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When Not Thinking Leads to Being and Doing: Stereotype Suppression and the Self

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Abstract

Suppressing stereotypes often results in more stereotype use, an effect attributed to heightened stereotype activation. The authors report two experiments examining the consequences of suppression on two self-relevant outcomes: the active self-concept and overt behavior. Participants who suppressed stereotypes incorporated stereotypic traits into their self-concepts and demonstrated stereotype-congruent behavior compared to those who were exposed to the same stereotypes but did not suppress them. These findings address issues emerging from current theories of suppression, priming, and the active self.

Keywords

stereotype suppression, active self-concept, behavior

The capacity to control one's conscious thoughts is vital for everyday human functioning. The ability to focus attention on the task at hand while ignoring unwanted distractions allows people to achieve their goals. However, research indicates that thought suppression can lead to unintended outcomes. Wegner, Schneider, Carter, and White (1987; for a review, see Wegner, 1994) first established a *rebound effect* when they found that participants who suppressed thoughts of a white bear later experienced increases in white bear thoughts. Thus, suppressing thoughts of a concept led to a ''rebound'' in the concept's accessibility once suppression had ended.

Rebound effects have been demonstrated following suppression of various concepts, including traits (Newman, Duff, & Baumeister, 1997; Newman, Duff, Hedberg, & Blitstein, 1996) and stereotypes (Macrae, Bodenhausen, & Milne, 1998; Macrae, Bodenhausen, Milne, & Jetten, 1994; Wyer, 2007; Wyer, Sherman, & Stroessner, 1998, 2000). Recently suppressed traits or stereotypes become mentally accessible and are used in judging others and interpreting others' behavior. In this article, we report two experiments that examine consequences of post-suppression stereotype rebound on two self-relevant outcomes: the active self-concept and overt behavior.

Mechanisms of Postsuppression Rebound

Various models have been proposed to account for postsuppression rebound effects. Wegner's (1994) *ironic process model* posits that rebound effects result from the coaction of two interlinked cognitive processes. The *automatic monitoring process* scans consciousness for instances of the to-be-suppressed thought. When an occurrence is detected, the *controlled operating process* seeks appropriate substitutes for the unwanted thought. However, the operating process requires motivation and cognitive capacity and is therefore vulnerable to disruption. When that occurs, the heightened sensitivity caused by the monitoring process allows the now hyper-accessible thought to reach consciousness at levels greater than would have occurred without suppression. Alternative models suggest that metacognitive processes contribute to postsuppression rebound. For example, Liberman and Forster (2000) suggest that individuals infer goals to use a concept from difficulties or failures experienced while suppressing it. The concept remains activated in memory until those goals are met (by expressing the concept).

Thus, either directly or indirectly, postsuppression rebound is believed to result from the unintentional activation of a suppressed concept. In this regard, suppression has been likened to priming (i.e., direct activation of a concept). Indeed, many manifestations of postsuppression rebound parallel the effects of priming manipulations. In particular, both priming and suppression are known to bias judgments of others toward the primed or suppressed concept (e.g., both priming [Devine, 1989] and suppressing [Wyer et al., 1998, 2000] African

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American stereotypes lead to greater stereotype use when judging others).

Although it might be tempting to equate the effect of thought suppression with the effect of priming, as both increase concept activation, the two should be kept quite distinct. Unlike priming, suppression is a self-regulatory activity (Gailliot, Plant, Butz, & Baumeister, 2007); it may be resource depleting (Muraven & Baumeister, 2000) and may involve increased attention to the self (Carver & Scheier, 1981). These characteristics suggest that suppression may lead to greater assimilation than priming to the extent that cognitive resources are weakened but less assimilation than priming to the extent that self-awareness is enhanced (Wheeler, Morrison, DeMarree, & Petty, 2008). Thus, although suppression and priming both produce concept activation, the differences between them warrant an independent investigation of how suppression affects self-relevant outcomes. This is the object of the present article.

Suppression and Self

No previous work has explored whether suppression of self-relevant thoughts affects self-relevant outcomes in the normal population. However, an extensive literature has shown that in psychological disorders (e.g., depression and anxiety) suppressing personally intrusive thoughts contributes to a disordered sense of self—obsessive, traumatic, or self-defeating thoughts are suppressed only to return later, often with greater frequency (for a review, see Purdon, 1999).

Thought suppression is also common in normal individuals. One may elect to avoid thinking about concepts that have little personal relevance. For example, when interviewing candidates for a job, an employer may choose to avoid thinking about out-group stereotypes. When greeting someone in a wheelchair, one may strive to avoid thinking about the person's disability. Research has established that suppression in such scenarios increases the chances of applying the suppressed concept to others (Macrae et al., 1994; Wyer et al., 1998, 2000). In contrast, little is understood about how suppressing personally nonrelevant thoughts might influence the self.

Insight into this possibility may be gleaned from the now-extensive literature on how *priming* affects the self. The *active-self* account (Wheeler, DeMarree, & Petty, 2007) suggests that priming produces changes in the "active" self-concept (i.e., those aspects of the self-concept that are currently accessible). The active self is fluid, shifting in response to external cues that make certain information more accessible. According to the active-self account, assimilation to a prime occurs either by *selectively activating* prime-consistent elements of the self-concept or by *introducing* prime-consistent elements that can be incorporated within the self-concept (for an alternative account, see Mussweiler, 2007). Supporting this view, DeMarree and colleagues (DeMarree & Loersch, 2009; DeMarree, Wheeler, & Petty, 2005) reported that priming produces assimilation in self-judgments.

Two experiments test the hypothesis that suppressing (non-self-relevant) stereotypes affects self-relevant outcomes. We first examine whether stereotype suppression produces stereotype-congruent changes in the active self-concept (Wheeler et al., 2007). Next, we explore whether stereotype suppression also produces stereotype-congruent changes in overt behavior.

Experiment 1

Experiment 1 tested the effects of suppressing occupational stereotypes on the active self-concept. Participants suppressed stereotypes of inventors (stereotypically associated with creativity) or mathematicians (stereotypically associated with logic). If suppression leads people to assimilate the active self-concept to the stereotype, then participants who suppress stereotypes of inventors should view themselves as more creative, whereas those who suppress stereotypes of mathematicians should view themselves as more logical.

Because our sample comprised university students who have well-established beliefs about their cognitive skills (e.g., how logical or creative they are), we examined both explicit and implicit measures of self-concept. Although explicit measures may be impervious to manipulation (drawing on well-rehearsed beliefs about the self), implicit measures may reflect shifts in the accessibility of specific aspects of self-knowledge. If suppressing stereotypes activates a biased (stereotype-consistent) subset of participants' self-knowledge (e.g., times they displayed creativity or logic), we should expect a strengthening of associations between the self and those attributes. Thus, participants reported their (explicit) self-perceptions of creativity and logic and completed an Implicit Association Test (IAT) that assessed their self-logic and self-creativity associations.

Method

Pretest. A separate sample of 20 participants rated occupational groups (including *inventors* and *mathematicians*) on traits (including *creative* and *logical*) using 1 to 10 scales (*not at all* to *very strongly* associated with the group). Participants viewed inventors as more creative ($M = 9.65$, $s = 0.81$) than logical ($M = 7.80$, $s = 2.76$), $t(19) = 2.85$, $p = .01$, $d = 1.31$, but mathematicians as more logical ($M = 9.25$, $s = 1.80$) than creative ($M = 6.00$, $s = 2.64$), $t(19) = 5.01$, $p < .001$, $d = 2.30$. They rated inventors as more creative than mathematicians, $t(19) = 6.05$, $p < .001$, $d = 2.78$, but mathematicians as more logical than inventors, $t(19) = 3.18$, $p = .005$, $d = 1.46$. Thus, the traits "logical" and "creative" appear to be particularly and uniquely strong associates of mathematicians and inventors, respectively.

Participants and design. Eighty undergraduate psychology students (84% female, $M_{age} = 20.5$ years) were randomly assigned to conditions of a 2 (instructions: suppress vs. describe) × 2 (group: mathematicians vs. inventors) between-participants design.

Table 1. Overview of Implicit Association Test (Experiment 1)

		Response categories		Stimuli	
Block	Number of trials	Left	Right	Left	Right
1	20	Other	Self	Other pronouns: *he, she, it, they, them*	Self pronouns: *me, I, my, mine, self*
2	20	Logical	Creative	Logical traits: *logical, rational, reasonable, sensible, calculating*	Creative traits: *creative, imaginative, inventive, innovative, original*
3	20	Other logical	Self creative	Other pronouns, logical traits	Self pronouns, creative traits
4	40	Other logical	Self creative	Other pronouns, logical traits	Self pronouns, creative traits
5	20	Creative	Logical	Creative traits	Logical traits
6	20	Other creative	Self logical	Other pronouns, creative traits	Self pronouns, logical traits
7	40	Other creative	Self logical	Other pronouns, creative traits	Self pronouns, logical traits

Note: The order of Blocks 2-3-4 and 5-6-7 was counterbalanced. Order had no effect on results and is not discussed.

Procedure. The experiment included two phases, which participants believed were unrelated studies. Instructions for both phases were provided via computer. First, participants were given 5 minutes to write a description of a specified occupational group (mathematicians or inventors) as part of an "occupational perception study." Half of the participants in each group condition were instructed to avoid thinking about or using occupational stereotypes in their descriptions.

The second phase included two measures of self-concept. First, participants rated themselves on 20 personality traits, including creativity-related traits (creative, imaginative, innovative, original, inspired; $\alpha = .74$), logic-related traits (logical, rational, sensible, reasonable, calculating; $\alpha = .65$), and stereotype-unrelated traits (friendly, sociable, fun loving, extraverted, outgoing, polite, considerate, caring, compassionate, thoughtful). Ratings were made on 9-point scales (1 = *not at all like me*, 9 = *very much like me*).

Next, participants completed an IAT (Greenwald, McGhee, & Schwartz, 1998) that included seven blocks of trials. On each block, they classified words on one or more dimensions by pressing a left-hand or right-hand response key as quickly as possible, according to category labels appearing at the top of the screen. Personal pronouns (*I*, *me*, *self*, *my*, *mine*, *he*, *she*, *it*, *they*, *them*) were classified as "self" versus "other" and adjectives (*creative*, *imaginative*, *innovative*, *original*, *inspired*, *logical*, *rational*, *sensible*, *reasonable*, *calculating*) were classified as "creative" versus "logical." Procedural details of the IAT are described by Greenwald et al. (1998) and are summarized in Table 1.

Results and Discussion

Manipulation checks. Two independent coders, blind to condition, rated descriptions written in the suppression phase on the extent to which they (a) reflected stereotypes of the profession being described, (b) specifically mentioned creativity, and (c) specifically mentioned logic. Coders used 10-point scales (1 = *not at all*, 10 = *very much*). Interrater reliability was satisfactory for all dimensions (αs = .78 to .86); thus ratings were averaged. Participants in the suppression conditions produced descriptions that were lower in overall stereotypicality and in use of stereotypic traits (see Table 2).

Table 2. Mean Ratings of Stereotypicality, Logic, and Creativity Used During Suppression Phase, Experiment 1

	Describe		Suppress	
	M	*SD*	*M*	*SD*
Stereotypicality ratings				
Inventors	5.53	0.95[a]	2.73	0.98[b]
Mathematicians	5.73	0.80[a]	2.95	1.13[b]
Logic ratings				
Inventors	1.90	0.64[a]	1.85	0.67[a]
Mathematicians	5.60	0.99[b]	1.80	0.44[a]
Creativity ratings				
Inventors	4.68	1.10[a]	1.90	0.62[b]
Mathematicians	2.25	0.68[b]	2.25	0.64[b]

Note: Means within a section marked with different superscripts are different at $p < .01$. Means marked with the same superscript are not significantly different.

Explicit self-concept. Average self-ratings on creativity- and logic-related attributes were computed. Because participants tended to view themselves as more logical than creative, $t(99) = 3.33$, $p < .001$, $d = .67$, standardized scores were computed and entered as repeated measures in an ANOVA with suppression instructions and target group entered as between-participants factors (see Figure 1, top and middle panels). A two-way (instructions × group) ANOVA produced no significant effects, largest $F(1, 76) < 1$, $\eta_p^2 = 0$. Thus, participants' explicit reports of their self-concept were not influenced by recent suppression of a group stereotype.

Implicit self-concept. Preparation of response time data derived from the IAT followed the steps outlined in Greenwald, Nosek, and Banaji (2003).[1] D scores were computed such that more positive scores reflected stronger self-creativity associations (i.e., faster responses when "self" was paired with creativity) and more negative scores reflected stronger self-logic

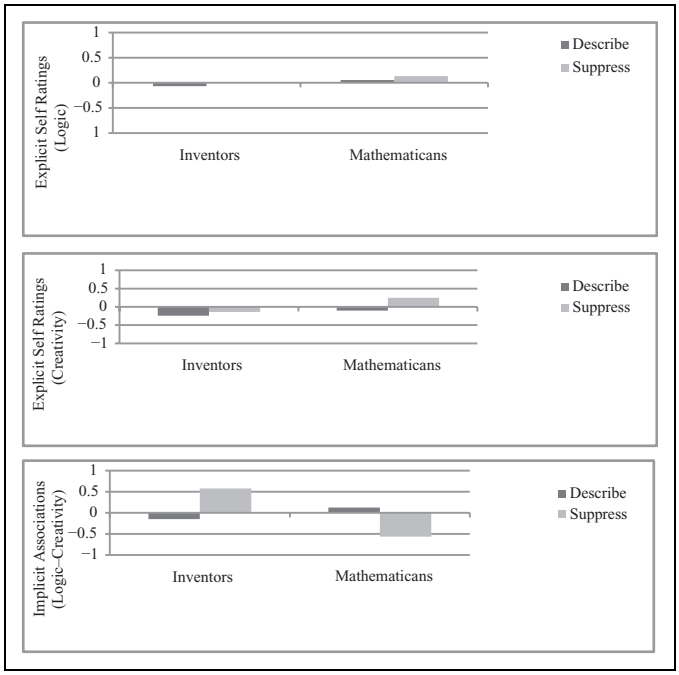

Figure 1. Standardized trait ratings and Implicit Association Test scores (Experiment 1).

associations (i.e., faster responses when "self" was paired with logic). Because of the relative nature of the IAT, D scores were standardized for analysis. Standardized D scores were analyzed using a two-way ANOVA. This analysis produced a significant main effect of group, $F(1, 76) = 4.08$, $p = .05$, $\eta_p^2 = .05$. Participants exposed to inventors had higher self-creativity associations ($M = 0.21$, $s = 1.05$) than those exposed to mathematicians ($M = –0.22$, $s = 0.97$). However, this effect was qualified by a significant interaction with suppression instructions, $F(1, 76) = 10.76$, $p = .001$, $\eta_p^2 = .12$ (see Figure 1, bottom panel).

Simple main effects confirmed that participants who suppressed inventor stereotypes revealed stronger self-creativity associations ($M = 0.58$, $s = 0.79$) than those who merely described inventors ($M = –0.15$, $s = 1.17$), $F(1, 76) = 5.66$, $p = .02$, $\eta_p^2 = .07$, whereas participants who suppressed mathematician stereotypes revealed stronger self-logic associations ($M = –0.56$, $s = 0.95$) than those who merely described mathematicians ($M = 0.12$, $s = 0.89$), $F(1, 76) = 5.11$, $p = .03$, $\eta_p^2 = .06$.[2]

Summary. Participants' implicit self-concepts were assimilated to a previously suppressed stereotype, whereas their explicit self-concepts were unaffected. These results suggest that stereotype suppression provokes changes in the active self-concept. Unsurprisingly, these changes were not observed in explicit self-ratings, as such responses may reflect propositional knowledge about the self (Gawronski & Bodenhausen, 2006). They were instead observed in the implicit measure (i.e., the IAT). The active-self account holds that concept activation results in selective accessibility of relevant self-knowledge, which is more likely reflected in implicit measures (e.g., the IAT). In the present research, stereotype suppression increased the accessibility of elements of the self-concept consistent with the suppressed stereotype.

Experiment 2

Experiment 1 demonstrated that stereotype suppression strengthens associations between stereotypic attributes and the self. This raises the question of whether suppression may result in similar changes in other self-relevant outcomes, such as behavior in stereotype-relevant domains. No previous studies have examined whether suppressing stereotypes of groups to which one does not belong can result in stereotype-congruent behavior. Indeed, prior research on stereotype suppression has not typically included behavioral measures, instead limiting investigations of suppression to its effects on judgment and construct accessibility.

Research stemming from the active-self account has shown that changes to the active self may be reflected in overt behavior (see Wheeler et al., 2007). Evidence from the priming literature is again informative. Studies of concept priming have established that activating traits or stereotypes often results in changes to one's behavior. Bargh, Chen, and Burrows (1996) found that trait- or stereotype-primed participants assimilated their behavior toward the primed concept (rude-primed participants interrupted more quickly, elderly-primed participants walked more slowly, African American–primed participants reacted to provocation with more hostility). Since their research, priming effects on social behavior, motor responses, and intellectual performance have been reported (for a review, see Dijksterhuis & Bargh, 2001). According to the active-self account, behavioral effects of priming are an outward reflection of changes to the active self-concept.

Experiment 2 directly investigated the hypothesis that stereotype suppression produces stereotype-congruent behavior. Participants suppressed occupational stereotypes before completing tasks on which those occupational groups would be expected to excel. Following prior research (e.g., Dijksterhuis et al., 1998) demonstrating that cognitive performance—just as motor and social behavior—can be influenced by accessible stereotypes, we expected participants who suppressed occupational stereotypes to perform better on stereotype-relevant cognitive tasks (but not stereotype-irrelevant tasks; cf. Hansen & Wänke, 2009).

Method

Participants. A total of 82 members of an urban U.K. community (71% female, average age 22.8 years) took part in this and an unrelated study in exchange for £3 ($4.50).[3] Participants were tested in groups of three to five.

Design. Suppression instructions (suppress vs. describe), target group (mathematicians vs. inventors), and task (creativity

vs. logic) were manipulated in 2 × 2 × 2 mixed design where the last factor varied within participants.

Procedure. The experiment involved two phases purported to be unrelated studies, both carried out via computer to reduce experimenter effects. The first (suppression) phase was identical to Experiment 1. After describing (and, for participants in suppression conditions, suppressing stereotypes of) inventors or mathematicians, participants completed two behavioral measures: namely, a creativity task and a logic task (the order of which was counterbalanced). The "Creative Uses Test" required participants to generate as many novel uses as possible for each of four common household objects (a paper clip, a brick, a shoe, and a sheet of paper). The "Logical Reasoning Test" required participants to solve 10 problems drawn from the GRE analytic section.[4] Participants were allowed to complete both tasks at their own pace. After completing the two tasks, participants were debriefed and excused. Importantly, no participant reported awareness of a connection between the suppression task and the dependent measures.[5]

Results and Discussion

Manipulation checks. Two independent coders, blind to condition, rated descriptions written in the suppression phase on the dimensions of creativity, logic, and general stereotypicality. Interrater reliability was satisfactory for all three dimensions (αs = .80 to .87), and ratings were averaged. As summarized in Table 3, participants in the suppression conditions produced descriptions that were lower in overall stereotypicality and in use of stereotypic traits.

Task performance. Creativity scores were defined as the total number of uses generated for the four objects. Logic scores were computed as the proportion of correct responses. To allow for comparisons of performance across tasks (which were characterized by different performance distributions), standardized scores for both creativity and logic tasks were computed and entered as repeated measures in an ANOVA where instructions and target group were between-participants factors. This analysis produced a significant three-way interaction, $F(1, 68) = 14.30$, $p < .001$, $\eta_p^2 = .18$ (see Figure 2). Separate two-way ANOVAs were then carried out on each task. A significant instruction × group interaction was obtained for creativity scores, $F(1, 68) = 11.02$, $p = .001$, $\eta_p^2 = .14$. Simple main effects confirmed that suppression participants performed significantly better in inventors, $F(1, 68) = 34.69$, $p < .001$, $\eta_p^2 = .34$, than in the mathematician condition, $F(1, 68) = 1.43$, $p = .24$, $\eta_p^2 = .02$.[6] Similarly, a significant instruction × group interaction was obtained for logic scores, $F(1, 68) = 6.16$, $p = .02$, $\eta_p^2 = .08$. Simple main effects showed that suppression participants performed significantly better in the mathematician condition, $F(1, 68) = 8.05$, $p = .006$, $\eta_p^2 = .11$, but not in the inventor condition, $F(1, 68) < 1$, $p = .50$, $\eta_p^2 = .01$.[7]

Table 3. Mean Ratings of Stereotypicality, Logic, and Creativity Used During Suppression Phase, Experiment 2

	Describe		Suppress	
	M	*SD*	*M*	*SD*
Stereotypicality ratings				
Inventors	6.03	0.65[a]	2.83	0.82[b]
Mathematicians	5.97	0.65[a]	3.28	1.00[b]
Logic ratings				
Inventors	2.17	0.54[a]	2.22	0.57[a]
Mathematicians	4.22	0.69[b]	2.31	0.64[a]
Creativity ratings				
Inventors	4.92	0.67[a]	2.11	0.65[b]
Mathematicians	2.44	0.70[b]	2.58	0.75[b]

Note: Means within a section marked with different superscripts are different at $p < .001$. Means marked with the same superscript are not significantly different.

Summary. This study shows, for the first time, that suppressing stereotypes of groups to which one does not belong can result in stereotype-congruent behavior. Participants who suppressed inventor stereotypes became more creative (a trait associated with inventors), and those who suppressed mathematician stereotypes became more logical (an attribute associated with mathematicians), compared to participants who merely described those groups. Importantly, this pattern of results reflects domain-specific boosts in performance. That is, suppressing stereotypes of intelligent groups (inventors and mathematicians) did not uniformly improve cognitive performance. Rather, only performance in stereotype-relevant domains benefited from suppression.

General Discussion

The experiments reported here demonstrate for the first time that thought suppression influences two important self-relevant outcomes: the implicit self-concept and overt behavior. Participants in Experiment 1 revealed stronger associations between the self and stereotypic traits after suppressing those stereotypes, indicating that their self-concept had shifted to incorporate those traits. This finding implies that the active self may assimilate to concepts activated through suppression. Moreover, Experiment 2 established that changes in cognitive performance occurred as the result of suppressing stereotypes associated with performance domains. Participants became more creative if they had suppressed stereotypes of inventors but more logical if they had suppressed stereotypes of mathematicians. To our knowledge, our experiments are the first to provide direct evidence that stereotype suppression alters the self-concept and behavior in stereotype-congruent ways. Although our data do not allow us to make claims about the process underlying these behavioral effects, they are consistent with the active-self account's proposal that behavior changes following concept activation are mediated by changes to the active self-concept.

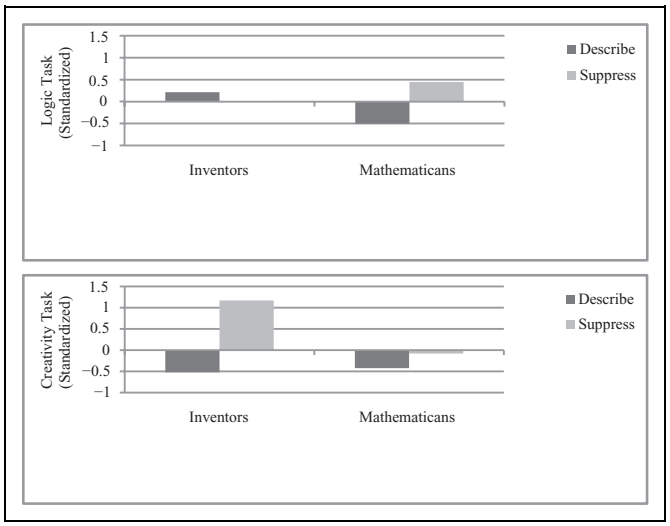

Figure 2. Performance (standardized) on logic and creativity tasks (Experiment 2).

It is worth noting that our results are consistent with early work on stereotype suppression. In Macrae et al.'s (1994) research, stereotype suppression also influenced behavior. Participants who suppressed skinhead stereotypes later distanced themselves from the skinhead whom they had earlier described. This finding was interpreted as evidence that suppression participants judged the other person more stereotypically and were motivated to avoid him. Yet the present studies suggest an alternative interpretation—participants for whom skinhead stereotypes were activated via suppression may have assimilated skinhead-stereotypic traits (e.g., antisocial) to themselves, and reflected this in their behavior. Although this interpretation is necessarily post hoc, it raises interesting questions about whether suppressing negative attributes would have parallel effects as those found in these studies. Intuitively, individuals may be less likely to assimilate negative qualities to themselves. However, there is ample evidence that people do in fact shift their self-concepts and behavior toward accessible negative attributes (Bargh et al., 1996; Dijksterhuis & van Knippenberg, 1998). Future research will need to confirm whether suppressing negative stereotypes produces stereotype-congruent shifts in self-concepts and behavior, but we suggest that the current evidence is consistent with that possibility.

Suppression, Priming, and the Active Self

Beside providing the first evidence of suppression effects on self-relevant outcomes, these findings extend research on thought suppression in a number of important ways. Although previous studies established that rebound following suppression of personally intrusive thoughts may contribute to a variety of psychological disorders, the present studies are the first to demonstrate that thought suppression influences self-construal within normally functioning populations as well. Moreover, they establish that suppressed concepts need not be self-relevant to have consequences for self-relevant outcomes. Suppressing stereotypes of groups that were unrelated to themselves still led participants to assimilate their self-concepts and behavior to those stereotypes. Finally, the present results extend previous findings that stereotype suppression biases construal of novel targets (typically depicted in an ambiguous manner) to demonstrate that rebound effects also bias construal of a target about whom a great deal is known (i.e., the self).

One further aspect of the present results bears mention. In contrast to previous research, merely thinking about a stereotyped group did not produce priming effects. In neither experiment reported here did self-relevant outcomes assimilate to the target group in the "describe" conditions. Only when participants *suppressed* stereotypes of those groups did changes to the self emerge. In contrast, previous research (e.g., Dijksterhuis & van Knippenberg, 1998; Haddock, Macrae, & Fleck, 2002) has used "describe" instructions to successfully prime group stereotypes. What might account for this difference? It is notable that participants in the "describe" conditions of the present studies did not rely exclusively on stereotypes when generating group descriptions. Stereotypicality ratings of descriptions produced during the suppression phase rarely surpassed the midpoint of the scale. Thus, it is likely that participants in the "describe" conditions did not extensively process the stereotypes in question. Only when required to specifically suppress those stereotypes did they become sufficiently activated to influence responses. Such findings are consistent with previous stereotype suppression research. For example, Wyer et al. (2000) found that the group (Asian American vs. African American) described in the suppression phase of their studies had no effect on subsequent judgments *unless* participants were required to suppress stereotypes of that group.

Beyond establishing that stereotype suppression affects self-relevant outcomes, these two experiments also extend the active-self account beyond situations involving simple concept priming. The active-self account (Wheeler et al., 2007) developed as a model of prime-to-behavior effects, which have been demonstrated following both conscious and nonconscious priming manipulations (Dijksterhuis & Bargh, 2001). However, studies typically cited in support of the active-self account have tended to involve intentional processing of the primed concept (e.g., DeMarree et al., 2005; Kawakami, Dovidio, & Dijksterhuis, 2003). The present research demonstrates that changes to the active self need not depend on intentional processing. Rather, activating concepts using subtle or nonconscious means also produces changes to the active self. Indeed, although thought suppression is by definition conscious and controlled, its effects are neither intentional nor conscious, as our assessment of participants' awareness demonstrated.

Although the present experiments provide an important first indication of how suppression influences self-construal, further hypotheses may be derived from considering the priming literature. Recent priming research has established at least three distinct effects on self-construal. Although the preponderance

of research has concerned assimilation effects (where the prime produces stereotype-congruent changes), a significant body of work suggests that—in some conditions—priming results in contrast effects (where behavior changes in the opposite direction to the prime) or response effects (where behavior appropriate to interacting with the primed target is produced). It is worth considering whether (and when) postsuppression rebound might lead to similar results.

We now know that priming produces contrast effects under specific conditions. First, priming an *exemplar* (e.g., Einstein) rather than a category (e.g., professors) results in self-judgments and behaviors that are opposite to the prime (e.g., Dijksterhuis et al., 1998). Furthermore, increasing *self-focus* makes contrast more likely (Schubert & Häfner, 2003). Both of these factors are believed to encourage comparisons between the self and the prime. Such comparisons result in assimilation if the prime is construed as similar to the self but contrast if the prime is construed as different from the self (see Mussweiler, 2007; Wheeler et al., 2007). One direction for future research is to establish whether such comparisons occur when concepts are activated after suppression. Although comparison itself need not be conscious to produce contrast effects (e.g., Schubert & Häfner, 2003), it is unclear whether the *target* of comparison needs to be consciously processed. If so, suppression may produce contrast effects only after a delay (when the suppressed concept returns to consciousness during rebound).

Fewer studies have examined response effects, which occur when priming a target produces behavior that is compatible with *responding* to that target. Such effects have been attributed to activation of interaction goals (Cesario, Plaks, & Higgins, 2006), situation models (Jonas & Sassenberg, 2006), or biased perceptions of others in a social interaction (Smeesters, Warlop, van Avermaet, Corneille, & Yzerbyt, 2003; see also Smeesters, Wheeler, & Kay, 2009; Smeesters, Yzerbyt, Corneille, & Warlop, 2009). Regardless of the mechanism responsible, response effects are elicited by concept activation. Thus, suppression may produce similar—or even intensified—response effects. Notably, such effects are unlikely to be mediated by changes to self-construal but rather by construal of the social situation and others present in it. An important goal for research on both priming and suppression is to identify the conditions that promote each effect of concept activation.

Although further research is needed to address these questions, the present work provides, for the first time, an important demonstration that stereotype suppression has implications not only for judgments of others but also for one's own behavior and self-perception.

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Notes

1. Split-half reliability was computed for Blocks 3-4 and Blocks 6-7. Reliability was satisfactory (αs = .86 and .83).
2. Simple main effects of group were significant for the suppression condition, $F(1, 76) = 14.05$, $p < .001$, $\eta_p^2 = .16$, but not the describe condition, $F(1, 76) < 1$.
3. Data from 10 participants who failed to reach chance accuracy levels on the logic task were excluded. Analyses are based on the remaining 72 participants.
4. The two tasks were intentionally labeled as tests of creativity and logic to minimize the possibility that effects of suppression could be attributed to participants' interpreting the tasks in terms of activated concepts (e.g., Kay, Wheeler, & Smeesters, 2008).
5. To establish that a behavioral effect is automatic, researchers often rely on manipulations of concept activation that take place outside of participants' awareness. Suppression, by definition, is a controlled and intentional process that operates within awareness. Thus, it is important to note here that it is our contention that the *consequences* of suppression are automatic and unintended. Participants were unaware of how the manipulation affected their performance. Moreover, suppression conditions are compared against conditions where the target stereotype was equally salient. If participants' intentional and controlled reflection on those stereotypes had affected task performance, we should have seen performance effects in our control conditions. Yet differences in performance were observed only in the suppression conditions.
6. Simple main effects of group were significant for the suppression condition, $F(1, 68) = 18.95$, $p < .001$, $\eta_p^2 = .22$, but not the describe condition, $F(1, 68) < 1$.
7. Simple main effects of group were significant for the describe condition, $F(1, 68) = 4.61$, $p = .04$, $\eta_p^2 = .06$, but not the suppression condition, $F(1, 68) = 1.86$, $p = .18$, $\eta_p^2 = .03$.

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