparently to override one's normal inclinations and present at an intermediate

level of intimacy, which makes the best impression. Apparently, everyone can do this as long as self-regulatory resources are intact, but when in a state of depleted resources, the individual's habitual or underlying preferences come to the fore, and he or she acts in a less optimal but personally gratifying manner.

Unfortunately, the findings could in principle have been confounded by differential difficulty of the affect regulation task, as pointed out by reviewers of an early draft of this article. Mikulincer's work (e.g., 1998) has found that people of varying attachment styles have different resting rates of affect, different amounts of experience with emotion, and may deal with affect in different ways. Hence, the different levels of intimacy that emerged following the affect regulation exercise may have reflected different responses during the affect regulation exercise. However, we did not find any differences between conditions in the self-reported difficulty of the affect regulation task, which speaks against the hypothesis of differential depletion. Still, null findings are not regarded as conclusive indications. Hence, we conducted a replication using a different manipulation of self-regulatory depletion.

Study 7: Attention Control and Self-Disclosure

Study 7 was a replication of Study 6 carried out to eliminate the potential confound of affect regulation difficulty with attachment style. The manipulation for Study 7 was the Stroop task, a task that has been known for decades to challenge people's executive-functioning capacities (Kane & Engle, 2003). The prediction was

the same as for Study 6: Participants with an avoidant attachment style would favor less-intimate disclosures when depleted, whereas participants with an anxious–ambivalent attachment style would favor more-intimate disclosures when depleted. Securely attached participants were expected not to change much in their disclosure patterns between depletion conditions.

Method

Participants. Thirty-six male and 35 female students participated in exchange for partial course credit.

Procedure. Participants came to the laboratory individually and were told that the study involved cognitive aspects of interpersonal functioning. They were told that there was another participant in the study and that he or she (we used the pronoun that matched the gender of the participant) had already started on the initial questionnaires, a comment that was mentioned to bolster the cover story that the participant would later be conversing with another participant. Participants' first task again was to complete the Attachment Styles Questionnaire. As in Study 6, participants identified one description that best depicts their feelings regarding interpersonal relationships. The three descriptions represent the secure, avoidant, and anxious–ambivalent attachment styles. In the current study, 54% of participants selected the secure style, 21% chose the avoidant style, and 24% chose the ambivalent style ($ns = 38$, 17, and 15, respectively).

Participants were then given either a neutral or color-naming version of the Stroop task. In the neutral version, participants were asked to read the colors of ink in which two columns of XXXs were printed. In the color-naming version, participants were given the more challenging task of reading the colors of ink in which two columns of color words were printed. For example, in this condition, participants' job was to say the word *red* when encountering the word *green* printed in red ink. Participants in both conditions read through 50 items.

Next, participants were given the same instructions and same list of conversation topics that were used in Study 6. Recall that participants believed that they would be interacting with another same-gender participant and that their preferences for conversation topics would be used as input in experimenter-determined topics that would be given to participants to help guide the conversation. The items were again derived from the RCIT. The 29 items were the same as used in Study 6; once again, low-, medium-, and high-disclosure topics were intermixed throughout the list. Participants indicated their desire to discuss each topic on a 10-point Likert scale (on which 1 = *not at all*; 10 = *very much*). After completing the self-disclosure measure, participants completed a postexperimental questionnaire and were debriefed and thanked.

Results

Manipulation checks. Participants were asked to complete the PANAS as a measure of mood after the Stroop task to see whether the self-regulation conditions affected moods. In line with past research, we predicted that there would be no effect of condition on mood, and an ANOVA with attachment category and Stroop condition supported this prediction: for Positive Affect scores, $F(1, 65) = 2.08$, $p > .15$, and Negative Affect scores, $F(1, 65) < 1$. There was a main effect of attachment style on both Positive Affect, $F(1, 65) = 4.54$, $p < .02$, and Negative Affect, $F(1, 65) = 5.18$, $p < .01$. Notably, there was no interaction between attachment style and condition for either subscale, $F(1, 65) = 1.96$, $p > .15$, for Positive Affect and $F(1, 65) < 1$, for Negative Affect. The main effect of attachment style revealed that avoidantly attached participants reported the highest negative affect ($M = 16.07$, $SD = 6.93$) and the lowest positive affect ($M = 21.40$, $SD = 3.88$),

whereas the securely attached and anxious–ambivalent participants reported better moods that were quite similar to each other (Positive Affect: M secure = 27.95, $SD = 7.22$; M anxious–ambivalent = 26.35, $SD = 8.41$; Negative Affect: M secure = 12.18, $SD = 2.34$; M anxious–ambivalent = 12.65, $SD = 3.72$).

Ratings of difficulty of the Stroop task showed only an effect of condition, $F(1, 66) = 23.46$, $p < .001$, such that participants in the color-naming condition found the task more difficult than participants in the neutral condition ($M = 5.03$, $SD = 2.20$ vs. $M = 2.19$, $SD = 2.05$).

Self-disclosure preferences as a function of Stroop condition. Our primary prediction for Study 7 was the same as for Study 6: When people are depleted of self-regulatory resources, they are less able to exhibit control over their self-disclosure patterns and thus migrate to predisposed desires for intimacy. To test this hypothesis, we conducted an ANOVA with attachment category and Stroop condition (color-naming vs. neutral) as predictors. This analysis revealed the predicted interaction of Attachment × Stroop Condition, $F(1, 64) = 5.46$, $p < .01$. Additionally, the main effect of attachment category trended toward significance, $F(2, 64) = 2.31$, $p < .11$, whereas the main effect of Stroop condition was not significant, $F(1, 64) = 1.96$, $p < .17$.

Breakdowns of disclosure preferences by condition and attachment style showed that there was a nonsignificant effect of attachment style in the neutral condition, $F(2, 64) = 2.11$, $p > .16$. In the color-naming condition, as predicted, there was an effect of attachment style, $F(2, 64) = 6.65$, $p < .01$. Subsidiary analyses of disclosure preferences within attachment styles showed that, as predicted, anxious–ambivalent participants, who are prone to highly intimate disclosures, reported preferring more-intimate self-disclosures when depleted of regulatory resources than when they were in full control of their resources, $t(64) = 3.75$, $p < .01$ (see Figure 7). Also as predicted, participants with an avoidant attachment style preferred less-intimate disclosures when they were depleted of regulatory resources, $t(64) = 2.10$, $p < .05$ (see Figure 7). The intimacy preferences of securely attached participants did not change as a function of Stroop condition, $t(64) < 1$, which is consistent with the notion that these people generally do not have to self-regulate to achieve appropriate, intermediate levels of self-disclosure. Thus, Study 7 confirmed that the self-disclosure preferences of insecurely attached participants were influenced by regulatory resource availability.

Discussion

The results of Study 7 provided a conceptual replication of Study 6 without the potential confound between affect regulation difficulty and attachment style. Hence, it seems reasonable and parsimonious to conclude that the findings indicate a resurgence of personal idiosyncrasies and preferences following regulatory depletion. When self-regulatory resources have not been depleted, all participants regardless of attachment style were able to choose topics of intermediate intimacy for their self-disclosures, consistent with what makes the best impression (Altman & Taylor, 1973; Collins & Miller, 1994; Jones & Wortman, 1973). However, when resources were depleted either by a prior exercise of emotion regulation (Study 6) or cognitive control (Study 7), avoidant individuals shifted to favor low-intimacy self-presentations, whereas
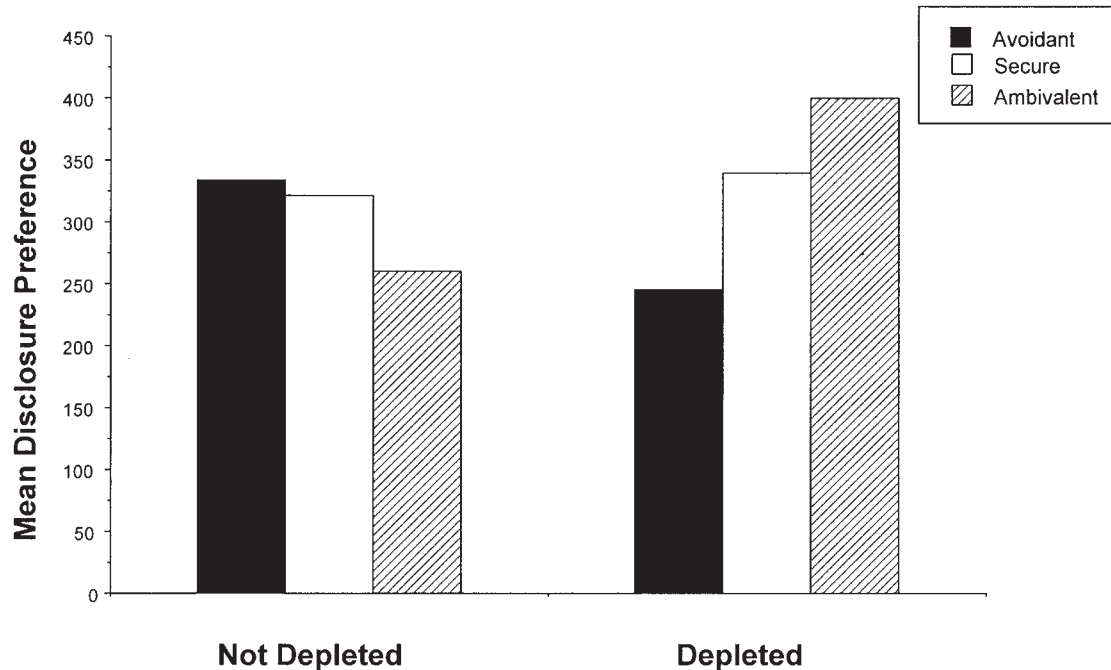
Figure 7. Mean disclosure preferences as a function of attachment style and Stroop task condition, Study 7. Mean disclosure preference = participants' desire to discuss topics that varied in intimacy with an unacquainted interaction partner (higher numbers indicate a desire to discuss more-intimate topics); not depleted = the control condition in the Stroop task; depleted = the mismatched color–word condition in the Stroop task; avoidant, secure, and ambivalent = participants' self-reported categorical attachment style as measured by the Attachment Styles Questionnaire.

anxious–ambivalent individuals expressed a preference for highly intimate disclosures.

Certainly, there is some evidence in prior work that avoidant and anxious–ambivalent people disclose at too low or too high a level of intimacy (respectively), even in the absence of explicit manipulations of depletion (Mikulincer & Nachshon, 1991). Although at first blush that might seem to conflict with the present findings, there are several factors that reduce the apparent discrepancy. First, the present studies focused on first-time encounters with a stranger, and indeed it is that situation that highly intimate disclosures are most inappropriate and counterproductive. Intimate disclosures made while interacting with relationship partners or family members would be normative and unproblematic. Hence, it is appropriate to classify those disclosures as self-regulatory failure in the present work even if it was not in the preceding work. Second, it is of course quite possible that some participants in previous studies suffered from self-regulatory depletion as a result of prior exercises of self-regulation or decision making, and so the factors the present study associated with inappropriate disclosures may have been present to a lesser degree in participants in other work. Third, the present findings also show trends toward high-intimate and low-intimate disclosures among anxious–ambivalent and avoidant individuals (respectively), even in the control condition. It would be reckless of us to say that people disclose inappropriately only when their resources have been depleted. More plausibly, people whose personalities incline them toward inappropriate or nonoptimal disclosures will have these tendencies at

all times, and the tendencies merely become more pronounced and influential when the self's resources are less available for restraining them.

It is important to note in these studies (and also in Study 5) that people's self-presentational responses may have been the manifestation of a strategy that was inappropriate to the situation. Even so, the selection of an appropriate image to project is a crucial aspect of the self-regulation of self-presentation. The ability to decide which image of oneself to draw forth and attempt to project is likely to be a function of decision-making processes, perhaps akin to those that have been found to be impaired by self-regulatory depletion (cf. Schmeichel et al., 2003). In sum, though, the implication of these studies is that self-regulation enables people to overcome their personal preferences and tendencies (which otherwise lead to inappropriate behavior and nonoptimal self-presentations) so as to self-present in ways that will make the best impression.

Study 8: Narcissistic and Proud of It

When people think about themselves, their first reaction is likely to be a positive one. There has been growing support for the notion that most people's implicit, automatic evaluations of the self are favorable and enhancing (e.g., Greenwald & Banaji, 1995; Pelham, Mirenberg, Jones, 2002). When these evaluations are explicit and public, however, one must curb such positivity about him- or herself, given that an audience is generally more skeptical about

one's ostensible superiority than one is about oneself. People look unfavorably on others' arrogant or egotistical behaviors (Vohs & Heatherton, 2001, 2003, 2004). Therefore, self-presenters should attempt to inhibit their own arrogant behavior for fear of making a bad impression. Hence, no matter how well people think of themselves privately, they should publicly curb self-aggrandizing behaviors. The common pattern is therefore to think well of oneself privately but to restrain oneself from public assertions of superiority. This restraint may require self-regulation to override the impulse to boast. This process should work fairly well when people have ample regulatory resources. However, if a person's self-regulatory resources are depleted, he or she may not restrain self-aggrandizing responses, resulting in increased public self-enhancement.

There is empirical support for the idea that people's unregulated self-evaluations are initially quite favorable and that they often have to rely on controlled processes to override these egotistical responses. The phenomenon of "automatic egotism" describes the finding that when participants self-regulate on two concurrent tasks, they are more likely to claim positive self-descriptors and deny negative self-descriptors (Paulhus et al., 1989). Thus, there is an immediate response to think of the self in positive terms, but under normal circumstances, self-presentational concerns prevail over this tendency and dampen the positivity of self-descriptions to a more admissible level.

Study 8 manipulated self-regulatory resources to demonstrate that people's self-descriptions become more positive when self-control is impaired. We also measured socially desirable response tendencies and self-esteem. Including these two measures allowed us to assess whether the predicted increase in favorable self-statements would occur on both socially appealing (social desirability and, to some extent, self-esteem) and unappealing (narcissism) dimensions or would be limited to only certain measures. Adding the measure of socially desirable responding also permitted us to test for mediation.

Depending on how one interprets the pattern of automatic egotism, competing predictions can be made for Study 8. One view is that when people fail to regulate, they simply rate themselves more favorably on all dimensions. By this view, regulatory resource depletion leads to increases in scores on social desirability, narcissism, and self-esteem. A second and more nuanced prediction is that ego depletion simply causes people to present themselves more consistently with how they think of themselves because they are less likely to regulate the image they present. By this view, narcissism still increases (because it is a form of unattractive egotism that people would and should normally censor), whereas social desirability scores might actually decrease (because people are more willing to tell the truth rather than try to make a good impression). Self-esteem scores do not necessarily change in either direction because expressing some limited degree of self-esteem is far more socially acceptable in modern North America than is expressing narcissism (Colvin, Block, & Funder, 1995; Paulhus, 1998; see also Baumeister, Campbell, Krueger, & Vohs, 2003).

Method

Participants. Thirty-five undergraduates (16 men, 19 women) participated in exchange for partial course credit. The data from 3 participants were not used in the following analyses, 2 because they knew the woman featured in the attentional video and 1 because of failure to complete the required tasks.

Procedure. Participants came to the laboratory individually for a study on cognitive processes and nonverbal communication. First, participants were asked to watch a short videotape that was introduced as part of a personality rating task. Participants were told that they would be making judgments about the woman featured in the video later in the experiment. Participants then watched a 7-min, silent video of a young woman being interviewed by an off-camera interviewer.

In addition to the woman being interviewed, the tape also showed common, one-syllable words (e.g., *sky, greet, sail*) presented at the bottom of the screen for 30-s duration (see Gilbert, Krull, & Pelham, 1988). Prior to watching the video, participants were given instructions regarding the words as a method of manipulating self-regulatory resources. No-regulation participants (i.e., who were not depleted) were not given any requests regarding the words that were to appear in the video, nor were they made aware of the words' presence prior to the video's start. Attention-regulation participants (i.e., who were depleted of regulatory resources) were told that there would also be some words appearing onscreen during the video and please not to "read or look at any of the words." Additionally, attention-regulation participants were told that if they accidentally looked at the words they were to immediately reorient their eyes and attention to the woman being interviewed. This method has been shown to manipulate self-regulatory resources effectively (Schmeichel, Vohs, & Baumeister, 2003).

After the video, participants were asked to complete the PANAS as a mood measurement, after which participants completed three scales (in this order), the Marlowe–Crowne Social Desirability Scale (SDS; Crowne & Marlowe, 1960), a self-esteem scale (Fleming & Courtney, 1984, based on Janis & Field, 1959), and the Narcissistic Personality Inventory (NPI; Raskin & Terry, 1988). The Social Desirability Scale is a widely used measure that asks participants to answer True or False to 33 items such as, "I am always courteous, even to people who are disagreeable." The Janis and Field Self-Esteem Scale contains 36 items to which participants responded using a 5-point scale. An example item and its possible responses are, "How often do you feel worried or bothered about what other people think of you?" with respondents rating themselves on a scale from *very often* to *practically never*. Blascovich and Tomaka (1991), in their review of self-esteem scales, recommended the Janis and Field-version scale as one of the best self-esteem measures for use in social psychological research. The NPI consists of 40 items with which participants indicate their agreement. Sample items include, "If I ruled the world it would be a much better place" and "I am going to be a great person." After completing these scales, participants completed a postexperimental questionnaire and were debriefed and thanked.

Results

Manipulation checks. To ensure that the manipulation of self-regulatory resource expenditure worked as intended, we conducted several checks. First, on a postexperimental questionnaire, all participants correctly identified the instructions they were given regarding the video. Second, participants' ratings of how difficult it was to follow the instructions given were significantly different, $F(1, 31) = 33.02$, $p < .001$ (*M* attention regulation = 6.07; *M* no regulation = 1.65). Last, to ensure that our manipulation did not affect participants' mood, we conducted an ANOVA using condition and gender as predictors on PANAS scores. This analysis showed no effect of attentional regulation condition on positive or negative affect, no effect of gender, and no interaction effect, all Fs$(1, 31) < 1$. These analyses suggest that our manipulation of attentional resources appeared to have worked to increase efforts to control attention but did not affect mood.

Narcissism, social desirability, and self-esteem. Our primary hypotheses were that self-regulatory resource depletion would predict higher scores on the NPI and lower scores on the SDS, with depletion having no effect on self-esteem scores. To test these predictions, we conducted analyses on scores from the NPI, SDS, and self-esteem scales as a function of self-regulatory resource condition.

A repeated-analysis ANOVA with scale as the within-subject factor (narcissism vs. self-esteem vs. social desirability) and gender and self-regulatory resource depletion conditions as the between-subjects factors showed the overall significant Scale × Depletion Condition effect, $F(2, 27) = 4.08$, $p < .03$. The effect of Scale × Gender was not significant, $F(2, 27) = 1.17$, $p > .32$, nor was the three-way interaction of Scale × Gender × Condition, $F < 1$, $p > .79$.

An examination of the separate analyses of variance gave further support to our hypotheses. First, an ANOVA with self-regulatory resource condition (attention regulation vs. no regulation) and gender as predictors of NPI scores demonstrated the predicted significant effect of condition, $F(1, 31) = 4.72$, $p < .04$. Consistent with predictions, self-regulatory resource depletion led to increased narcissism scores (*M* attention regulation = 15.33, *SD* = 8.36; *M* no regulation = 9.82, *SD* = 5.27). Gender and the interaction of condition and gender were not significant predictors, *F*s < 1.

Second, an ANOVA with self-regulatory resource condition, gender, and their interaction to predict social desirability scores also revealed the predicted main effect of self-regulatory resource condition, $F(1, 31) = 7.19$, $p < .02$. As expected, when participants' self-regulatory resources had already been taxed, they were less likely to present themselves in a socially desirable manner (*M* attention regulation = 11.47, *SD* = 5.41; *M* no regulation = 15.47, *SD* = 4.64). Gender was a marginal predictor of SDS scores, $F(1, 31) = 3.44$, $p < .08$, with men having somewhat higher scores than women. The Condition × Gender interaction was not a significant predictor, $F(1, 31) = 2.49$, $p < .13$.

Third, an ANOVA was computed to assess self-esteem scores as a function of attention control condition, gender, and their interaction. This analysis revealed no effect of self-regulatory resource depletion on self-esteem scores, $F < 1$ (*M* attention regulation = 115.00, *SD* = 22.37; *M* no regulation = 122.67, *SD* = 17.91). Gender also failed to yield any significant effects on self-esteem, either alone or in combination with self-regulatory resource condition.

Mediational analyses. With support for our first set of hypotheses regarding the emergence of egotistical (i.e., narcissistic) responses and decreased social desirability concerns after regulatory resource depletion, we turned to our secondary hypothesis that increase in narcissistic tendencies would be statistically explained by decreased social desirability. To test this hypothesis, we first correlated social desirability and narcissism scores to see whether they were significantly related, which they were, $r(32) = -.43$, $p < .02$. This inverse relationship indicates that when social desirability scores were lower, narcissism scores were higher, lending support to the idea that people are more likely to claim very positive self-aspects when they are unconcerned about being seen desirably by others.

Hence, we had satisfied the first three stipulations for establishing a mediational relationship (Baron & Kenny, 1986): We found that the experimental manipulation of self-regulatory resources affected narcissism scores; we found that the experimental manipulation of self-regulatory resources affected social desirability scores; and we found that social desirability and narcissism were significantly correlated. Our fourth step in testing for mediation was to show that when social desirability scores were entered into the model predicting narcissism scores from self-regulatory resource condition, the effect of the manipulation becomes nonsignificant while the effect of social desirability remains significant. To carry out this step, we computed a multiple regression analysis in which we predicted narcissism scores from gender, attention control condition, their two-way interaction, and social desirability scores. Consistent with predictions, this model showed that when social desirability scores were included in the model, the effect of self-regulatory resource condition was rendered nonsignificant, $t(27) = 1.14$, $p > .26$, $\beta = .21$, but social desirability scores remained a significant predictor of narcissism scores, $t(27) = 1.97$, $p = .05$ (see Figure 8). Using the more stringent Sobel test (Sobel, 1982) provided moderate confirmation for our claim that changes (downward) in social desirability scores accounted for changes (upward) in narcissism after depletion, Sobel's test = 1.61, $p = .10$. Overall, this set of analyses supported our idea that heightened egotism (in the form of more narcissism) after self-regulatory resource depletion was due to decreased motivation to be seen in a socially desirable light.
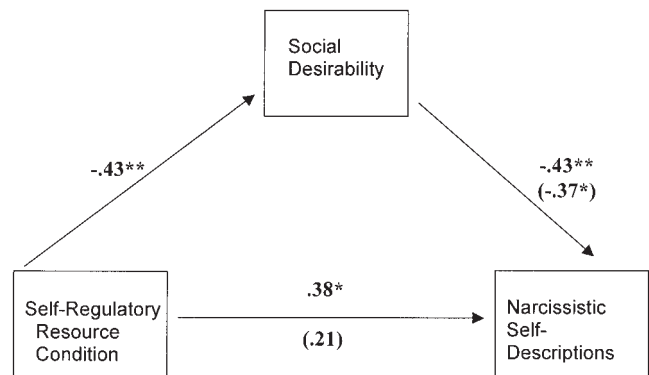

Figure 8. Path diagram of hypothesized model, with standardized beta weights; Study 8. Self-regulatory resource condition = conditions in which participants were asked to either control or not control attention to irrelevant stimuli that appeared during a person perception video (in which the former tasks consumed more self-regulatory resources than the latter); social desirability = participants' scores on the Social Desirability Scale; narcissistic self-descriptions = scores on the Narcissistic Personality Inventory; values for the three direct effects (i.e., values without parentheses) represent the standardized regression coefficient (*b*) corresponding to the effect of the predictor variable on the dependent variable. All models included gender and, when appropriate, the interaction of Gender × Attention Control Condition. Values inside the parentheses represent the standard corrected regression coefficients that demonstrate the predicted mediational effect. In this model, the effect of social desirability on narcissism remains significant ($\beta = -.37$), whereas the effect of self-regulatory resource condition on narcissism is reduced to nonsignificance ($\beta = .21$), thereby supporting the hypothesized mediational model. *$p < .05$. ** $p < .02$.

Discussion

Study 8 showed that people became more narcissistic after they had expended self-regulatory resources during a prior attention control task. Moreover, this effect was a result of a reduction in the general tendency to present oneself in a socially desirable manner. Given that self-presentation generally starts with the truth and slants it to be more appealing to others, it likely takes effortful self-regulation to present oneself in the optimal, attractive manner. This effect is what we think was operating in the current study: When self-regulatory resources were depleted, people fell back on the simpler and presumably more gratifying pattern of describing themselves as superior beings.

The increase in favorability was specific to narcissism and did not reflect a broad tendency to describe themselves more favorably on all dimensions. In fact, self-regulatory depletion led people to describe themselves in less socially desirable terms, and it did not change their self-esteem. This pattern is consistent with the view that ego depletion makes people less prone to engage in effortful management of their self-presentations. Optimal self-presentations presumably require people to increase their claims of social desirability and restrain their narcissistic sentiments, whereas self-esteem does not necessarily need to be adjusted in either direction.

The mediation analyses provide further evidence that the rise in egotism is due to a reduction in effortful self-presentation rather than to a change toward more favorable self-views. If the increase in narcissism had been closely linked to (or mediated by) a rise in self-esteem, one might have inferred that depletion gives rise to more favorable views of self. However, it was not. Instead, increases in narcissism were mediated by drops in social desirability. Socially desirable responding is usually interpreted as reflecting a motivation to make a good impression on others (Crowne & Marlowe, 1964). Thus, when depleted, people cared less about making a good impression, and so they were more willing to admit to their narcissistic attitudes.

General Discussion

Across eight studies, we found support for the hypothesis that self-presentations and self-regulatory resources are integrally related, such that increased demands on one have deleterious consequences for achievement of the other. The first four studies showed that self-presentation (especially when it runs counter to standard, familiar, or habitual patterns) consumes self-regulatory resources, thereby impairing subsequent self-regulation. The last four studies showed that when self-control is weakened by depletion of resources, impression management deteriorates.

Summary of Main Findings

Study 1 was based on past findings showing that people habitually present themselves in a self-enhancing way to strangers but in a modest fashion to friends (Baumeister et al., 1989; Tice et al., 1995). Accordingly, we predicted that going against these standard patterns would consume self-regulatory resources. Sure enough, we found that participants who presented their most positive qualities to friends showed poorer self-regulation afterward (measured by persistence on a tedious arithmetic test) compared with those who did so to strangers. Likewise, participants who projected

a modest self-image to strangers were poorer at self-regulating afterward than those who presented modestly to friends.

Study 2 was a conceptual replication of Study 1 using different self-presentational norms and a different measure of self-regulation. Self-presentation patterns were manipulated on the basis of gender roles. Previous findings suggest that men emphasize task competence, whereas women prefer to emphasize interpersonal competence (Leary et al., 1986), and so we instructed participants either to follow or to go against these standard patterns. This time, we measured impairment of self-regulation in the form of reduced stamina on a physical (handgrip squeezing) endurance task. Handgrip performance was worst among women who emphasized their task competence and men who emphasized their interpersonal proficiency, as opposed to vice versa. Thus, presenting oneself contrary to established gender norms led to subsequent decrements in self-regulation.

Study 3 used two different manipulations (from Schlenker et al., 1990) of the difficulty of self-presentation, after which self-regulation was measured in terms of how well people could stifle emotional expression while watching a funny video. One manipulation concerned the audience, which was described to the self-presenter as either supportive or skeptical. The other manipulation involved instructions to present oneself as simultaneously competent and likable (two images that may make competing demands on expressive behavior, thereby complicating the self-presentation process) as opposed to simply being oneself. Both main effects and the interaction were significant, all confirming the view that difficult self-presentations deplete self-regulatory resources. Self-regulation was most severely impaired among people who had to cope with both sources of self-presentational difficulty, namely the skeptical audience and the instruction to seem both likable and competent.

Study 4 capitalized on the difficulty of speaking to people of another race about racial politics (Lord & Saenz, 1985). Participants who thought they were the token (sole) member of their race speaking to an audience of other races about racial discrimination showed subsequently poorer self-regulation, as measured by persistence at unsolvable geometric problems, compared with participants who either were not tokens or who spoke about the less sensitive issue of environmental policy.

The second half of our investigation exchanged the independent and dependent variables, so that we studied the effect of self-regulatory exertion on self-presentation. In Study 5, some participants initially regulated their thoughts (by suppressing thoughts about white bears), whereas others were free to let their thoughts roam without regulation. Then we administered a state measure of being prone to speak and disclose information heedlessly, a pattern that has been shown to amplify negative interpersonal impressions (Swann & Rentfrow, 2001). Participants whose regulatory resources had been depleted by suppressing white bear thoughts reported a greater willingness to speak without monitoring what they said, which would presumably lead them to make less favorable impressions on others.

Studies 6 and 7 were based on the well-established finding that medium intimacy is the optimal and therefore standard way to present oneself to a new acquaintance (see Collins & Miller, 1994, for meta-analysis; also Jones & Wortman, 1973). Self-regulatory depletion was manipulated by having people engage in an emotion control exercise (Study 6) or the Stroop color-word task (Study 7).

Most participants managed to remain within the medium range of intimacy, but following regulatory depletion some participants drifted toward either the low- or high-intimacy extremes, which have been shown to make less favorable impressions. The idea that this polarization results from a self-regulatory breakdown was confirmed by the fact that the direction of drift was predicted by individual differences: People who were predisposed toward avoiding intimacy (i.e., avoidantly attached participants) became low disclosers, whereas those who leaned toward the needy and clinging attachment style of anxious–ambivalence became highly intimate disclosers. No such differences in disclosure were apparent when people had their full complement of self-regulatory resources. However, regulatory depletion released people to pursue their own personal but maladaptive tendencies.

Study 8 showed that people whose resources had been depleted by an initial act of self-regulation (one that demanded attention control) presented themselves less optimally: They reported fewer tendencies to engage in socially desirable behaviors, and apparently as a result of this state, they described themselves significantly more arrogantly and egotistically, as measured by a narcissism scale. Self-esteem was not affected by depletion. That is, the rise in narcissism came from a reduction in social desirability, not a rise in self-esteem. This study assumed that narcissistic tendencies (i.e., egotism, arrogance, and sense of entitlement) are detrimental to making a good impression, as shown by past research (Morf & Rhodewalt, 2001; Rhodewalt & Morf, 1995). The main implication of these findings is that people regularly inhibit their tendency to brag and, instead, present themselves as suitably modest under ordinary circumstances. In a state of regulatory depletion, however, when people are less able to control themselves well, they are less successful at conforming to socially (see Heatherton & Vohs, 1998) presentation, and instead they yield to the temptation to present themselves in a boastful, self-aggrandizing fashion. Thus, Studies 5 to 8 showed in different ways that resource depletion significantly influences self-presentation.

Implications

Taken together, these results suggest that self-regulation is centrally involved in effective self-presentation. Effortful self-presentation depletes regulatory resources, thereby causing subsequent self-regulation to suffer (Studies 1–4); when regulatory resources have already been depleted, self-presentation suffers (Studies 5–8). Moreover, all self-presentations are not equal, nor equally depleting. Presenting oneself in a standard or familiar manner produced little or no sign of depleted resources (Studies 1–4), and depleted resources did not impair self-presentations among people whose natural tendencies were already in line with what others like (securely attached participants, Studies 6 and 7).

Another noteworthy aspect of the current findings is that in the absence of depletion, people regulated their self-presentations quite well. In Studies 5–8, we did not instruct people as to how to self-present, yet with ample self-regulatory resources, they engaged in self-presentations that would improve one's odds at interpersonal acceptance. We took advantage of this idea in Studies 1–4 to show that challenging or atypical self-images drain self-regulatory resources. These findings suggest that people ha-

bitually use self-regulation to manage their self-presentations effectively.

There are however conditions in which efforts at both self-presentation and self-regulation confer intrapsychic costs. Being in a state of unclear or conflicting self-presentational goals is likely to require more self-regulation, thereby suggesting that people would not be successful in presenting themselves well or in engaging in related acts of self-control. This phenomenon may be especially relevant for self-presentations to mixed audiences, in front of whom different roles are typically enacted. For example, interactions with one's spouse and one's parents at once may be awkward due to uncertainty about how to regulate oneself to be consistent with the divergent roles of wife and daughter or husband and son. Situations as common as being with a group composed of both old friends and new acquaintances are also likely to be taxing, given that each audience has different expectations for the target's social behavior (see Study 1). Another apt example pertains to job interviews. Perhaps all too familiar is the candidate who charms faculty during interviews and gives a stellar colloquium, but who later drinks too much at dinner and becomes loud and obnoxious by night's end. Although we do not advise this plan of action, from the perspective of the current studies we understand how it happens.

Just as there are intrapsychic consequences to acts of self-presentation and self-regulation, there are likely to be interpersonal consequences as well. An obvious extension of these studies is that people may be less likely to engage in other behaviors for the benefit of social relationships. For instance, a review of the research on lying indicates that people concerned with impression management lie for the benefit of interpersonal harmony (Kashy & DePaulo, 1996). Thus, if low on self-regulatory ability, people may not conceal their amusement at a friend's new haircut or may not be able to stop an insulting comment to a dislikable colleague. More seriously, Kelly's (2000) self-presentational model of therapy contends that projecting a positive self-image is integral to achieving mental health in a therapeutic context. Her extensive literature reviews and empirical studies demonstrate that when clients uncover dark secrets or reveal shameful self-aspects to a therapist, the putative benefits of therapy vanish, and clients can come to exhibit greater symptoms, such as falling into deeper states of depression (see Kelly, 2000). Thus, being unable to control the image one projects to a therapist may have damaging effects on one's mental health.

Concluding Remarks

Nearly two decades ago, Tetlock and Manstead (1985) criticized the prevailing tendency among social psychologists to treat intrapsychic and interpersonal explanations as competing rivals. Instead, they proposed that researchers should strive for theoretical integration of the two types of processes. Although there is now increasing acknowledgment that there must be some interdependence of intrapsychic and interpersonal processes, the goal of theoretical integration remains elusive, partly because they remain separate provinces populated by different researchers using different conceptual schemes and methods (e.g., social cognition vs. relationship studies). The present findings point toward a far-reaching integration of two major processes. Self-presentation is arguably the most important and comprehensive activity of the self

in the interpersonal sphere, whereas self-regulation may be its most important intrapsychic task (see Higgins, 1996, on the sovereignty of self-regulation). Our findings suggest that these two "master functions" (in Higgins's term) are often intertwined. We have shown that solitary, inner acts of self-regulation can produce significant changes in how a person later comes across to others and that, conversely, the more difficult acts of self-presentation have a significant impact on subsequent and private processes of self-regulation. These effects occur even though there is no inherent connection between the particular acts of self-regulation and the particular self-presentations. Rather, they seem to occur because of depletion of a common self-regulatory resource.

The human capacity for self-regulation far exceeds what has been demonstrated in other species, a fact that is probably responsible for the remarkable diversity and plasticity of human behavior. One could plausibly suggest that human evolution produced the dramatic increase in self-regulation to help people deal better with the physical environment, but it is also plausible that self-regulation evolved to improve interpersonal success, because human survival and reproduction depended more on getting along with other humans than on direct management of the physical environment (e.g., Dunbar, 1998; Leary, 1999; Martin, 1999; Sedikides & Skowronski, 1997). Though such speculations are beyond the scope of our investigation, our findings do lend support to the view that crucial inner structures and processes are valuable for interpersonal success.

Although self-regulatory resources are costly and precious, the value of impression management to social success could explain why people readily expend their resources in the service of effective self-presentation. In fact, competition for social acceptance may have driven the process of natural selection to favor human beings who were better able to self-regulate. In this way, interpersonal contingencies could have helped instill self-regulatory abilities, a crucial and distinguishing feature of human functioning.

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