

Unconscious and Spontaneous and . . . Complex: The Three Selves Model of Social Comparison Assimilation and Contrast

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Several theoretical perspectives predict that social comparisons lead to simple, default-driven effects when triggered outside of conscious awareness. These theoretical perspectives differ, however, in the default effects they predict. Some theories argue for self-evaluative contrast, whereas others argue for self-evaluative assimilation. The current studies tested the prediction that the default effect would vary as a function of the social context and the type of self-concept activated. When attention was focused on the personal self, contrast effects emerged. When attention was focused on collective or possible selves, assimilation effects emerged. These findings suggest that a wide range of comparison effects can be triggered spontaneously and outside of conscious awareness. However, some results also show ways in which social comparison processes simplify when deliberate reflection is lacking.

Keywords: assimilation, contrast, possible selves, social comparison, social identity

“Efficient,” “unconscious,” “spontaneous,” “uncontrollable,” and “fast”—all of these terms have been used to describe automatic mental processes. Although investigators should not assume that each of these features will co-occur whenever mental processes are automated (Bargh, 1989), each speaks to a basic human adaptation. Automation in its various forms frees up cognitive resources, which helps the individual respond easily and adaptively to a wide range of physical and social challenges (Fox, 1992; Gilbert, 1991). Automaticity is not without negative consequences, however. Another term that can be used to describe some automatic mental processes is “rigid.” Research suggests that automation often leads to default, stimulus-driven responses (Shiffrin and Schneider, 1977; Zajonc, 1980) that frequently are hard to counteract or correct and that resist modification over time (Bargh, 1997; Devine, 1989; Gregg, Seibt, & Banaji, 2006; Martin, 1986; cf. Lowery, Hardin, & Sinclair, 2001).

In this current article, we examined default responding in the domain of social comparison by expanding on earlier work by Stapel and Blanton (2004). They showed that subliminal presentation of person exemplars can trigger spontaneous social comparison effects. Participants in their studies were primed with either upward or downward person primes. Results indicated that upward social comparison targets (e.g., attractive or intelligent exemplars) lowered self-evaluations on both self-report and unobtrusive measures, whereas downward social comparison targets (e.g., unattractive and unintelligent exemplars) raised evaluations on these same indices. These findings suggest that social comparisons can be triggered unconsciously and that they can arise spontaneously, without the presence of explicit prompts to evaluate the self.

However, these same results might suggest that people have rigid, default-driven responses to social comparison information when it is presented outside of conscious awareness. The current studies addressed this issue.

UNCONSCIOUS AND SPONTANEOUS SOCIAL COMPARISONS

The methods used by Stapel and Blanton (2004) were designed to reveal two distinct ways in which social comparisons can become automated. First, social comparisons can be *unconsciously triggered*. That is, comparison information can influence self-evaluations even when individuals do not realize that social comparisons have been made. Second, social comparison can be *spontaneous*. That is, comparison information can shape self-evaluations even when people are not explicitly directed to reflect on or evaluate the self.

Although Stapel and Blanton’s (2004) results and those of related models might add a layer of complexity to various psychological models of self and identity, we fear that such findings might have encouraged a restricted view of social comparison. The studies described by Stapel and Blanton (2004) emphasized just one type of social comparison: contrast effects. In the context of social comparison, contrast effects occur when perceivers’ own self-evaluations are displaced from their evaluations of other people. Thus, upward comparisons with superior others lowers self-evaluations, and downward comparisons with inferior others raises self-evaluation. Stapel and Blanton’s emphasis on contrast may have drawn attention away from the possibility that *assimilation effects* also can arise spontaneously and in response to subliminal exposure to social comparison information. With assimilation effects, perceivers’ self-evaluations are displaced toward their evaluations of other people. Thus, upward comparisons with superior others raise self-evaluations, and downward comparisons with inferior others lower self-evaluations.

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ASSIMILATION AND CONTRAST: COMPETING DEFAULTS

A review of the empirical research reveals contradictory accounts of whether one should predict that contrast or assimilation will be the default response to social comparison information. We will review the reasons that one would expect contrast to be the default, reasons consistent with the findings in Stapel and Blanton (2004). We then will present reasons that one just as easily could predict that assimilation would be the default. Following this discussion, we will introduce an integrated model of social comparison and argue that both contrast and assimilation can be triggered unconsciously and spontaneously.

Default Contrast

A large number of studies have shown that conscious social comparisons can generate contrast effects on explicit measures (Cash, Cash, & Butters, 1983; Morse & Gergen, 1970; Thornton & Moore, 1993). Although conscious and controlled assimilation effects have been documented many times as well (Blanton, Christie, & Dye, 2002; Brewer & Weber, 1994; Lockwood & Kunda, 1997; Pelham & Wachsmuth, 1995), these effects often are presented as higher level reactions that should be predicted only when individuals are able or motivated to enjoy desirable self-other associations (see Buunk & Ybema, 1997; Gruder, 1977; Tesser, 1988).

The frequency with which contrast effects have been shown in the social comparison literature and the common interpretations surrounding them would seem to suggest that contrast is the default response to social comparison information.¹ As just noted, Stapel and Blanton's (2004) research supported this interpretation. Their findings also are consistent with work in the person perception literature, where subliminal and supraliminal person primes typically produce contrast effects on social perception (Moskowitz & Skurnik, 1999; Stapel, Koomen, & Van der Pligt, 1996, 1997). Most telling, however, is a set of social comparison studies by Gilbert, Giesler, and Morris (1995). These researchers showed that contrast effects occur if perceivers are made cognitively busy while observing social comparison stimuli. One interpretation of this finding is that cognitive busyness prevents perceivers from overcoming social comparison's default push toward contrast.² This conclusion was further supported by a set of studies by Stapel and Suls (2004). They showed that exposure to similar others produced contrast effects in the absence of prompts to engage in deliberative comparisons. However, when people were prompted to compare the self with others, increased attention on similarity resulted in assimilation effects.³

In summary, there is strong evidence to suggest that contrast might be the default and easy reaction to social comparison information and that assimilation occurs only when a person has the ability and motive to engage in more deliberate comparisons. As we will show, however, the social cognition literature has provided compelling evidence suggesting that assimilation should be the default.

Default Assimilation

Several studies have shown that people evaluate social objects in ways that are consistent with the information made accessible

by both subliminal and supraliminal primes (Bargh & Pietromonaco, 1982; Higgins, 1989, 1996; Srull & Wyer, 1979), and these perceptual changes even have been shown to influence behavior (Bargh, 1997; Bargh, Chen, & Burrows, 1996; Macrae & Johnston, 1998). Although contrast effects have been demonstrated in studies as well, such effects often occur only when individuals wish to counteract or "correct" for the assimilative influence of primes (Martin, Seta, & Crelia, 1990; Moskowitz & Skurnik, 1999; Schwarz & Bless, 1992; Strack, Martin & Schwarz, 1988; Wegener & Petty, 1995). It is with this in mind that Martin (1986) advanced what he called a *set/reset hypothesis*. According to Martin's theory, assimilation is the default response to social stimuli, and contrast occurs when perceivers (a) possess the cognitive resources they need in order to prevent assimilation and (b) overcorrect their judgments in an attempt to prevent this bias.

Martin's view of assimilation as the default reaction to social stimuli is compatible with a wide range of related social judgment models, models that give cognitive and temporal priority to assimilation (Gilbert, 1991; Pardo & Wedell, 1990; Trope, 1986; Wyer & Srull, 1989). Martin's model is particularly noteworthy, however, in that it was the inspiration for a set of social comparison studies that made unambiguous claims regarding the primacy of assimilation over contrast. In these, Pelham and Wachsmuth (1995) theorized that social comparison contrast occurs when individuals expend cognitive resources evaluating the self, whereas assimilation occurs when individuals are not so cognitively engaged. These researchers thus predicted that assimilation would occur when people are high in self-certainty. Consistent with this hypothesis, they found (in Study 1) that the self-evaluations of college students with certain self-concepts converged over time, whereas the self-evaluations of college students

¹ In the current context, we define *default* to mean that contrast effects occur relatively early in the processing of social comparison information and that they require fewer cognitive resources and less controlled processing than assimilation effects.

² Gilbert et al. (1995) did not test for situations in which low cognitive load might lead to assimilation. Rather, they set up situations in which the expected response would be contrast. As a result, participants in the high-load conditions showed contrast, whereas those in the low-load conditions discounted. Nevertheless, the tendency for contrast to be found in all of the high-load conditions is consistent with the notion that contrast is a default response to social comparison information and that other responses require more deliberate processing.

³ In their analysis, Stapel and Suls (2004) made a distinction between *implicit* and *explicit* social comparisons, with the former being linked to contrast and the latter to assimilation. Their terminology was meaningful, but it can be somewhat distracting in the current context. One could infer from this terminology that unconscious and spontaneous (i.e., implicit) social comparisons lead only to contrast effects, whereas conscious and deliberate (i.e., explicit) social comparisons lead only to assimilation effects. However, their article would not support these conclusions. Their article showed differences in comparison effects if a person was prompted (explicitly) to evaluate the self in relation to another person or given less direct (implicit) instructions. Moreover, all of the conditions in their studies relied on supraliminal presentation of stimuli and so none of their studies focused on the issues of unconscious and spontaneous comparisons that are the focus of the current paper. Partly to avoid imprecise associations with this and other published articles, we avoid the language of *implicit* and *explicit* in the current studies.

with less certain self-concepts diverged over time. Pelham and Wachsmuth interpreted this finding (and the results of two conceptual replications) as evidence that assimilation is a spontaneous response to the presence of other people.

In summary, evidence suggests that assimilation might be the default and “easy” reaction to social comparison information and that contrast only occurs when a person has the ability and motive to compare in a more deliberate fashion.

Contextualized Defaults

Given reasons to predict either default contrast or assimilation, it seems reasonable to predict that the default response to unconsciously triggered social comparisons would vary across social contexts. The current studies test predictions consistent with this view; predictions derived from Blanton’s (2001) three selves model of social comparison. Although Blanton’s model was designed to organize a social comparison literature that, at that point, had focused almost entirely on conscious and controlled reactions to social comparison information, we will show that it nevertheless provides a useful framework for making predictions regarding unconsciously triggered and spontaneously expressed reactions to social comparison.

THE THREE SELVES MODEL SOCIAL COMPARISON

Conscious and Controlled Comparisons

Blanton’s (2001) three selves model was based on the Schwarz and Bless (1992) model of inclusion and exclusion. The three selves model proposes that comparison with others can influence self-evaluations via one of three mental processes. First, others can be included in the representation of a comparison standard, against which the self is evaluated. This process results in contrast. Second, others can be included in the representation of the self. This process results in assimilation. Finally, others can be included in the representation of some shared social category, of which both the self and similar others are members. This process results in assimilation.⁴

Blanton (2001) proposed that the process that comparison others initiate depends on the type of self-concept that is active in working memory at the time of social comparison (see also Stapel & Van der Zee, 2006). Blanton identified three broad classes of self-concepts that shape comparison processes: the personal self, the possible self, and the collective self. The *personal self* is defined as a person’s representation of his or her current and personal attributes.⁵ This self is conceptualized as a bounded category with clear self–other borders. A target of comparison thus cannot be included in this self-representation, but it can be included in the standard against which the self is evaluated. When this happens, contrast will result (see Major, Sciacchitano, & Crocker, 1993; Sanders, 1982). The *possible self* is defined as a person’s conception of the person that he or she might become at some point in the future (Markus & Nurius, 1986). This self is not limited by the traits that a person currently possesses; it can extend out to include traits that are only observed in another person. Traits of a comparison other can thus be included in the representation of the possible self. When this happens, assimilation will result (see

Lockwood & Kunda, 1997; Major, Testa, & Bylsma, 1991). The *collective self* is defined as that part of the self-concept that arises from membership in meaningful groups (Tajfel, 1978; Turner, Hogg, Oakes, Reicher, & Wetherell, 1987). A comparison other can thus be included in the same shared category as the self. When this happens, assimilation will result (see Blanton, Crocker, & Miller, 2000; Brewer & Weber, 1994; Mussweiler & Bodenhausen, 2002).

Comparison Mindsets

The key to importing the three selves model to this research question is to consider that each of the selves of interest can be activated by different social contexts prior to a social comparison event. This possibility was made evident by Stapel and Koomen (2001), who showed that precomparison mindsets can be activated in working memory before a perceiver encounters a target of comparison and that these mindsets can determine whether assimilation or contrast will predominate. As examples, these researchers caused participants in some conditions to approach a comparison other with a goal of comprehension (e.g., priming comprehend and interpret). This manipulation resulted in assimilation. In other experimental conditions, they caused participants to approach a comparison other with goal of comparing (e.g., priming compare and differ). This manipulation resulted in contrast (see also Marx & Stapel, in press; Schwinghammer, Stapel, & Blanton, 2006).

Consistent with these findings, we predicted that social contexts that activate the personal self could lead (spontaneously and unconsciously) to contrast effects, that social contexts that activate the possible self could lead (spontaneously and unconsciously) to assimilation effects, and that social contexts that activate the collective self could lead (spontaneously and unconsciously) to assimilation effects. We tested these predictions in four studies. Studies 1 and 2 tested the predictions for personal-self versus possible-self mindsets. Studies 3 and 4 tested the predictions for personal-self versus collective-self mindsets. Combined, these four studies provide the first comprehensive test of the Blanton’s (2001) three selves model of assimilation and contrast. They could also expand our understanding of social comparison defaults by showing that a wide range of effects can be generated spontaneously, even when social comparisons are triggered outside of conscious awareness.

PERSONAL-SELF VERSUS POSSIBLE-SELF MINDSETS

Studies 1a and 1b

The classic study that demonstrated how social comparison can influence self-evaluations was by Morse and Gergen (1970). These

⁴ Blanton (2001) also noted that assimilation and contrast could occur because individuals try to overcorrect for the influence of comparison others. That discussion is not relevant to the current analysis, however, as evidence suggests that discounting requires awareness of an effect.

⁵ The original term *individual self* has been changed to *personal self* to avoid confusion with research and theory on independent and interdependent self-construal (Markus & Kitayama, 1991).

researchers exposed participants to a job applicant who was competing against them for an attractive job. Those participants who observed a competent applicant (“Mr. Clean”) subsequently reported lower ratings on a measure of self-esteem than did those who observed a less competent applicant (“Mr. Dirty”). Although Morse and Gergen did not frame it in this way, their study documented a contrast effect. We would contend that contrast was observed in their study because these researchers created a social context in which a personal-self mindset predominated: The participants responded to the job interview situation by using the comparison other as a standard for evaluating personal competence.

But what if Morse and Gergen had created a situation in which a possible-self mind-set predominated? If participants were not focused on the current state of affairs but on the future, we suspect that Morse and Gergen (1970) would have observed an assimilation effect. Evidence consistent with this can be found in Lockwood and Kunda (1997). In one of their studies (Study 1), female participants read a bogus newspaper article about an exceptional and award-winning working professional woman. This “Ms. Clean” could have threatened the self-esteem of the participants, much as “Mr. Clean” threatened the self-esteem of participants in Morse and Gergen’s study. However, Lockwood and Kunda created a set of experimental conditions in which this comparison could be viewed in possible-self terms. This was accomplished by manipulating the personal relevance of the comparison other’s profession and its relationship to participants’ college major. Participants were prescreened to be majoring either in accounting or education, and the comparison other was described as either a professional accountant or school teacher. Consistent with predictions of the three selves model, an assimilation effect was observed when there was a major–career match, whereas a contrast effect was observed when there was a major–career mismatch (also see Aspinwall & Taylor, 1993; Major et al., 1991).

Study 1a and Study 1b built on the findings in both Morse and Gergen (1970) and Lockwood and Kunda (1997) by testing whether subliminal exposure to a comparison exemplar would (a) trigger a spontaneous contrast effect when a personal-self mindset has been activated and (b) trigger a spontaneous assimilation effect when a possible-self mind-set has been activated. In both Studies 1a and 1b, we used experimental procedures to manipulate these mind-sets prior to a social comparison and tested assimilation and contrast effects using both a self-report and an unobtrusive measure. The two studies differed only in the priming procedures used, as described in the next section.

Method

Participants and Design

Participants in Study 1a ($n = 32$ women and 25 men; M age = 19 years) and Study 1b ($n = 26$ women and 22 men; M age = 19 years) were undergraduate psychology majors who took part in the studies for partial course credit. In both studies, participants were randomly assigned to one of the four experimental conditions of a 2 (mindset: personal self vs. possible self) \times 2 (comparison direction: upward vs. downward) factorial design. Mindset was manipulated prior to comparison activity in each study. This was accomplished in Study 1a via thought-listing procedure and in

Study 1b via supraliminal priming procedure. The comparison others that were used to manipulate comparison direction were drawn from Stapel and Blanton (2004) and were chosen to represent intelligent (upward) or unintelligent (downward) exemplars. After the two manipulations, responses on both a self-report and an unobtrusive self-evaluation measure were assessed.

Procedure

On arrival, participants were shown into one of eight cubicles in the experimental room and seated in front of a computer. They were told that they would participate in a set of unrelated studies.

Mindset manipulation. In Study 1a, participants in the personal-self mindset wrote a short essay for what ostensibly was the first study. The essay was titled “Who I Am.” In this essay, participants described their current qualities and personality as if they were introducing themselves to a stranger. Participants in the possible-self mindset wrote a similar essay titled “Who I Can Become.” In this, they described the qualities and personality they believed they might possess at some time in the future. They were told not to feel constrained by their current qualities or traits.

Study 1b used a priming procedure to manipulate the same two mindsets. The primary advantage of Study 1b over Study 1a is that it activated personal and possible selves in a manner that did not require participants to engage in deliberate reflection regarding their personal qualities or personal goals. Participants in this study were given a word jumble and told to find and circle embedded words (see Schwinghammer et al., 2006). Those in the personal-self condition were primed to consider fixed or finished psychological states. They thus encountered words such as *be*, *stay*, and *complete*. Those in the possible-self condition were primed to consider malleable or growing psychological states. They thus encountered words such as *become*, *potential*, and *grow*.

Social comparison manipulation. After having completed the mindset task, participants performed a parafoveal vigilance task (modeled after the task described in Stapel, Koomen, & Ruys, 2002; see also Stapel & Blanton, 2004). In this task, priming stimuli were presented outside of conscious awareness. Participants were told that short flashes would appear on the screen in unpredictable places and at unpredictable times and that their task was to decide as quickly and accurately as possible whether the flash appeared on the left or right side of the screen.

Outcome measures and suspicion. After the participants completed the vigilance task, their self-evaluations were assessed using self-report and unobtrusive measures that we will describe later. Following this, each participant underwent a funnel debriefing procedure. Thus, they were probed for awareness of the priming stimuli, awareness of the influence of the priming task on later judgments, and general suspicion concerning the goal of the study. Similar to what was found in earlier studies using this paradigm (see Stapel & Blanton, 2004; Stapel et al., 2002), none of the participants showed awareness of the priming stimuli, and none showed suspicion concerning the goal of the study.

Materials and Measures

Priming task. The priming task followed the procedures in Stapel and Blanton (2004). Once participants were seated in front of their computers, the experimenter explained the vigilance task,

first orally and then with instructions shown on the computer screen. Participants were seated so that the distance between their eyes and the computer screen was 100 cm when they sat erect on the chair, as they were instructed to do. This ensured that the priming stimuli (and masks) were presented outside of the participants' perceptual field. The experimenter instructed participants to place their index fingers on the two labeled keys of the keyboard and to press the left key, labeled *L*, if a flash appeared on the left side of the screen and to press the right key, labeled *R*, if a flash appeared on the right side of the screen. A fixation point appearing as an *X* was presented continually in the center of the screen. The experimenter emphasized that because of the unpredictable timing and location of the flashes, the best way to detect all of them quickly would be for the participants to keep their eyes on the fixation point at all times. Participants were given 10 (neutral priming) practice trials to become familiar with the procedure and to ensure that they understood it. After answering any questions, the experimenter began the 60 experimental trials of the vigilance task, which took participants approximately 10 min.

All priming pictures (faces) and masks (black–gray dotted squares) on the computer screen measured 20 mm. Pictures of Chinese characters were flashed in the 10 practice trials and in 40 of the experimental trials. In the remaining 20 experimental trials, either an upward (intelligent) exemplar or a downward (unintelligent) exemplar was displayed. As in Stapel and Blanton's (2004) study, the priming stimulus used to invoke social comparison with an intelligent exemplar was a picture of Albert Einstein (pretested on a 1- to 7-point *unintelligent–intelligent* scale, $M = 6.63$). The priming stimulus used to invoke comparison with an unintelligent target was a picture of a clown (pretested $M = 2.12$). Both primes were faces with neutral expressions ($M_s \approx 4$, as pretested on a 7-point *sad–happy* scale, with a neutral midpoint of 4).

Spontaneous self-evaluations. State changes in self-evaluation were measured using an indirect, unobtrusive measure.⁶ This allowed us to determine whether changes in self-evaluation might occur even when participants are not directed to deliberately evaluate the self. The measure used followed the procedures in Stapel and Blanton (2004). At the beginning of the study (before the actual experiment started), all participants signed a consent form. Immediately after completing the vigilance task (and before they had completed any self ratings), they were asked to sign a form with the heading "Institution for Perception Studies" (IPS). Participants were told that IPS cosponsored this research program and that their signatures were needed in order for them to receive course credit. Signature size was assessed by drawing the smallest possible rectangle around each participant's (premanipulation) consent form signature and (postmanipulation) IPS form signature. The resulting height and width were multiplied to yield an index for each participant of his or her consent and IPS signature (in square centimeters; following the method described by Koole, 2000). Analyses of the signature size data were designed to investigate the effects of the experimental manipulation on the (postmanipulation) IPS signature, after controlling for the (premanipulation) consent signature.

Self-report measure. After participants had provided their signature, they were given a one-item state self-evaluation measure developed by Robins, Henden, and Trzesniewski (2001). In this, they were asked to indicate the extent to which they agreed (1 =

not at all, 7 = very much) with the item "I have positive self-esteem."

Results

Self-Reports

In both Study 1a and Study 1b, ratings on the self-evaluation measures were analyzed using a 2 (mindset) \times 2 (comparison direction) analysis of variance (ANOVA). In Study 1a, this analysis revealed a significant interaction only between mindset and comparison direction, $F(1, 53) = 14.39, p < .01$. Consistent with the results in Morse and Gergen (1970), those in the personal-self condition showed a significant contrast effect, $F(1, 53) = 8.41, p < .01$, such that those who were subliminally primed with an intelligent exemplar showed lower self-evaluations ($M = 4.13, SD = 1.31$) than those who were subliminally primed with an unintelligent exemplar ($M = 5.50, SD = 1.50$). However, and consistent with the results in Lockwood and Kunda (1997), those in the possible-self mindset showed a significant assimilation effect, $F(1, 53) = 6.14, p < .05$, such that those who were subliminally primed with an intelligent exemplar showed higher self-evaluations ($M = 4.93, SD = 1.43$) than those who were subliminally primed with an unintelligent exemplar ($M = 3.69, SD = 1.03$). This pattern is shown in the top panel of Figure 1.

The results for the self-report measure in Study 1a thus provided strong support for three selves model predictions regarding the effect of personal-self versus possible-self mindsets. These predictions were also supported by equivalent analyses in Study 1b. The same 2 (mindset) \times 2 (comparison direction) ANOVA revealed only a significant interaction between mindset and comparison direction, $F(1, 53) = 17.52, p < .01$. As in Study 1a, those in the personal-self condition had lower self-ratings following exposure to an intelligent prime ($M = 4.92, SD = 1.38$) than an unintelligent exemplar ($M = 5.92, SD = 0.90$), $F(1, 44) = 5.65, p < .03$. Those in the possible-self condition had higher self-readings following exposure to an intelligent prime ($M = 5.67, SD = 1.07$) than to an unintelligent prime ($M = 4.25, SD = 0.62$), $F(1, 44) = 11.33, p < .01$. Results on the self-report measures thus indicated that the personal-self primes promoted contrast and that the possible-self primes promoted assimilation.

Spontaneous Self-Evaluations

In both Study 1a and Study 1b, scores on the indirect self-evaluation measures were subjected to a 2 (mindset) \times 2 (comparison) analysis of covariance (ANCOVA), with premanipulation signature size treated as a covariate. The primary dependent vari-

⁶ Some might refer to this as an *implicit self-esteem measure* (e.g., Greenwald and Farnham, 2000). However, this label could have conveyed some information that we did not desire in the present context. Specifically, by linking our measures to implicit cognition, we might have seemed to be suggesting that individuals lack sufficient insights into the changes in self-evaluation or that our measure picks up evaluations that are independent of their explicit evaluations. It is entirely possible that such views are correct. However, we were not trying to assert that they are true. Our goal here was more modest. We wished only to show that we can see evidence of spontaneous changes in self-evaluation, changes that can occur even when experimenters do not request explicit reports about the self.

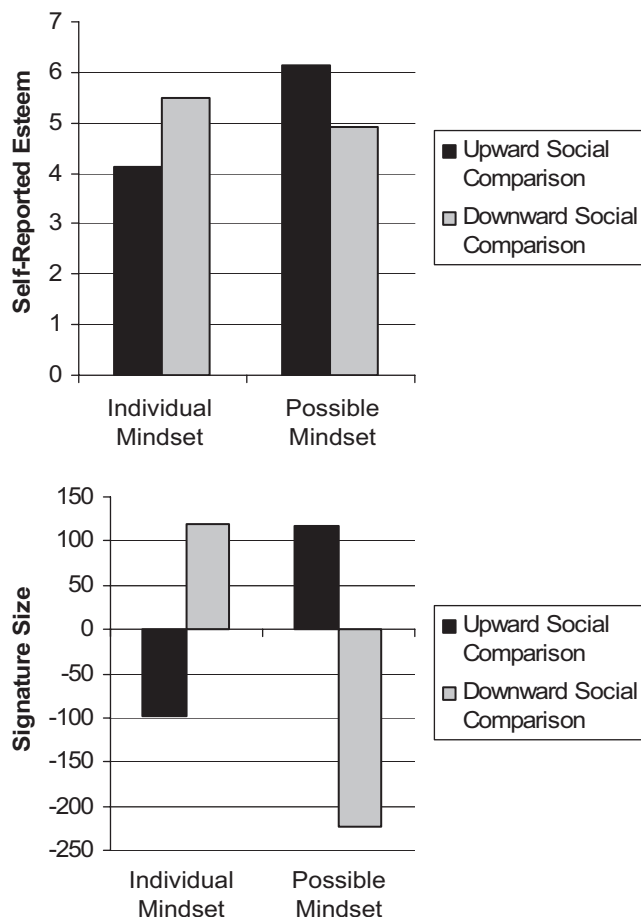


Figure 1. Mean levels of explicit and spontaneous self-esteem in Study 1b, as a function of upwards versus downward social comparison (for intelligence) and personal-self versus possible-self mindsets. Explicit esteem (top panel) was based on self-reported responses to the question “I have positive self-esteem” (rated from 1 = *not at all*, 7 = *very much*). Spontaneous esteem (bottom panel) was based on unobtrusive measurement of changes in signature size (in square centimeters).

able was the postmanipulation signature size. To make the response metric more informative, however, we centered this score on the premanipulation signature size via differencing. In this way, the response metric quantified state changes in self-evaluation.⁷

In Study 1a, this analysis revealed a significant effect of the covariate, $F(1, 52) = 8.43, p < .001$, such that those with large signature sizes at premanipulation had large signature sizes at postmanipulation.⁸ Of greater relevance to the theoretical predictions, this analysis also revealed a significant interaction between mindset and comparison direction, $F(1, 53) = 11.94, p < .01$. This interaction was not qualified by a main effect for mindset or comparison direction, $F_s < 1$.

As with the self-reports, the significant interaction was due in part to a marginally significant contrast effect in the personal-self condition, $F(1, 52) = 3.86, p < .06$: Those who had been primed with an intelligent exemplar showed lower self-evaluation on the unobtrusive measure ($M = -97.84, SE = 75.09$) than those primed with an unintelligent exemplar ($M = 118.31, SE = 79.05$).

The significant interaction was also attributable, in part, to a significant assimilation effect in the possible-self condition, $F(1, 52) = 8.80, p < .01$. Those who had been primed with an intelligent exemplar showed higher self-evaluation on the unobtrusive measure ($M = 116.71, SE = 79.58$) than did those who were primed with an unintelligent exemplar ($M = -222.40, SE = 81.71$). This pattern is shown in the bottom panel of Figure 1.

When equivalent analyses were run in Study 1b, similar findings were uncovered. Results again revealed a significant effect of the covariate, $F(1, 43) = 4.24, p < .05$, and a significant interaction between mindset and comparison direction, $F(1, 43) = 6.90, p < .02$. As before, those in the personal-self condition showed a marginally significant contrast effect, $F(1, 43) = 3.12, p < .09$, such that intelligent primes resulted in a lower self-evaluation on the unobtrusive measure ($M = -206.86, SE = 80.44$) than unintelligent primes ($M = 7.64, SE = 81.55$).⁹ Those in the possible-self condition showed a significant assimilation effect, $F(1, 43) = 4.29, p < .05$, such that intelligent primes resulted in a higher self-evaluation on the unobtrusive measure ($M = 106.83, SE = 75.97$) than unintelligent primes ($M = -116.95, SE = 76.24$).

Discussion

The results from Studies 1a and 1b provided evidence for the personal-self and possible-self predictions of the three selves model. When personal-self mindsets were activated via a thought listing (Study 1a) or a word search (Study 1b), contrast effects emerged on both unobtrusive and self-report measures. When possible-self mindsets were activated via the same manipulations, assimilation effects emerged on these same dependent measures. We can be confident that participants were not conscious of exposure to social comparison information in these two studies because the comparison stimuli were presented subliminally. We also have reason to believe that the self-evaluative changes we observed arose spontaneously, because the unobtrusive measure

⁷ With the premanipulation score as a covariate, analyses that treat the premanipulation/postmanipulation difference score as the dependent variable are statistically identical to analysis that use only the postmanipulation score as the dependent variable. Nevertheless, we took the step of computing the difference score so that the adjusted means for the dependent variable would quantify absolute units of change from pretest to posttest. This computational strategy requires fewer statistical justifications than one that relies on differencing alone to control for the large individual differences in signature size. (See Blanton, Jaccard, Gonzales & Christie, 2006, for a discussion on the effects of differencing.)

⁸ Large individual differences in signature size are the primary reason that both pre- and postexperimental signature sizes must be collected. A large number of (unknown) factors influence trait difference in signature size, and these effects prevent absolute differences in signature size from being a good trait measure of self-esteem. (To wit, we find no consistent correlations between explicit self-evaluations and signature size in our studies.) However, the correlation between the postmanipulation explicit self-evaluation and postmanipulation signature size was statistically significant, after we controlled for premanipulation signature size, $r(52) = 0.52, p < .01$. Similar effects are found in the other studies reported here (and reported in Stapel and Blanton, 2004).

⁹ A meta-analysis was conducted on the marginally significant contrast effect in personal-self conditions of Study 1a and Study 1b. This aggregate analysis reached conventional level of statistical significance, $p < .05$.

did not direct participants to deliberately evaluate the self. Finally, the use of a pre- and postmeasurement strategy with the unobtrusive measure offers assurance that evaluations actually changed as a result of the experimental manipulations.¹⁰ These findings clearly indicate that social comparisons can elicit a wider range of responses than was suggested by our earlier work (Stapel & Blanton, 2004) or by related models (e.g., Gilbert et al., 1995; Pelham & Wachsmuth, 1995).

Study 2

In Study 2, we tested a conceptual replication of Study 1 by focusing attention on individual differences in social construal. By so doing, we hoped to investigate the role of individual differences in determining whether individuals are more likely to adopt mindsets that encourage spontaneous contrast versus assimilation. The individual difference variable that was examined in this study was drawn from Dweck and colleagues' work on implicit theories of intelligence.

Dweck and Leggett (1988) proposed that some individuals favor an *entity trait belief* about their intellectual abilities, whereas others favor an *incremental trait belief*. Individuals who favor an entity view (termed *entity theorists*) believe that intelligence is relatively fixed and unlikely to change as a result of experience. In contrast, individuals who favor an incremental view (termed *incremental theorists*) believe that intelligence is relatively fluid and able to change over time. Erdley and Dweck (1993) showed that entity theorists made stronger dispositional inferences regarding actors' performances than did incremental theorists. This suggests that entity theorists may make dispositional (personal) inferences about themselves following social comparisons, whereas incremental theorists focus on future possibilities that are brought to mind by social comparisons (see also Butler, 2000; Hong, Chiu, Yeung, & Tong, 1999).

The three selves model would thus predict a tendency toward contrast for entity theorists and a tendency toward assimilation for incremental theorists. These predictions were supported by the results of Lockwood and Kunda (1997, Study 3). They found an assimilation effect for participants showing an incremental view and contrast effect for those showing an entity view. We thus tested whether a similar effect could be evoked using subliminal comparison primes and unobtrusive measures of self-evaluation.

Method

Participants ($N = 34$ women and 26 men; M age = 19 years) were undergraduate students enrolled in psychology courses. All had participated in a prescreening survey and were found to be in the top or bottom 30% of scores on a measure assessing their theories of intelligence (modeled after Lockwood & Kunda, 1997, p. 99). This measure consisted of 10 items. Five items expressed a belief that intelligence is malleable (e.g., "People can become more intelligent over the course of their lifetime"). Five items expressed a belief that intelligence is fixed (e.g., "Intelligence is genetically predetermined"). The entity and incremental theorists selected for this study were then randomly assigned to either an upward or a downward social comparison condition. In all other respects, the priming procedure and experimental materials were

identical to those used in Studies 1a and 1b, with the exception that participants did not participate in mindset priming task.

The design was thus a 2 (implicit theory: entity vs. incremental) \times 2 (comparison direction: upward vs. downward) factorial design. The key dependent variables were the same unobtrusive and self-report measures used in Study 1.

Results

A 2 (implicit theory) \times 2 (comparison direction) ANOVA was conducted on the intelligence self-ratings. This revealed only a significant interaction between mindset and comparison direction, $F(1, 56) = 9.11, p < .01$. Consistent with predictions, entity theorists who were subliminally primed with an intelligent exemplar had lower self-evaluations ($M = 4.87, SD = 1.55$) than those who were subliminally primed with an unintelligent exemplar ($M = 5.80, SD = 1.08$), $F(1, 56) = 4.90, p < .03$. This finding suggests that with this group, the spontaneous response to unconscious comparison information was contrast. Incremental theorists showed a different pattern. Incremental theorists who were subliminally primed with an intelligent exemplar had higher self-evaluations ($M = 5.60, SD = 1.18$) than those who were subliminally primed with an unintelligent exemplar ($M = 4.73, SD = 0.60$), $F(1, 56) = 4.23, p < .05$. This finding suggests that for this second group, the spontaneous response to unconscious comparison information was assimilation.

A 2 (implicit theory) \times 2 (comparison direction) ANCOVA was then performed on the signature size data in a manner consistent with that used in Study 1. This revealed the predicted significant interaction between mindset and comparison direction, $F(1, 55) = 15.43, p < .01$. As with the self-report measure, entity theorists who were subliminally primed with an intelligent exemplar had lower self-evaluations on the unobtrusive measure ($M = -117.65, SE = 29.35$) than those who were subliminally primed with an unintelligent exemplar ($M = 137.93, SE = 29.30$), $F(1, 55) = 37.70, p < .01$. This finding suggests that the contrast effect among entity theorists occurs even if attention is not directed to the self (via a self-report measure). For incremental theorists, those who were subliminally primed with an intelligent exemplar had higher self-evaluations on the unobtrusive measure ($M = 96.87, SE = 29.39$) than those who were subliminally primed with an unintelligent exemplar ($M = -85.48, SE = 29.31$), $F(1, 55) = 19.25, p < .01$. This finding suggests that incremental theorists' assimilation effect also occurs spontaneously.

Discussion

Study 2, in conjunction with Studies 1a and 1b, provided strong support for the personal-self and possible-self predictions in the three selves model. Before exploring the full implications of these results, we first describe two studies that were designed to test the collective-self predictions in the three selves model.

¹⁰ Comparisons of pre- and postmanipulation scores revealed that all four conditions in both studies had statistically significant contrast/assimilation effects.

PERSONAL-SELF VERSUS COLLECTIVE-SELF MINDSETS

Numerous theories of self, most notably social identity theory (Tajfel, 1978; Tajfel & Turner, 1979) and its extension, self-categorization theory (Turner et al., 1987), propose that the self-concept shifts from personal to collective levels of representation. Although there are important distinctions between different theories of group identity (see Deaux, 1996), each proposes that a focus on the collective can cause people to base their self-worth on the status of fellow ingroup members. In the domain of conscious and controlled comparisons, one consequence of a shift to the collective self is that assimilation effects arise when perceivers focus on the shared implications of ingroup comparisons. Thus, individuals should feel enhanced by high-status ingroup comparisons and diminished by low-status ingroup members (see Linder, Cooper, & Jones, 1967; Yzerbyt, Rocher, & Schadron, 1997).

An illustration of a collective-self assimilation effect can be found in Blanton, Crocker, and Miller (2000). They exposed African Americans to social comparison information regarding the intellectual capacities of a fellow student. When the fellow student was known to be White, the traditional contrast effect emerged (e.g., Morse and Gergen, 1970). When the fellow student was known to be Black, an assimilation effect emerged. This finding was interpreted as evidence that the presence of a Black confederate focused participants' concerns on their collective rather than their personal self-esteem (Crocker & Luhtanen, 1990). Participants felt associated with the intellectual abilities of the ingroup comparison other, and so they felt elevated by this person's success or diminished by this person's failure (see also Blanton et al., 2002; Brewer & Weber, 1994; Mussweiler & Bodenhausen, 2002).

We thus predicted that a collective mindset would lead to assimilation effects with both unobtrusive and self-report measures. The studies that follow tested this prediction using supraliminal (Study 3) and subliminal (Study 4) primes to activate personal-self or collective-self mindsets. Consistent with the three selves model, we predicted that contrast effects following personal-self activation and assimilation effects following collective-self activation.

Study 3

Method

Overview

Participants ($N = 27$ women and 23 men; M age = 21 years) were undergraduates who were recruited through posters and leaflets in the psychology building. All were randomly assigned to one of four experimental conditions in a 2 (mindset: personal self vs. collective self) \times 2 (comparison direction: upward vs. downward) factorial design. Mindset was manipulated prior to comparison activity using a supraliminal priming task. Comparison stimuli were taken from Stapel and Blanton (2004) and designed to represent attractive (upward) or unattractive (downward) comparison others. After the two manipulations, self-evaluations were assessed in a manner consistent with the previous studies.

Mindset Manipulation

Prior to the social comparison task, participants were given a mindset manipulation used in Schwinghammer et al. (2006; mod-

eled after Brewer & Gardner, 1994). Specifically, participants read paragraphs describing a trip to the city. In the personal-self conditions, the text had many first-person singular pronouns (e.g., "I go to the city," "I see myself in the mirrors of the shops"). In the collective-self condition, the text had many first-person plural pronouns (e.g., "We go to the city," "We see our selves in the mirrors of the shops"). For the word-search task, participants in the personal-self condition were instructed to circle all the first-person singular pronouns, and participants in the collective-self condition were instructed to circle all the first-person plural pronouns.

Social Comparison Manipulation

Social comparison stimuli were presented using the procedures in Studies 1 and 2. The key difference, however, was that priming stimuli were chosen to manipulate attractiveness and not intelligence. Stimuli were an unattractive (deformed) female face (pretested on a 1- to 7-point *unattractive*–*attractive* scale, $M = 1.83$) and attractive female face (pretested $M = 6.41$).

Dependent Variables

Unlike Studies 1 and 2, self-reports for this study focused on changes in specific self-conceptions. These changes were made to show replication on different types of measures (and see Stapel & Blanton, 2004). These ratings were made using a 7-point attractiveness dimension ("Please rate your self on the following dimension") that ranged from 1 (*unattractive*) to 7 (*attractive*). This rating was made ostensibly for the purposes of a national survey. Signature size was also collected, following the same procedure as those used in earlier studies.

Results

A 2 (mindset) \times 2 (comparison direction) ANOVA was conducted on self-reported attractiveness, and this revealed a significant interaction only between mindset and comparison direction, $F(1, 56) = 6.78, p < .02$. As in the earlier studies, evidence of a contrast effect was observed in the personal-self mindset condition, such that those primed with an attractive exemplar had lower self-evaluations ($M = 4.93, SD = 1.53$) than those who were subliminally primed with an unattractive exemplar ($M = 5.67, SD = 1.54$). But, unlike in the previous studies, this pattern did not reach statistical significance, $F(1, 56) = 2.25, p < .15$. Significance was reached in the collective-self condition, however. Participants in this condition showed a pattern indicative of assimilation, $F(1, 56) = 4.76, p < .04$, such that those primed with an attractive exemplar had higher self-evaluations ($M = 5.87, SD = 1.36$) than those who were subliminally primed with an unattractive exemplar ($M = 4.80, SD = 0.78$). This pattern is shown in the top panel of Figure 2.

A 2 (mindset) \times 2 (comparison direction) ANCOVA was then conducted on the signature size data in a manner consistent with prior studies. This revealed the predicted significant interaction between mindset and comparison direction, $F(1, 55) = 7.38, p < .01$. In the personal-self mindset condition, those who were subliminally primed with an attractive exemplar had lower self-evaluations ($M = -11.42, SE = 93.98$) than those who were subliminally primed with an unattractive exemplar ($M = 167.92$,

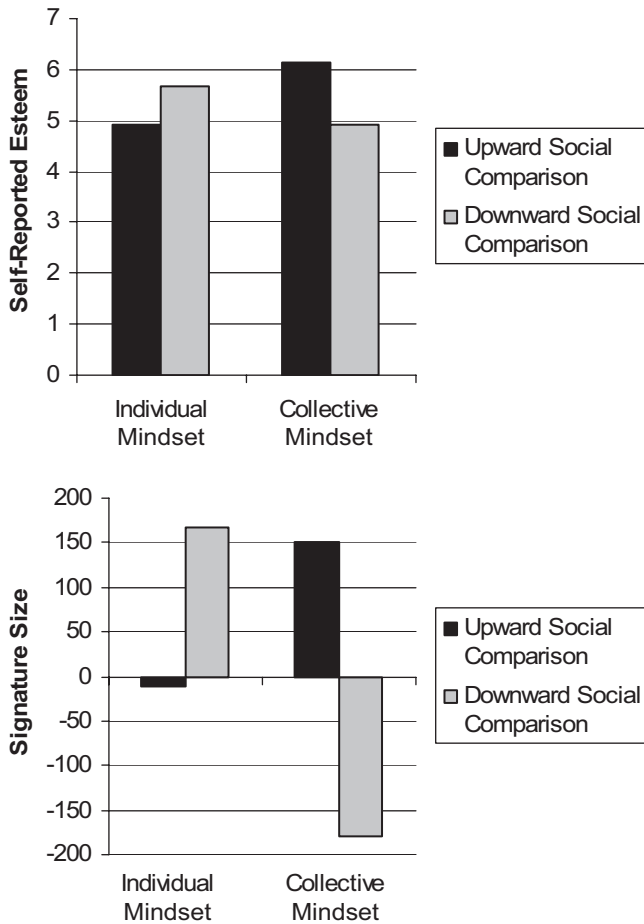


Figure 2. Mean levels of explicit and spontaneous self-esteem in Study 3, as a function of upwards versus downward social comparison (for attractiveness) and personal-self versus collective-self mindsets.

$SE = 93.65$). Again, however, this contrast effect did not reach statistical significance, $F(1, 55) = 1.82, p < .20$. In the collective-self condition, however, those who were subliminally primed with an attractive exemplar had higher self-evaluations ($M = 150.72, SE = 93.58$) than those who were subliminally primed with an unattractive exemplar ($M = -179.55, SE = 93.59$), $F(1, 55) = 6.23, p < .02$. This pattern is shown in the bottom panel of Figure 2.

Discussion

The results from this study supported one of the predictions of three selves model, that collective-self activation would lead to assimilation. Under this condition, presentation of subliminal person primes triggered assimilation effects on both the self-report and unobtrusive self-evaluation measures. These findings were compatible with earlier investigations of conscious and controlled comparisons (Blanton et al., 2002; Blanton, Crocker, & Miller, 2000; Brewer & Weber, 1994). When paired with the findings from Study 2, which showed how chronic differences in mindset accessibility can influence the default tendency to experience assimilation or contrast, these findings may shed light on cultural

differences in social comparison outcome. It has been suggested that interdependent societies encourage greater activation of collective self-representations relative to independent societies (Markus & Kitayama, 1991; Triandis, 1989). This could explain why individuals socialized in interdependent cultures show greater tendencies toward assimilative social comparison effects than those who are socialized in independent cultures (Cheng & Lam, 2007; Gardner, Gabriel, & Hochschild, 2002).

When a personal self was activated, the results were less strong. This condition revealed only nonsignificant trends toward contrast, and this was true for both the self-report and unobtrusive measures. Although these findings suggest reason for caution, we note that the results of the first two studies and the results in Stapel and Blanton (2004) all offer strong evidence that a personal-self mindset will result in a contrast effect.¹¹ Taken as a whole, these results suggest that the lack of a significant effect following personal-self primes in Study 3 was an anomaly, resulting from a lack of statistical power. In part as a result of this finding, however, we sought again in Study 4 to compare the effects of a personal-self prime with the effects of a collective-self prime. Moreover, Study 4 did this in such a way that it provided the most conservative test of the hypothesis that unconscious experiences can stimulate social comparison activities.

Study 4

Our final study incorporated a subliminal procedure to manipulate personal versus collective selves. By carrying out both the mindset manipulation and the social comparison manipulations with subliminal primes, we controlled for all aspects of the social comparison experience outside of conscious awareness. Participants knew neither that their attention was being focused on specific aspects of the self, nor that they were being exposed to social comparison information. By also including an unobtrusive measure of self-evaluation, we had reason to expect that the experimental differences observed were not the result of deliberate self-reflection.

Method

Overview

Participants ($N = 31$ women and 28 men; M age = 19 years) were undergraduates enrolled in psychology courses who participated for course credit. All were randomly assigned to one of four experimental conditions in a 2 (mindset: personal self vs. collective self) \times 2 (comparison direction: upward vs. downward) factorial design. Unlike manipulations in prior studies, the mindset manipulation was embedded within the social comparison priming program. All other measures and procedures were identical to those reported in Study 3.

Mindset Manipulation

Social comparison stimuli were presented using the same subliminal priming procedure as was used in earlier studies to prime

¹¹ A meta-analysis on the personal-self conditions in Studies 1 through 3 yielded a conventional level of statistical significance for the implicit and unobtrusive measures, $p < .05$. This was also true when the results of Study 4 were added to the analysis.

upward versus downward comparison standards. Thus, before participants were exposed to the social comparison stimuli, they performed in similar parafoveal vigilance task. The key difference was that in the 20 experimental trials of this first vigilance task, personal-self primes (“I,” “me,” “my”) or collective-self primes (“we,” “us,” “our”) were flashed on the computer screen instead of Chinese characters or faces (see Bargh & Pietramonaco, 1982; Devine, 1989, for similar subliminal word priming tasks).

Results

A 2 (mindset) \times 2 (comparison direction) ANOVA was conducted on self-reported attractiveness, and this revealed a significant interaction only between mindset and comparison direction, $F(1, 55) = 11.76, p < .01$. A significant contrast effect was observed in the personal-self mindset condition, $F(1, 55) = 6.38, p < .02$: Those primed with an attractive exemplar had lower self-evaluations ($M = 5.15, SD = 1.14$) than those who were subliminally primed with an unattractive exemplar ($M = 6.15, SD = 0.81$). A significant assimilation effect was observed in the collective-self mindset condition, $F(1, 55) = 5.34, p < .03$: Those who were primed with an attractive exemplar had higher self-evaluations ($M = 5.94, SD = 1.20$) than did those who were primed with an unattractive exemplar ($M = 5.13, SD = 0.81$). This supported predictions.

A 2 (mindset) \times 2 (comparison direction) ANCOVA was then performed on the signature size data in a manner consistent with prior studies. This revealed the predicted significant interaction between mindset and comparison direction, $F(1, 54) = 10.79, p < .01$. In the personal-self mindset condition, those who were subliminally primed with an attractive exemplar had lower self-evaluations ($M = -183.84, SE = 118.55$) than those who were subliminally primed with an unattractive exemplar ($M = 228.98, SE = 112.73$), $F(1, 54) = 6.03, p < .02$. This once again established that the default response to social comparison information is contrast if a personal-self mindset is activated. However, for participants in the collective-self condition, those who were primed with an attractive exemplar had higher self-evaluations ($M = 199.64, SE = 103.65$) than those who were subliminally primed with an unattractive exemplar ($M = -123.54, SE = 106.76$), $F(1, 54) = 4.71, p < .03$. This pattern of results replicated findings in Study 3, showing that assimilation is the spontaneous and unconscious response to comparison information when a collective-self mindset is activated.

Discussion

Study 4 showed that subliminal activation of a personal-self mindset can promote social comparison contrast. This finding and the results of the prior studies help allay concerns regarding the nonsignificant trend observed in Study 3. Study 4 also replicated the effect of collective-self activation found in Study 3, but it did so using a subliminal priming procedure. The results from this study thus provided the strongest evidence to date that both assimilation and contrast can be unconsciously triggered and spontaneously generated: The self-evaluative mindsets examined in this study were activated outside of conscious awareness, the social comparison information was presented outside of conscious awareness, and the effects on self-evaluations were assessed using

both self-report and unobtrusive measures. It thus appears that a complex psychological dynamic can unfold quickly, spontaneously, and with little deliberation, and it does so in a manner consistent with predictions derived from the three selves model of social comparison.

GENERAL DISCUSSION

Overview

Four studies indicated that subliminal presentation of social comparison information can elicit spontaneous assimilation or contrast, depending on the self mindset that is activated in working memory. When current selves were activated, contrast resulted. When possible or collective selves were activated, assimilation resulted. We demonstrated the assimilative effects of possible selves by comparing them with the contrastive effects of personal selves. This was done using both temporary mindset manipulations (Study 1) and a stable individual difference variable (Study 2). We also demonstrated the assimilative effects of collective selves by comparing them with the contrastive effects of personal selves using both supraliminal (Study 3) and subliminal (Study 4) priming procedures. Social comparisons processes thus appear to be more complex than might be inferred from past theoretical statements regarding social comparison defaults.

Why Three Selves?

The success of this specific application of the three selves model (Blanton, 2001) might encourage researchers to consider additional self-representations, other selves that could add to this model’s predictive power. Candidates for inclusion might be relational selves (e.g., family selves, romantic selves), self-guides (e.g., ought selves, ideal selves), or any number of complex combinations of lower order self-conceptions (e.g., ideal relational selves, possible collective selves). Alternatively, researchers might try to look past self-structure and focus greater attention on the fundamental building blocks that drive the effects of self-representations. It seems plausible, for instance, that our effects could be attributed to a smaller subset of psychological processes, processes that have already been introduced in classic articles on comparison and categorization (e.g., Herr, Sherman, & Fazio, 1983; Schwarz & Bless, 1992; Sherif & Hovland, 1961) or construct accessibility (Bargh & Pietromonaco, 1982; Higgins, 1989, 1996; Srull & Wyer, 1979).

Depending on one’s theoretical orientation, it thus might seem that the three selves model should be expanded to consider a larger taxonomy of selves or that it should be reined in to focus attention on a smaller set of more basic principles. Our decision to focus attention on the three specific self-conceptions in this model reflected our desire to develop a mid-range model, one that might (a) provide a parsimonious framework for predicting a wide range of social comparison effects and (b) help researchers make connections between “higher level” self constructs and “lower level” cognitive mechanisms. We would not want to argue, however, that our chosen level of analysis would be ideal for all purposes or that it is the only one worth pursuing. We encourage other researchers to take our model and “build it up” by expanding our list of selves or “break it down” by revealing the mediating mechanisms under-

lying our effects. Either pursuit has the potential to expand our understanding of social comparison processes.

Unconscious Triggers Versus Unconscious Processes

Although these studies offer clear evidence that social comparisons arise spontaneously in response to subliminal presentations, we rush to point out that none of our studies—nor any studies of which we are aware—definitively show that people engage in unconscious social comparisons. We can be reasonably certain from the procedures we used that participants did not realize that they had been exposed to social comparison information; however, it is entirely possible that some of them momentarily found themselves reflecting on such individuals as Albert Einstein, clowns, “smart people,” or “dumb people.” Similarly, even though the signature-size measure did not ask participants to self-reflect, it is possible that the mere act of providing a signature raised participants’ self-awareness, thereby causing them to consider their relative standing on the dimensions made accessible by our primes (see Pelham, Mirenberg, & Jones, 2002).

Given the minimal nature of our manipulations and measures, and given the many distractions that can occur in the normal course of our studies, we are doubtful that either conscious comparison or deliberate self-evaluation was driving our main findings. Nevertheless, we are mindful of the cautions that numerous researchers have made, that one should not confuse the features of experimental measures and manipulation with the features of the psychological constructs they ostensibly tap (see De Houwer, 2006; Fazio & Olson, 2003; Gawronski, Hofmann, & Wilbur, 2006). Thus, although our findings revealed the effects of unconscious social comparison primes, it is possible that the responses we observed were mediated by more conscious and/or deliberate cognitive processes.

State Changes in Self-Esteem?

At the risk of contradicting our earlier observation regarding the potentially deliberate nature of our signature-size method, we note that the lack of self-reflection involved in this procedure opens potential questions about the meaning of this response. We chose not to label our signature-size measure as an index of “implicit self-esteem” because reference to this ill-defined construct could have distracted readers from the psychological processes that were of primary interest (see Footnote 6). We incorporated this measure into our studies because of its potential to reveal shifts in self-evaluation that are spontaneous—not shifts that are unconscious, uncontrolled, or automatic. Too often, use of an “implicit” measure suggests interests and assumptions about constructs such as these (Gawronski, LeBel, & Peters, 2007).

But some would be less hesitant. It has been suggested that the value of a measure of implicit self-esteem is that it can assess consequential self-evaluations, even while it circumnavigates deliberate self-reflection (Greenwald & Farnham, 2000). We question, however, how a methodological distinction such as this might create a useful boundary condition for defining different aspects of the self-concept or different flavors of self-esteem. For instance, the tendency to smile does not require deliberate self-reflection, and so unobtrusive observations of this action could be construed as an indicator of a person’s implicit self-esteem. Of greater

concern, Swann (2007) has noted that a measure that circumnavigates deliberate self-reflection might also sail around the very belief structures (or self-conceptions) that form the basis of what most psychologists mean when they refer to self-esteem (e.g., Rosenberg, 1965). It is telling, for instance, that researchers have manipulated implicit self-esteem scores using such seemingly trivial procedures as experimentally pairing self-relevant information with smiling faces (Baccus, Baldwin, & Packer, 2004) or subliminally associating self-attributes with positive descriptors (Dijksterhuis, 2004). Our signature-size procedure showed similar responsiveness to laboratory manipulations.

It thus seems possible that the shifts we documented with the signature-size procedure revealed little more than temporary changes in self-relevant affect or possibly just mood, not anything that should be construed as a change in any broader self-conception. The same might be said of our one-item measure of self-evaluation—or a measure that picks up on momentary/state changes in explicit self-evaluations. That said, the tendency for the signature-size procedure to be responsive to the same manipulations as the self-evaluation measure suggests that they were influenced by some shared evaluative self-relevant shift (and see Stapel & Blanton, 2004, Study 3, which showed that our priming stimuli strongly affected judgments of the “self” but not judgments of an ambiguous “other”). Future research is needed, however, before researchers can say with confidence whether the assimilation and contrast effects we documented here should be construed as evidence for temporary changes in self-esteem, self-relevant affect, mood, or some other related construct.

Default Responding

If the conclusions we draw about the conscious versus unconscious aspects of our findings are somewhat restrained, our findings still challenge the (often implicit) tendency among researchers to assume that the default processing of social comparison information is restricted to assimilation or contrast. Moreover, our findings can challenge even some recent models of assimilation and contrast that point to moderation by deliberate processes. As one example, Mussweiler (2003) has suggested that the tendency to “test hypotheses” (p. 475) regarding self–other similarities and self–other dissimilarities determines whether assimilation or contrast effects will occur. Although it is possible that our participants were testing hypotheses, we doubt it. In the absence of any consciously presented social comparison information or any prompting by experimenters to engage in hypothesis testing, it seems to us that our findings offer a provocative challenge to the hypothesized hypothesis testing.

Simple, Yet Complex

Although our findings suggest that a range of evaluations can arise spontaneously and without full awareness, we do not wish to argue that there will be no “value added” from engaging in more deliberate and controlled social comparisons. In fact, it would be odd to think that additional information could not be gained if individuals took a moment to pause and reflect on their relative standing (cf. Dijksterhuis, Bos, Nordgren, & van Baaren, 2006; Wilson & Dunn, 2004). Closer inspection of our results reveals at least one way in which the comparisons we have studied are

diminished relative to the more “traditional” effects that have been documented in the social comparison literature. This feature has to do with the reduced influence of target attributes on social comparison outcomes.

The current studies suggest that when social comparisons result from subliminal exposure, self-evaluative effects may not be affected to the same degree by target attributes. For instance, participants in the first three studies treated both Albert Einstein and clowns as sources of comparison. However, most psychologists would not predict this reaction from participants’ conscious minds. With greater deliberation, extreme individuals such as Einstein and clowns probably would not have been viewed as relevant standards of comparison (Festinger, 1954). As another example, it is interesting that the attractive and unattractive exemplars in Studies 3 and 4 triggered assimilation effects, even though these targets had no discernable features that might suggest membership in a meaningful ingroup. In fact, male participants showed assimilation effects, even though this would suggest that they were comparing their own attractiveness with that of attractive and unattractive women.¹² Studies of conscious and controlled social comparisons have clearly indicated that people tend not to compare such physical attributes with those of opposite-sex others (Biernat, Manis & Nelson, 1991; Cash et al., 1983).

The fact that perceivers showed no signs of attending to target attributes suggests a number of ways in which spontaneous and unconscious comparison processes might be simplified relative to their conscious and controlled counterparts. For one, it seems likely that the ability to discount social comparison information becomes degraded. Recall that Gilbert et al. (1995) found evidence that people under cognitive load will socially compare more than their rational minds might desire. Although these researchers focused on conscious comparisons, they nonetheless found evidence that people have to exert effort in order to “undo” unwanted social comparisons. The participants in our studies showed a similar readiness to compare with dissimilar others, and these findings reinforce a major premise in Gilbert et al. (1995): that there is a cognitive push toward social comparison.

Perhaps this lack of unconscious discounting should not come as a surprise. Consider the minimal conditions that might be required in order for perceivers to ignore unwanted social comparisons. A perceiver must (a) note a salient attribute of the target, (b) code this attribute as a discounting cue, and (c) use the discounting cue to derail a social comparison. If this rough description of discounting process is accurate, it calls into question whether target attributes ever can trigger discounting in cases in which the individual is not aware of his or her exposure to social comparison information. We thus propose that the unconscious mind is more liberal in its social comparison tendencies than the conscious mind. Support for this view can be found in Martin’s set–reset model (Martin et al., 1986; Martin et al., 1990) and related perspectives (Gilbert, 1991; Parducci & Wedell, 1990; Trope, 1986; Wegener & Petty, 1995; Wyer & Srull, 1989).

Our participants’ lack of attention to target-based attributes also suggests that people might respond less flexibly to comparison information if they are not conscious of the triggering event. Consider two studies discussed earlier. Recall that Lockwood and Kunda (1997) found that inspiring career accountants can trigger assimilation effects among accountant majors, and recall that Blanton, Crocker, and Miller (2000) found that comparisons with a

Black confederate can trigger assimilation effects in a sample of African Americans. In both studies, it was not necessary for experimenters first to initiate a particular mindset and then to expose participants to comparison information. Rather, the act of seeing an inspiring accountant (in Lockwood and Kunda) seemed to promote possible-self thinking, and exposure to same-race others (in Blanton, Crocker & Miller) seemed to promote collective-self thinking. Although there may be contexts in which salient target attributes unconsciously and spontaneously trigger specific comparison mindsets, the current results suggest that social comparison outcomes will be determined to a greater degree by pre-comparison mindsets when awareness of the target is low.¹³ For similar reasons, we question whether a person could engage in motivated construal of social comparison information when awareness is low. This observation helps reconcile our findings with the findings in Stapel and Koomen (2001). They found that self-serving comparison effects could occur after activation of either individual-self and collective-self mindsets, but their procedure differed from our own in that participants were aware of the target of comparison.¹⁴

In summary, although the current studies suggest that both assimilation and contrast can be triggered unconsciously and spontaneously, this is not to say that perceivers either are as sensible or as flexible in their social comparison tendencies as they might be if they had the time and resources to reflect and deliberate.

How Pervasive Are Social Comparisons?

Although the current studies suggest specific ways in which comparisons occur outside of awareness, one need not infer from these results that people unconsciously compare with everyone they encounter or that every person elicits comparisons on a wide range of comparison dimensions. Such a state of affairs would not be tenable. Imagine a person walking to work through a busy city street. Every wealthy professional and every homeless person observed would intrude on this pedestrian’s sense of self. The individual would arrive to work exhausted from the many evaluative highs and lows experienced along the way.

Although our studies did evoke social comparisons in every experimental context we examined, it is important to note that all four studies were designed to induce a desire to compare. As a result, our work should not be interpreted as evidence that people are unconsciously driven to compare. Whether a given study focused attention on personal selves, possible selves, or collective selves, our procedures always activated mindsets that should raise interest in self-evaluation and thus the tendency to engage in social

¹² Participant gender did not interact with experimental condition in any of the studies.

¹³ Mussweiler, Rüter, and Epstude (2003) offered a qualification to this. Their study was designed in such a manner that it would activate personal-self mindsets. Consistent with the current results, subliminal exposure to extreme exemplars resulted in contrast effects on self-ratings. However, exposure to moderate exemplars (e.g., Bill Clinton prior to self-ratings of athletic ability) resulted in assimilation effects.

¹⁴ Self-serving comparisons may occur when awareness of a target is low, however, if motivated responses to this individual have become so well learned as to become automated (see Winkielman, Berridge & Wilbarger, 2005).

comparison. In fact, just the tendency to activate the self can stimulate comparison activity (see Stapel & Tesser, 2001). Stapel and Blanton (2004) demonstrated, however, that social comparison tendencies are diminished when interest in evaluating is reduced. In their Study 6, subliminal presentation of person exemplars failed to influence self-evaluations if participants were first made to feel certain about themselves (a finding that is also consistent with the findings of Pelham & Wachsmuth, 1995).

Even when comparisons are triggered unconsciously, they probably are focused on very specific comparison dimensions. Consistent with a wide range of models of social perception, we would speculate that when unconscious social comparisons occur, they typically are focused on self dimensions for which the target of comparison is statistically or normatively distinct (e.g., Mullen, 1991) or for which the perceiver and target share some distinct attribute (e.g., Miller, Turnbull & McFarland, 1988; Turner et al., 1987). Our stimuli were designed with such models in mind. In our last two studies, we used sets of attractive and unattractive exemplars because these stimuli have been shown to trigger social comparisons on the dimension of attractiveness (see Cash et al., 1983). In our other two studies, we exposed participants to Einstein and clowns because these stimuli have been shown to trigger social comparisons on the dimension of intelligence (Stapel & Blanton, 2004). Although it certainly could be the case that feelings of attractiveness also would be affected if people compared themselves with Einstein or clowns, it stands to reason that these two exemplars anchor the intelligence dimension more than the attractiveness dimension. Moreover, pretesting for Stapel and Blanton (2004) showed that these stimuli affected IQ ratings, even when the presentations were made supraliminally. Our stimuli thus seem to trigger the same comparison dimension when presented subliminally as they do when presented for longer periods of time.

In summary, we suggest that social comparison is not an inevitable response to other people and that even when social comparisons do occur, their effects are probably focused on a narrow set of attributes or dimensions. That said, once a social comparison has been triggered outside of conscious awareness, perceivers might lack the ability to engage in target-based correction or to break away from their precomparison mindsets.

Conclusion

Social comparison is at the heart of many human activities, and this necessitates a perceptual system that can accommodate a wide range of effects. When a person is motivated to achieve personal success, social comparisons can provide a sense of relative standing. When a person is motivated to improve, social comparisons can provide a sense of what is possible and what is not. When a person is motivated to affiliate with others or to be included in social groups, social comparisons can provide the individual with a collective identity. Because social comparison is fundamental to many human endeavors, it would be curious if a single default response had been hardwired into our mental architecture. The current studies suggest that individuals can gain quick and spontaneous insights about themselves through their comparisons with others, and these insights possess many (though not all) of the features of more deliberate social comparisons.

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