

# Method Matters: Effects of Explicit Versus Implicit Social Comparisons on Activation, Behavior, and Self-Views

Diederik A. Stapel  
University of Groningen

Jerry Suls  
University of Iowa

The authors investigated the impact of explicit versus implicit social comparisons. Simply being primed with a superior or inferior standard (implicit comparison) produced contrast as evidenced by accessibility of self-knowledge (Study 2), intellectual performance (Study 3), and self-ratings (Study 4), inconsistent with the standard. However, when participants were explicitly asked to compare, increased accessibility of a similarity focus (Study 1) and self-knowledge, behavioral performance, and self-ratings congruent with the standard were obtained more easily, indicative of assimilation. Explicit comparisons produced assimilation when the self was seen as mutable (rather than immutable; Study 4), when behavioral consequences were measured immediately after the comparison (rather than later; Study 3), and when the participants described (rather than ranked) their intelligence (Study 5). These findings support the interpretation comparison model. Implications for resolution of empirical inconsistencies in the social comparison literature are discussed.

When King Charles I recommended, “Make no comparisons!” he no doubt was mindful that being exposed to other persons who are more fortunate could diminish one’s feelings of self-worth. However, exposure to those who are less fortunate can enhance one’s self-concept. Indeed, contemporary social psychology and, in particular, social comparison research demonstrate that the valence and intensity of evaluations, feelings, and behavior are strongly influenced by the social context (Wood, 1989). In a classic study by Morse and Gergen (1970), applicants for a summer job viewed another supposed applicant who was well dressed and very competent versus one who was disheveled and disorganized. Self-esteem decreased after being exposed to “Mr. Clean” but increased after exposure to “Mr. Dirty.” Cash, Cash, and Butters (1983) reported that college women, after being exposed to photographs of very physically attractive women, felt that they were less attractive. Dozens of experiments have found such contrast effects—that is, where self-evaluations are displaced from the comparison referent. These results figure importantly in understanding how social comparisons are used to cope with threats to subjective well-being. In his influential downward comparison theory, Wills (1981) proposed that when people feel threats to their

self-esteem, they compare with worse-off others and consequently feel better because of the contrast effect that is created.

Although for decades social comparison research emphasized such contrast effects, there are many instances when exposure to superior or inferior persons can actually produce assimilation, that is, self-evaluations displaced toward the comparison referent (Collins, 1996; Wheeler, 1966). For example, exposure to a role model, such as a “star” teacher, can induce higher evaluations of competence and motivation in aspiring teachers (Lockwood & Kunda, 1997). Similarly, learning about the poor adaptation of a fellow cancer patient can lower a patient’s spirits (Van der Zee, Oldersma, Buunk, & Bos, 1998). The recent empirical literature contains many demonstrations of assimilation. The important question, then, is under what conditions does exposure to persons of superior or inferior standing lead to assimilation versus contrast?

Several studies have identified a number of constructs that moderate the direction of self-evaluative comparison effects (for reviews, see Blanton, 2000; Suls & Wheeler, 2000; Taylor & Lobel, 1989; Wood, 1989). Typically, these studies emphasize the role of the comparison target, the self, or the target–self relationship. Studies with a *target* focus look at variables such as the extremity or attainability of the comparison other (e.g., Lockwood & Kunda, 1997; Stapel & Koomen, 2000). Studies with a *self* focus emphasize the role of individual differences, such as happiness, self-esteem, or self-certainty (Lyubomirsky & Ross, 1997; Pelham & Wachsmuth, 1995). Studies interested in the impact of *target–self* relations on social comparison effects look at variables such as perceived closeness (Tesser, Millar, & Moore, 1988), shared distinctiveness (Brown, Novick, Lord, & Richards, 1992), and shared group membership (Brewer & Weber, 1994).

## Types of Social Comparison: Implicit Versus Explicit

The preceding moderators, however, have been examined in different research paradigms. For example, in some studies, social

---

Diederik A. Stapel, Department of Social and Organizational Psychology, University of Groningen, Groningen, the Netherlands; Jerry Suls, Department of Psychology, University of Iowa.

This research was supported in part by a Dutch Science Foundation (Nederlandse Organisatie voor Wetenschappelijk Onderzoek) “Pionier” grant, a Heymans Institute of the University of Groningen research grant, and National Science Foundation Grant BCS 99-10592. Hart Blanton, Renny Martin, and the Groningen Cognitive Social Psychology Group provided helpful comments on previous versions.

Correspondence concerning this article should be addressed to Diederik A. Stapel, Department of Social and Organizational Psychology, University of Groningen, Grote Kruisstraat 2/1, 9712 TS Groningen, the Netherlands. E-mail: d.a.stapel@ppsw.rug.nl

comparison processes are assessed in real-life settings by measuring participants' behavior and self-evaluations in the presence of well-known others (e.g., Pelham & Wachsmuth, 1995) or by exposing them to novel others in a lab setting (e.g., Morse & Gergen, 1970; Tesser et al., 1988). More often, however, participants are presented with comparison information in which they read or hear about another person (e.g., Lockwood & Kunda, 1997) or watch another person on a video screen (e.g., Gilbert, Giesler, & Morris, 1995). Other social comparison studies involve collection of global recollections of social comparisons ("How often do you feel better after comparing with someone who is adjusting more poorly with cancer?"; Buunk, Collins, Taylor, Van Yperen, & Dakoff, 1990); inquire about whether social comparison was used and, if so, whether with someone better or worse off (Suls, Marco, & Tobin, 1991); or assess whether comparisons were mentioned without being prompted by the interviewer (Wood, Taylor, & Lichtman, 1985). In still other studies, participants have been explicitly asked to compare themselves with another person or other standard who is clearly superior or inferior to themselves ("Do you use more or less drugs than Frank Zappa?"; Mussweiler & Strack, 2000b).

These different procedural paradigms, which vary in the way that social comparisons are instigated, mirror the myriad conditions in everyday life where some social comparisons may be implicit whereas others are made quite explicitly (Suls, 1986; Wood, 1996). An important question is whether the way social comparison is instigated influences whether assimilation or contrast emerges. In this article, we hope to fill this void and test the hypothesis that whether social comparisons yield assimilation or contrast depends on whether these comparisons are instigated explicitly or implicitly.

An *explicit* comparison can be said to occur when a person is provided with a comparison target and a comparison is explicitly asked for (e.g., "Are you paid more or less than faculty member X?"). In contrast, a social comparison is *implicit* when relevant comparison others are identified immediately in the absence of an explicit directive or force to compare. If a coworker's paycheck has been mistakenly placed in your mailbox, then the difference between his or her salary and yours may become salient although absent any explicit directive to make a social comparison. In other words, a social comparison is implicit when a comparison target simply comes to mind or is implicit in the process of self-assessment or self-evaluation.

### Pulls Toward Interpretation Versus Comparison

Although in both explicit and implicit comparisons one faces the same task of comparing oneself with a comparison target, we argue there is a reason to believe that these comparisons take different forms and can produce different outcomes. Our argument is grounded in Stapel and Koomen's (2000, 2001b) interpretation comparison model (ICM) on social comparison effects. The ICM postulates a direct relation between the self-evaluative consequences of social comparisons and the way social comparison information is used during the comparison process. Specifically, following earlier work on knowledge accessibility effects (for reviews, see, e.g., Schwarz & Bless, 1992; Markman & McMullen, 2003; Stapel & Koomen, 2001c), the ICM posits that social comparison can instigate two different processes with opposing effects.

Comparison information may provide an interpretative framework to define the self and be incorporated in the self-definition with assimilation as the result. On the other hand, the same information can serve as an extreme standard against which the self is evaluated such that the information is excluded from the self-concept and contrast is the consequence.

Thus, the ICM posits that social comparison may instigate two processing mechanisms that have opposing effects: (a) an interpretative pull toward assimilation and (b) a comparative pull toward contrast (for similar perspectives on social comparison, see Markman & McMullen, 2003; Mussweiler & Strack, 2000a, 2000b; Schwarz & Bless, 1992). Assimilation is more likely when the interpretative pull "wins out" and comparison information is used as an interpretation frame. Contrast is the more likely outcome when the comparative pull wins out and comparison information is used as an extreme reference point.

But what then determines whether the pull toward interpretation or comparison wins out in any given situation? Recent tests of the ICM have identified several determinants of whether—in a particular comparison situation—the interpretative or the comparative pull is stronger. For example, Stapel and Koomen (2000) showed that whether social comparison information yields interpretative assimilation or comparative contrast effects is a function of the perceived distinctness of that information. When the behavior of a comparison target activates distinct actor-trait links ("Stanley is rich"), self-evaluation is likely to show a contrast effect ("I am poor"). However, when the behavior of a comparison target activates indistinct trait information ("rich"), self-evaluation is likely to show an assimilation effect ("I am rich"). Moreover, such assimilative interpretation effects are especially likely to occur when one's self-concept is mutable or unclear, such that there is room for inclusion and/or a need for "filling in the gaps." This suggests that the comparative pull toward comparison wins out when comparison information is perceived as distinct, whereas the interpretative pull seems stronger when comparison information is indistinct and the self is viewed as mutable (see Stapel & Koomen, 2000).

In a more direct empirical test of the ICM on social comparison effects, Stapel and Koomen (2001b) found that another important determinant of whether social comparison information is used mainly as interpretation frame or as a comparison standard is the mind-set that is active during the processing of comparison information. That is, Stapel and Koomen (2001b) found assimilative interpretation effects when an interpretation mind-set was activated (e.g., priming *comprehend* and *interpret* before giving social comparison information), whereas contrastive comparison effects were found when a comparison mind-set was activated in which self-distinctiveness was emphasized (e.g., priming *compare* and *differ* before giving social comparison information; see also Stapel & Koomen, 2001a).

### The Present Research

Following the logic of the ICM, we postulate that social comparisons yield different self-evaluative consequences, depending on the way these comparisons are instigated. It is our hypothesis that the interplay between the interpretation and comparison processes is different when the social comparison is instigated explicitly (e.g., "Are you more or less intelligent than Piotr Winkiel-

man?") than when it is implicit (e.g., "Think about Piotr Winkielman"). In particular, the pull toward assimilation should be somewhat stronger in explicit than in implicit social comparisons. We think two main cognitive processes underlie this phenomenon.

First, we define explicit comparisons as involving an other–self comparison on a specific dimension—for example, coping, adherence, intelligence, attractiveness ("Compare yourself to Mr. X on Dimension A")—whereas implicit comparisons are defined as simply involving thinking about a comparison other ("Mr. X") without explicit mention of the relevant dimension. Research has shown that the mere cognitive activation of trait dimensions (e.g., energetic, motivated, intelligent, attractive) is more likely to result in assimilation. This has been demonstrated consistently in activation, judgment, and behavioral priming studies (for reviews, see Markman & McMullen, 2003; Schwarz & Bless, 1992; Stapel & Koomen, 2001c). For instance, increasing the accessibility of the trait construct "aggressive" leads participants to judge an ambiguously described target person as more aggressive (e.g., Stapel, Koomen, & Van der Pligt, 1997). Following this line of reasoning, comparisons that are made explicitly (i.e., involve an other–self comparison on a specific dimension) should make cognitively accessible aspects of the self that are consistent with those of the comparison person. That is, the accessibility of knowledge indicating that one's standing on the relevant dimension is similar to the target other may be increased (Mussweiler & Strack, 2000b).

The second process we think may contribute to explicit versus implicit comparison producing different effects is that when persons are explicitly engaging in self–other comparisons, they will be relatively more likely to focus on similarities between the self and the comparison person. Prior evidence has suggested that people are more likely to focus on shared attributes when making explicit (social) comparisons (e.g., Gentner & Markman, 1997). When one is explicitly engaging in self–other comparisons, one is more likely to focus on similarities between oneself and the comparison (e.g., Goethals & Darley, 1977). For example, research by Mussweiler and Strack (2000b) has suggested that when people are asked explicit social comparison questions ("How athletic are you compared with Bill Clinton?") and thus intentionally engage in the act of comparing, a similarity focus is activated. According to Mussweiler and Strack (2000a, 2000b), such a similarity focus is the default mind-set that starts off most (if not all) comparison processes. They argued that in typical comparison situations, judges are likely to focus on the fundamental ways in which the comparison standard (e.g., the other) and the target (e.g., the self) are similar. This natural similarity focus is one of the main reasons why comparing oneself to a given standard may selectively increase the accessibility of standard-consistent knowledge about the self ("I am as athletic as Bill Clinton").

We argue, however, that an important determinant of whether or not social comparison information activates a similarity focus is dependent on whether the comparison is explicit or implicit. Whereas similarity testing is part and parcel (Gentner & Markman, 1997) of the explicit, intentional act of comparing, a similarity focus is less likely to be a feature of the spontaneous, effortless reactions to the behavior of others that define implicit social comparison. Because similarity testing is important for explicit but not for implicit comparisons, the pull toward assimilation should be somewhat stronger when explicit social comparisons are made ("How honest are you compared with Bill Clinton?") than when

comparison information is presented more implicitly (e.g., you watch television and hear Clinton say "I did not have sex with that woman").

In fact, the results of two recent social comparison studies support this view that explicit social comparison yields assimilation whereas implicit social comparison typically yields contrast. When we compare studies by Mussweiler and Strack (2000b)—who used explicit social comparison instructions ("Are you more or less intelligent than X?")—with studies by Dijksterhuis et al. (1998)<sup>1</sup>—who used a more implicit social comparison paradigm ("Describe a day out of the life of X")—it is clear that the explicit instructions more often result in assimilation whereas the implicit paradigm typically produces contrast.

### Summary

In the present research, we set out to resolve why social comparisons sometimes produce assimilation and at other times contrast by investigating the difference in effects of explicit versus implicit comparisons on self-evaluative outcomes. Following the ICM on social comparison effects (e.g., Stapel & Koomen, 2000, 2001c; see also Schwarz & Bless, 1992), we argue that comparison information may play dual roles during the comparison process: Social comparison information may be used as an interpretation frame (and yield assimilation) or as an extreme comparison standard (and yield contrast). One important determinant of whether the pull toward interpretation or comparison wins out in any given situation is comparison type.

We hypothesize that implicit social comparisons are more likely to amplify the evaluative, comparative use of social comparison information. Implicit social comparison information typically activates information about a distinct person exemplar (e.g., the public intellectual Susan Sontag). Previous research has shown that activating distinct person information typically results in comparative contrast effects (see Stapel & Koomen, 2001c). Explicit social comparisons, however, involve an other–self comparison on a specific dimension ("How intelligent are you compared with Susan Sontag?") and thus activate both distinct person information (e.g., Susan Sontag) as well as indistinct trait information (e.g., intelligent). In light of the results of a myriad of trait-priming studies showing that activating trait concepts typically results in interpretative assimilation, it seems reasonable to hypothesize that the pull toward assimilation should be somewhat stronger after explicit versus implicit social comparisons. Moreover, research on comparative processes suggests that when asked explicit social comparison questions, a similarity focus is activated, and people are more likely to focus on the ways in which the comparison standard (e.g., the other) and the target (e.g., the self) are similar—representing another pull toward assimilation.

To date, the way comparison is instigated has been given little attention in understanding the self-evaluative consequences of social comparison (for an exception, see Wood, Michela, & Gior-dano, 2000), even though (a) the extent to which findings are

<sup>1</sup> In the cited article (Dijksterhuis et al., 1998) by Dijksterhuis, Spears, Postmes, Stapel, Koomen, Van Knippenberg, and Scheepers, Ap Dijksterhuis and Russell Spears served as joint lead authors and contributed equally.

paradigm contingent is relevant for the generalizability of research findings, and (b) the real-life ecological correlates of implicit social comparison (e.g., implicit comparisons through media exposure) as well as explicit social comparison (e.g., explicit comparisons in an organizational context) are abundant.

### Research Overview

We present five experiments in which we tested our predictions concerning the self-related consequences of social comparisons. In Study 1, we tested the hypothesis that relative to implicit social comparisons, explicit social comparisons render a general similarity focus or mind-set more accessible. In Study 2, we focused on the consequences that explicit versus implicit social comparisons have for the accessibility for self-knowledge. Specifically, we tested the hypothesis that explicit social comparisons render comparison-congruent information about the self more accessible (assimilation) whereas implicit social comparisons render comparison-incongruent information about the self more accessible (contrast).

In Studies 3–5, we tested the generality of our hypothesis that explicit social comparisons more easily produce assimilation than implicit social comparisons by testing the effects of explicit versus implicit social comparisons on automatic behavior as well as on a number of different self-evaluative dimensions. Moreover, in Studies 3–5, we investigated the boundary conditions of these interpretive assimilation effects. Whereas the distinct person information activated by implicit comparisons is likely to produce robust contrast effects, the effects of explicit social comparisons are less straightforward. As noted above, explicit social comparisons activate distinct person information (typically pulling toward contrast) as well as indistinct trait information (typically pulling toward assimilation). Therefore, whether explicit social comparisons actually result in assimilation will also be dependent on other aspects of the general setting in which self-processes are assessed pull or do not pull toward assimilation. In Studies 3–5, we tested this conjecture and demonstrated that explicit comparisons only lead to assimilation when self effects are assessed immediately after the comparison rather than later (Study 3), when people perceive the self to be mutable rather than immutable (Study 4), and when people's self-evaluative goals are more oriented to global self-definition than to ranking and evaluation (Study 5).

Specifically, in Study 3, we focused on the behavioral consequences of explicit versus implicit social comparisons. We tested the prediction that behavioral assimilation is more likely after explicit social comparisons whereas behavioral contrast is more likely after implicit social comparisons. At the same time, in Study 3, we explored whether these behavioral effects are dependent on whether they are assessed immediately after the social comparison or later. In Study 4, we further tested the generality of our approach by focusing on the perceived mutability of the self. We predicted that whereas implicit social comparisons result in contrast independent of whether people perceived the self as a mutable or immutable entity, explicit social comparisons result in assimilation when the self is viewed as mutable but not when the self is seen as immutable. In a similar vein, Study 5 tested our hypotheses by focusing on the mind-set with which people construct subjective self-judgments. In that study, we predicted that whereas implicit social comparisons result in contrast, independent of whether

self-evaluation is seen as a self-defining, self-interpretative exercise, explicit social comparisons result in assimilation when self-evaluation is viewed as self-defining but in contrast when it is seen as self-evaluating.

### Study 1: Comparison Type and Similarity Focus

In Study 1, we tested the hypothesis that people are more likely to focus on similarity or shared attributes when making explicit social comparisons than when these comparisons are implicit. Some have argued that in most if not all comparison situations, judges are likely to initially focus on the ways in which the standard (e.g., comparison other) and target (e.g., self) are similar (see Gentner & Markman, 1997; Mussweiler & Strack, 2000a, 2000b). We hypothesize, however, that a similarity focus is more likely to be activated when people are explicitly instructed to compare themselves with a comparison target on a specific dimension than when comparison is quite implicit. When one is explicitly engaging in self–other comparisons (e.g., “How good a singer am I compared with Britney Spears?”), one is more likely to focus on similarities between oneself and the comparison other than when the comparison process occurs implicitly (e.g., you watch MTV and you see Britney dancing and singing).

In the present study, we tested our hypothesis that explicit social comparisons are more likely to elicit a similarity focus than are implicit social comparisons. In the explicit comparison conditions, we explicitly asked our participants to compare their singing abilities with those of Britney Spears. In the implicit comparison conditions, we simply primed participants with the name Britney Spears. After participants had received this social comparison information, they were given a task that has been used previously by Mussweiler (2001) for similar purposes: They were given two pictures (unrelated to Britney Spears) and were asked to rate how similar these pictures were. If explicit social comparison is more likely to activate a similarity focus, then the similarity ratings regarding the pictures should be higher in the explicit than in the implicit comparison condition.

### Method

*Participants and design.* Twenty-nine (female and male) students were randomly assigned to one of three comparison type conditions: explicit social comparison, implicit social comparison, and a no-comparison control group. Each respondent received partial course credit for participating.

*Procedure and materials.* On arrival in the room where the study took place, participants were given a package of questionnaires and told that they would be involved in several unrelated studies. In the two comparison information conditions, participants were first given a short paragraph (with picture) about Britney Spears, who was described as a successful modern pop idol and a good singer and performer. After this, participants in both the explicit and implicit comparison conditions were asked how good a singer they thought Britney Spears was on a 9-point rating scale that ranged from 1 (*very bad*) to 9 (*very good*). In the control condition, participants were given a short paragraph (with picture) about a special chair (Gispén) that was described as a design classic. These participants were asked to rate the chair on a 9-point rating scale that ranged from 1 (*very ugly*) to 9 (*very beautiful*). After this, participants were asked to begin the next task. In the explicit comparison conditions, a task was borrowed from Mussweiler and Strack (2000b, p. 347). Participants were asked to compare themselves with Britney Spears regarding how well they could sing. They were then asked to indicate whether they were better or worse

singers than Britney Spears. After completion of this comparison task, participants in the explicit comparison conditions were asked to start the next task, picture comparison. Implicit comparison and control participants were given the picture comparison task immediately. Thus, all participants were given two sketches of two scenes that were taken from Markman and Gentner (1996). The first sketch depicted a woman leaning over a table while holding a cup of coffee or tea, a Christmas tree with a few presents underneath, and a fireplace. The second sketch depicted a man standing in front of a table and reaching for a bowl on the table. On the table were also placed a bottle and a few glasses. Following Mussweiler (2001), participants were instructed to look carefully at these pictures and then rate how similar they were on a 9-point rating scale that ranged from 1 (*not at all*) to 9 (*very much*). This measure constituted the main dependent variable.

After completion of this task, participants were asked to complete some other questionnaires (unrelated to the present study). When they had completed all questionnaires, participants were debriefed carefully about the goal of all the studies (see Stapel & Koomen, 2000). None of the participants indicated suspicion of the actual relation between the different tasks.

### Results and Discussion

An analysis of variance (ANOVA) of the effects of comparison type (explicit, implicit, control) on similarity ratings revealed the predicted main effect,  $F(2, 26) = 6.92, p < .01$ , partial  $\eta^2 = .35$ . As expected, participants who were exposed to social comparison information and were instructed explicitly to compare themselves with the comparison target subsequently (in an unrelated task) rated two pictures as more similar ( $M = 6.78, SD = 0.97$ ) than when the comparison was implicit ( $M = 5.10, SD = 1.19$ ),  $F(2, 26) = 11.08, p < .01$ , partial  $\eta^2 = .40$ , or when no comparison information was given ( $M = 5.50, SD = 0.85$ ),  $F(2, 26) = 9.35, p < .01$ , partial  $\eta^2 = .36$ . This supports the hypothesis that compared with implicit comparisons, explicit social comparisons increase the accessibility of a similarity focus. Because previous research has shown that when a similarity mind-set is activated social comparison is more likely to result in assimilation, whereas contrast is more likely when a dissimilarity mind-set is active (e.g., Stapel & Koomen, 2001a, 2001c; see also Mussweiler & Strack, 2000a), this finding supports the hypothesis that the pull toward assimilation is stronger after explicit than after implicit social comparisons.

#### Study 2: Accessibility of Self-Knowledge

In Study 2, we examined the effects of explicit versus implicit social comparisons on the accessibility of self-knowledge. If we are right in claiming that explicit social comparisons are more likely to instigate assimilative self–other comparisons, then such comparisons should render comparison-congruent self-related knowledge more accessible than comparison-incongruent self-related knowledge, whereas the converse may apply to implicit social comparisons. To test the accessibility of self-related knowledge as a result of participants being exposed to social comparison information, we used a lexical decision task that was developed by Dijksterhuis et al. (1998; see also Mussweiler & Strack, 2000b). In the explicit comparison conditions, we explicitly asked our participants to compare their intellectual abilities with those of Albert Einstein or Gerard Joling (a Dutch vocalist who was rated as relatively unintelligent in a pretest). In the implicit comparison conditions, we simply primed participants with the names of these

intelligent–unintelligent comparison targets. After participants had received the social comparison information, they received a lexical decision task that included words associated with being intelligent (e.g., *smart, intelligent*), words associated with being unintelligent (e.g., *stupid, dumb*), and neutral words and nonwords. These words were (subliminally) primed either with words closely associated with the self-concept (*I, me*) or with unrelated words (*and, or*). Subliminal presentation of self-related words has been demonstrated to activate the self-concept, so that lexical decisions trials that are preceded by such primes should increase accessibility of self-related knowledge (see Dijksterhuis et al., 1998).

If explicit social comparison increases the accessibility of self-related knowledge that is similar to the self, whereas implicit social comparison is more likely to increase the accessibility of self-related knowledge that is dissimilar to the self, then our lexical decision task should reveal such a pattern. After explicit upward comparisons, participants should be faster in responding to words that are associated with being intelligent than to words that are associated with a lack of intelligence. The opposite should be true after explicit downward comparisons: faster responses to unintelligence-related words than to intelligence-related words. After implicit comparisons, however, upward targets should evoke faster responses to unintelligence-related words than to intelligence-related words, and implicit downward comparisons should evoke faster responses to intelligence-related words than to unintelligence-related words. Furthermore, because we predict that these effects are driven by the accessibility of self-related knowledge rather than semantic knowledge in general, it should primarily occur if the self-concept is activated (i.e., the lexical decision trials are preceded by self-primes).

### Method

*Participants and design.* Sixty (female and male) students were randomly assigned to the conditions of a 2 (comparison target: intelligent vs. unintelligent)  $\times$  2 (comparison type: explicit vs. implicit) between-subjects design. Each respondent received partial course credit for participating.

*Procedure and materials.* On arrival in the laboratory, participants were placed in individual cubicles and told that they would be serving in several unrelated pilot studies and that they would receive all instructions by means of a computer program. The experimenter started the computer program and left.

In the implicit comparison conditions, participants were then asked to imagine Albert Einstein (intelligent target) or Gerard Joling (unintelligent target) and to list the typical behaviors, lifestyle, and appearance attributes of this target. Following Dijksterhuis et al. (1998), participants were simply asked to list anything that came to mind with respect to these attributes on the sheet of paper provided. Participants were given 4 min to complete this task.

Similar to Study 1, in the explicit comparison conditions, this listing task was followed by an instruction that was borrowed from Mussweiler and Strack (2000b). Participants were asked to compare themselves with either Einstein or Joling regarding how intelligent they were. They were then asked to indicate whether they were more or less intelligent than the comparison target by moving their mouse to the appropriate answer on the screen.

Subsequently, participants in both the implicit and explicit comparison conditions worked on the lexical decision task. Participants were told this task concerned a word recognition experiment, the goal of which was to find out how quickly people could discriminate between words and nonwords. Participants were asked to focus on the screen every time a string of Xs appeared. They were told this string would be followed by a word or

a nonword and were asked to decide as quickly as possible whether a letter string was an existing word or not. A total of 46 trials were presented. The first 10 trials were practice trials, whereas Trials 11–46 were the critical ones. Of the critical trials, in 18 cases the target was an existing word, whereas in the remaining 18 cases, the words were random letter strings. Of the 18 words, 6 were intelligence related (e.g., *intelligent, smart*), 6 were unintelligence related (e.g., *stupid, dumb*), and 6 were unrelated to the intelligence dimension (e.g., *silent, warm*). For each group of 6 target words, 3 of the targets were primed with words designating the self-concept (*I, me, my*) whereas the remaining 3 were primed with control words (*the, and, or*). Following Dijksterhuis et al. (1998), there were two versions of this task, so that 3 specific words that were primed with the self-concept in one version were primed with control words in the other and vice versa. The 36 trials were presented in random order.

The trials involved the following sequence of events. First, we presented a fixation stimulus (XXXX) at the center of the screen for 1,000 ms. Then the prime was presented at the same location for 15 ms and was immediately masked by the fixation stimulus again for 500 ms. Then the target word was presented, overwriting the masking stimulus, and remained on the screen until participants had made the lexical decision. After 2 s, the same sequence was repeated with the next trial.

After completion of the lexical decision task, participants answered a final questionnaire that tested for awareness (see Stapel, Koomen, & Ruys, 2002). This awareness check showed that none of the participants realized that prime words had been presented prior to the target words, and none of the participants was able to list any of the prime words. This demonstrates, as was expected (see Stapel et al., 2002), that the self-priming occurred outside of conscious awareness. After they had completed the questionnaire, participants were thanked and debriefed.

## Results

We conducted logarithmic transformations on the response latencies in order to reduce the skewness of the response distribution. Our analyses were computed on these transformed values. For ease of interpretation, however, we report the nontransformed means (see Dijksterhuis et al., 1998; Mussweiler & Strack, 2000b).

Following Mussweiler and Strack (2000b), in our main analysis we compared response latencies for comparison-congruent words (i.e., intelligent words for Einstein and unintelligent words for Joling) and comparison-incongruent words (i.e., unintelligent words for Einstein and intelligent words for Joling). Table 1 shows that when the target words were preceded by a neutral prime, comparison-congruent words were recognized faster ( $M = 515.97$  ms,  $SD = 146.35$ ) than comparison-incongruent words ( $M = 566.83$  ms,  $SD = 146.99$ ),  $F(1, 59) = 4.04$ ,  $p < .05$ , partial  $\eta^2 = .06$ , independent of comparison type (explicit or implicit). This is evidence for a general semantic priming effect. Thinking about Albert Einstein increased the accessibility of the concept of intelligence, whereas thinking about Gerard Joling increased the accessibility of the concept of stupidity. More important, however, as Table 1 also shows, is that when target words were preceded by self-primers and an explicit social comparison was made, comparison-congruent words were recognized faster ( $M = 511.73$  ms,  $SD = 121.60$ ) than comparison-incongruent words ( $M = 570.10$  ms,  $SD = 144.96$ ),  $F(1, 29) = 4.29$ ,  $p < .05$ , partial  $\eta^2 = .13$ . When an implicit social comparison was made, however, this effect was reversed: Then self-primed comparison-congruent words were recognized slower ( $M = 576.00$  ms,  $SD = 130.47$ ) than comparison-incongruent words ( $M = 513.87$  ms,  $SD = 133.17$ ),  $F(1, 29) = 9.76$ ,  $p < .05$ , partial  $\eta^2 = .25$ . In a 2 (comparison type: explicit, implicit)  $\times$  2 (prime type: self, con-

Table 1  
*Response Latencies (in Milliseconds) as a Function of Target Word (Congruent vs. Incongruent), Comparison Type (Explicit vs. Implicit), and Prime Type (Self vs. Control)*

| Prime     | Target word          |                        |
|-----------|----------------------|------------------------|
|           | Comparison congruent | Comparison incongruent |
|           | Explicit             |                        |
| Self      |                      |                        |
| <i>M</i>  | 511.73               | 570.10                 |
| <i>SD</i> | 121.60               | 144.96                 |
| Control   |                      |                        |
| <i>M</i>  | 521.30               | 573.73                 |
| <i>SD</i> | 147.52               | 144.13                 |
|           | Implicit             |                        |
| Self      |                      |                        |
| <i>M</i>  | 576.00               | 513.87                 |
| <i>SD</i> | 130.47               | 133.17                 |
| Control   |                      |                        |
| <i>M</i>  | 510.63               | 559.93                 |
| <i>SD</i> | 145.17               | 149.86                 |

trol)  $\times$  2 (congruency: comparison-congruent vs. comparison-incongruent words) mixed ANOVA that yielded the predicted three-way interaction,  $F(1, 58) = 4.08$ ,  $p < .05$ , partial  $\eta^2 = .06$ , and a Comparison Type  $\times$  Congruency interaction,  $F(1, 58) = 3.66$ ,  $p = .06$ , partial  $\eta^2 = .06$ , main effect of congruency,  $F(1, 58) = 2.30$ ,  $p = .14$ , partial  $\eta^2 = .04$  (all other effects,  $F_s < 1$ ).

## Discussion

These accessibility findings provide support for our hypothesis that social comparison effects are contingent on whether they are implicitly or explicitly instigated. Specifically, our findings clearly support the idea that explicit social comparisons are more likely to selectively increase the accessibility of comparison-congruent knowledge about the self, whereas implicit social comparisons selectively increase the accessibility of comparison-incongruent knowledge about the self. In other words, the most important finding of this study is that after an explicit comparison with an intelligent target, “I–intelligent” associations were relatively accessible and after an explicit comparison with a stupid target, “I–dumb” associations were relatively accessible, whereas after an implicit comparison with an intelligent other, “I–dumb” associations were relatively accessible and after an implicit comparison with a stupid other, “I–intelligent” associations were relatively accessible.

These findings also may explain why two earlier investigations of the impact on self-knowledge accessibility of social comparison presented contradictory findings. Whereas Dijksterhuis et al. (1998, Study 3) found the accessibility of comparison-incongruent knowledge to be increased after a social comparison, Mussweiler and Strack (2000b, Study 1) found increased accessibility of comparison-congruent knowledge. The latter authors suggested that this difference may be due to the use of comparison standards that differed in extremity across the studies (Mussweiler & Strack,

2000b). Whereas Dijksterhuis et al. used extreme comparison targets (e.g., Albert Einstein for intelligent), Mussweiler and Strack used moderate comparison targets (e.g., Niki Lauda for athletic). Previous research has indeed shown that extreme comparison standards typically yield contrast, whereas moderate standards yield assimilation (e.g., Manis, Nelson, & Shedler, 1988; Stapel et al., 1997). However, the current study shows that differences in extremity are not necessary to yield assimilation or contrast. Although extremity is an important moderator of assimilation versus contrast effect, and although it is undeniable that distinct person exemplars can only yield comparative contrast effects when they are sufficiently extreme (see Stapel et al., 1997), extremity is not the only moderator of context effects (see Stapel & Koomen, 2000). The current results clearly show that the same comparison target may increase comparison-congruent as well as comparison-incongruent self-knowledge. Which type of knowledge is more accessible depends on whether comparison is explicit or implicit, and, as we already note in the introduction section in this article, that is precisely what distinguishes the Mussweiler and Strack study from the study by Dijksterhuis et al.: The former investigated explicit social comparison effects; the latter investigated implicit social comparison effects.

### Study 3: Automatic Behavior

In Study 3, we examined the behavioral consequences of explicit versus implicit social comparisons. We found in Study 2 that explicit social comparison increased the accessibility of comparison-congruent self-knowledge, whereas implicit comparison had a similar effect on comparison-incongruent self-knowledge. In the present study, we tested whether these effects may be extended to the impact of social comparison on automatic behavior. As research on behavioral priming effects has shown, increasing the accessibility of knowledge may activate corresponding action tendencies (Carver, Ganellen, Froming, & Chambers, 1983). That is, because behavior corresponds to mental representations that obey the same laws as semantic concepts, they may be activated in a similar fashion (see Bargh & Ferguson, 2001). Applying this insight to the present thesis suggests that social comparisons may automatically trigger behavior corresponding to the self-knowledge that is activated during the comparison process. Dijksterhuis et al. (1998) provided support for this assumption. Using a method that is very similar to the implicit social comparison paradigm we used in the first two studies, they showed that thinking about specific comparison others yielded behavioral contrast. Thinking about Albert Einstein hampered participants' performance on a general knowledge test, and bearing the 90+-year-old Dutch Queen Mother in mind made them walk faster (see for a similar finding, Tiedens & Fragale, 2003).

In the present study we examined the hypothesis that an important determinant of the direction of behavioral social comparison effects—such as shown by Dijksterhuis et al. (1998)—is whether the social comparison is explicit or not. An implicit social comparison should typically evoke behavioral contrast (see Dijksterhuis et al., 1998). An explicit social comparison may be more likely to instigate behavioral assimilation. In the present study, we also investigated one of the boundary conditions of such behavioral assimilation effects. Specifically, we tested the hypothesis that explicit social comparisons are most likely to result in behav-

ioral assimilation when the impact of such comparisons is measured immediately after the act of comparing. To assess the impact of measurement timing on explicit versus implicit social comparison effects, we examined their impact on automatic behavior not only immediately after the comparison information was presented but also after a small (15 min) delay.

We predicted that delay of measurement should differentially affect the outcome of explicit and implicit social comparisons. Why? Let's explain. In implicit social comparisons, target presentation occurs prior to target-self comparisons (e.g., you first watch a movie and later someone asks you how attractive you think you are). In this case, the influence of implicit comparison is driven mainly by the fact that a specific, distinct comparison target is primed (e.g., Tom Cruise exerts a different impact on the self than Ernest Borgnine). Earlier work has shown that such distinct information typically yields quite robust and reliable contrast effects (see Stapel & Koomen, 2001c). In explicit social comparisons, however, presentation of the comparison target and target-self comparisons occur at the same time (e.g., you compare yourself with Tom Cruise regarding how handsome you are). The influence of explicit comparisons is driven not only by simple priming of the comparison target but also by processes instigated by the act of comparing. As we note above, the actual act of comparing is likely to prompt the activation of relevant trait concepts (e.g., thinking about how handsome you are compared with Tom Cruise primes the trait "attractiveness") and leads to an increased similarity focus (see Study 1), which is likely to result in assimilation (see Mussweiler & Strack, 2000b; Stapel & Koomen, 2000).

This implies that the assimilative effects of an explicit comparison will be strongest when these are measured during or immediately after the actual comparison process, when the mechanisms pulling toward assimilation (trait priming and similarity focus) are at work. If measurement of the consequences of explicit comparisons is delayed, the influence of these mechanisms should have decayed because by definition they are only relevant at the time the explicit comparison is being made. In other words, an explicit comparison is most likely to result in assimilation during or immediately after the act of comparing. When measurement is delayed, the pull toward assimilation should have weakened and the effects of explicit comparisons should be more similar to those of implicit comparisons. Specifically, when measurement is delayed, explicit comparison effects should be akin to the effect of distinct person priming and thus yield contrast. In the present study, we tested these conjectures in our investigation of the impact of explicit versus implicit comparisons on automatic behavior.

### Method

*Participants and design.* One hundred sixty-two female students were randomly assigned to the conditions of a 2 (comparison target: intelligent vs. unintelligent)  $\times$  2 (comparison type: explicit vs. implicit)  $\times$  2 (behavior measure: immediate vs. delayed) between-subjects design. Participants received partial course credit for their participation.

*Procedure and materials.* On arrival in the room where the study took place, participants were given a package of questionnaires and told that they would be involved in several unrelated studies. The manipulations of comparison type and comparison target were very similar to the one used in Study 1. In the present study, our female participants were given short paragraphs about Marie Curie or Pamela Anderson Lee, in which so-called

“evidence” (behaviors, lifestyle, attributes) was provided that these women were very intelligent or unintelligent, respectively. After this inducement of (explicit vs. implicit) comparison with (intelligent or unintelligent) targets, participants were asked to begin the next task. For those in the immediate behavior measure conditions, the task was a general knowledge test. Participants in the delayed measure conditions first were given several easy (none of the participants made mistakes) but time-consuming filler tasks (e.g., unscrambling fruit and vegetable names [*pplea, spiachn*], listing capital cities in Europe, finding neutral words in matrices of letters) and started the general knowledge test 15 min later. The general knowledge task consisted of 16 multiple-choice questions with four choice options. Following Dijksterhuis et al. (1998), we told participants that we were testing the validity of this general knowledge test and that they would receive a relatively difficult version of the test. The questions were adapted from the game of Trivial Pursuit. Example questions and answers are “Who painted La Guernica?”: (a) Dali, (b) Miro, (c) Picasso, (d) Velasquez; and “What is the capital of Bangladesh?”: (a) Dacca, (b) Hanoi, (c) Yangon, (d) Bangkok.

After completion of this task, participants were debriefed carefully about the goal and purpose of the ostensibly unrelated tasks (see Stapel & Koomen, 2000). None of the participants indicated suspicion of the actual relation between the different tasks or that the first task might have influenced performance on the second.

## Results

We counted the number of correctly answered questions for each participant (the indication of intellectual performance) and subjected these scores to a 2 (comparison target: intelligent, unintelligent)  $\times$  2 (comparison type: explicit, implicit)  $\times$  2 (behavior measure: immediate, delayed) ANOVA. This revealed the predicted Comparison Target  $\times$  Comparison Type  $\times$  Behavior Measure interaction,  $F(1, 154) = 4.54, p < .05$ , partial  $\eta^2 = .03$ ; a Comparison Target  $\times$  Behavior Measure interaction,  $F(1, 154) = 7.67, p < .01$ , partial  $\eta^2 = .05$ ; a Comparison Target  $\times$  Comparison Type interaction,  $F(1, 154) = 5.96, p < .05$ , partial  $\eta^2 = .04$ ; and a main effect of Comparison Target,  $F(1, 154) = 7.67, p < .01$ , partial  $\eta^2 = .05$  (other effects,  $F_s < 1$ ).

As can be seen in Table 2, these effects reflect that in the immediate measure conditions, explicit comparisons yielded assimilation, whereas implicit comparison evoked behavioral contrast. Specifically, our female participants performed better when they had explicitly compared their intelligence with Marie Curie’s ( $M = 7.90, SD = 1.17$ ) than when Pamela Anderson Lee was the comparison target ( $M = 6.85, SD = 1.35$ ),  $F(1, 154) = 4.69, p < .05$ , partial  $\eta^2 = .03$ . This effect reversed when implicit comparisons were immediately followed by a relevant performance task. Specifically, our female participants performed worse when they were simply primed with Marie Curie ( $M = 6.61, SD = 1.76$ ) than when they were primed with Pamela Anderson Lee ( $M = 7.66, SD = 1.39$ ),  $F(1, 154) = 4.67, p < .05$ , partial  $\eta^2 = .03$ .

In the delayed measure conditions, however, social comparisons evoked behavioral contrast in both the implicit and explicit comparison conditions. That is, female participants performed worse when the comparison target was Marie Curie ( $M = 6.80, SD = 1.74$ ) than when it was Pamela Anderson Lee ( $M = 8.08, SD = 1.21$ ),  $F(1, 154) = 15.10, p < .05$ , partial  $\eta^2 = .09$ , independent of the source of these comparisons.

Table 2  
*Number of Correct Answers in General Knowledge Test as a Function of Target (Positive vs. Negative), Type (Explicit vs. Implicit), and Measure (Immediate vs. Delayed)*

| Measure   | Target   |          |
|-----------|----------|----------|
|           | Positive | Negative |
|           | Explicit |          |
| Immediate |          |          |
| <i>M</i>  | 7.90     | 6.85     |
| <i>SD</i> | 1.17     | 1.35     |
| Delayed   |          |          |
| <i>M</i>  | 6.80     | 8.02     |
| <i>SD</i> | 1.74     | 1.18     |
|           | Implicit |          |
| Immediate |          |          |
| <i>M</i>  | 6.61     | 7.66     |
| <i>SD</i> | 1.76     | 1.39     |
| Delayed   |          |          |
| <i>M</i>  | 6.80     | 8.14     |
| <i>SD</i> | 1.74     | 1.24     |

## Discussion

These findings provide additional support for the idea that we should take heed of whether comparisons are made explicitly or implicitly. In Study 2, we showed how explicit versus implicit social comparisons produced markedly different effects on the accessibility of self-knowledge. The present study suggests that this finding is generalizable to the impact on actual performance (scores on a general knowledge test). We found behavioral assimilation after explicit social comparisons and behavioral contrast after implicit social comparisons. It is important to note that this discrepancy only held when performance was measured immediately after the social comparison. When performance was measured after a delay (15 min), the discrepancy between explicit and implicit comparison disappeared and the behavioral impact of explicit social comparisons was akin to that of more implicit ones. This finding suggests, as predicted, that the assimilative effects of an explicit comparison will be strongest when these are measured during or immediately after the act of comparing, when the mechanisms pulling toward assimilation (trait priming and similarity focus) are at work. If measurement of the consequences of explicit comparisons is delayed, the influence of these mechanisms should have decayed because by definition they are only relevant at the time the explicit comparison is being made. In other words, an explicit comparison is most likely to result in assimilation during or immediately after the act of comparing. When measurement is delayed, the pull toward assimilation should have weakened and the effects of explicit comparisons should be more similar to those of implicit comparisons: Then they simply prime distinct person information that serves the role of reference point in self-processes (cf. Dijksterhuis et al., 1998; Stapel & Koomen, 2000, 2001b).

In addition to showing that the way a comparison is instigated determines its outcome, the results indicate that the procedures used by researchers to manipulate social comparison can make an important difference. Further, the present findings demonstrate

evidence of assimilation and contrast outside the domain of self-evaluations—which is typically the focus of attention in social comparison research (see Suls & Wheeler, 2000). They show that social comparisons may affect automatic behaviors as well as self-judgments. The present findings also are relevant to research on the—so-called—“automaticity of being” (Bargh & Ferguson, 2001). Previous automaticity studies typically have shown that behavior effects reflect the contents of activated information (i.e., priming yields automatic assimilation effects). The idea that the same comparison (e.g., Pamela Anderson Lee) target may evoke automatic behavior effects that are assimilative (e.g., show stupidity) as well as contrastive (e.g., show intelligence) suggests that automatic behavior also can go against the grain of the prevailing context (see also Dijksterhuis et al., 1998) and is thus more varied than most research of behavioral automaticity effects seems to suggest (Bargh & Ferguson, 2001).

#### Study 4: Perceived Self-Mutability

Studies 2 and 3 demonstrate that distinguishing between whether social comparisons are explicit or implicit has implications for the direction of effect on the accessibility of self-knowledge as well as automatic behavior. In the present study, we further tested the generality of our approach by investigating the impact of the source of comparisons in a domain that is more typical of mainstream social comparison research, namely, explicit self-evaluations (e.g., self-ratings on dimensions such as attractiveness, intelligence, honesty, etc.). Furthermore, in Study 4 we focused on the perceived mutability of the self as a moderator of explicit versus implicit social comparison effects. Specifically, we tested the hypothesis that self-mutability constitutes another boundary condition for the occurrence of assimilation effects after explicit social comparison. Explicit social comparisons should only yield assimilation effects when the self is perceived as mutable, as malleable. Implicit social comparisons should yield contrast effects independent of self-mutability. We based these predictions on recent studies by Stapel and Koomen (2000).

Stapel and Koomen (2000) demonstrated that one important determinant of whether activating self-relevant information results in assimilation versus contrast is dependent on whether people view the self as a mutable rather than an immutable category, respectively. For assimilation to occur, there must be room in people’s self-views for inclusion of additional information (see Schwarz & Bless, 1992). Stapel and Koomen demonstrated this by showing that simple trait priming (e.g., “intelligent” versus “stupid”) resulted in assimilation when participants perceived the self as mutable and flexible but not when they saw the self as immutable and stable. Thus, when the image of who or what you are is unclear and can be influenced relatively easily, relevant information is more likely to be used for self-definitional purposes, for constructing a representation of self-aspects. When the self is viewed as immutable, however, such assimilation effects are less likely to emerge. Translated to the present perspective, this implies that explicit social comparisons may only have an assimilative effect on self-evaluations when people see the self as a mutable entity. Only then can the interpretative forces pulling toward assimilation (trait priming and similarity focus) that are instigated by such comparisons have an effect. When people have immutable

self-views, explicit social comparisons should not result in assimilation but in a null effect (see Stapel & Koomen, 2000).

The studies by Stapel and Koomen (2000) further showed that when a specific and distinct actor–trait link (“Ladd is intelligent”) rather than an abstract and indistinct trait (“intelligence”) is primed, contrast occurs independent of perceived self-mutability (cf. Stapel et al., 1997). We therefore postulate that implicit comparisons will instigate the use of comparison information as a reference point, independent of perceived self-mutability. Thus, when people have clear, immutable self-views, implicit social comparisons will change one’s perception of relative standing on a particular dimension and thus contrast may occur.

Self-mutability is not an issue for the occurrence of such comparative contrast effects because these effects reflect the use of information as a comparison anchor rather than as an interpretation frame. Accordingly, the emergence of such contrast effects should be independent of whether the self is perceived as a mutable or immutable entity (cf. Stapel et al., 1997). This last hypothesis may sound somewhat counterintuitive. Why should self-evaluations be affected by social comparisons when people have clear, immutable self-views? One might counter that under such circumstances the self should be immune from social comparison. However, suppose you have a clear and stable picture of how tall you are or what your weight is. You are not in search of relevant feedback or other information that fulfills a need to know more about yourself on these dimensions. You are who you are. In this case, social experience is unlikely to have an assimilative interpretation effect because there is no room in your self-view for inclusion of new information and nothing more to be interpreted or construed. Still, contrast effects may occur when distinct social comparison information changes your relative standing on a particular dimension. That is, you are more likely to evaluate yourself as less intelligent after reading the autobiography of Marie Curie than after scanning the latest tabloid information about Pamela Anderson Lee. Such information is likely to change the anchor or standard against which you evaluate yourself, irrespective of whether your assessment of how intelligent you are is relatively clear or unclear. This suggests that even those who possess a clear and stable self-concept are not totally immune to the impact of others on their self-evaluations. A clear self-concept may prevent the occurrence of assimilative interpretation effects (such as those instigated by explicit social comparisons) but not the occurrence of comparative contrast effects (such as those instigated by implicit social comparisons).

#### Method

*Participants and design.* One hundred seventy-five psychology students were randomly assigned to the conditions of a 2 (comparison target: positive vs. negative)  $\times$  2 (comparison type: explicit vs. implicit)  $\times$  2 (self-view: mutable vs. immutable) between-subjects design or to one of two (mutable vs. immutable) control conditions in which participants were asked to give self-evaluations but were not exposed to social comparison information. Participants received partial course credit for their involvement.

*Procedure and materials.* On arrival in the room where the study took place participants were told they would be involved in a series of studies. First, they would participate in a study of journalistic styles, and then they would fill out a self-evaluation questionnaire. They were told that the experimenter would time them through each of these studies. This se-

quence of tasks was modeled after Lockwood and Kunda (1997). Participants read a bogus one-page newspaper article describing a psychology student from their university. Their task was to guess in which daily newspaper or weekly magazine the article could have been published. The student described in the article was very positive (intelligent and successful) or rather negative (unintelligent and unsuccessful; for details, see Stapel & Koomen, 2000).

After having read the newspaper article and having written down their answers to the media source question, participants in the explicit comparison conditions—similar to Studies 1–3—were asked to compare themselves with the psychology student described in the article regarding how intelligent and successful they were. They were then asked to indicate whether they were more or less intelligent and successful than the comparison target (see Mussweiler & Strack, 2000b). Participants in the implicit comparison conditions were not given this explicit comparison instruction.

After completion of this “study of journalistic styles,” participants in the experimental conditions were asked to start the second task, self-evaluation. Control participants were given this task immediately. This task was introduced as part of a general survey. All participants were first asked several general questions “for statistical purposes” (e.g., age, gender, place of birth, study major). After this, participants in the self-mutability condition were given the following introduction to the self-evaluation part of the questionnaire:

Now we want to ask you some questions about how you see yourself at this moment. As you know, our personalities are transient and malleable. We behave differently at a party with friends than at home with our parents. Sometimes we feel unhappy and dissatisfied, whereas at other times we feel happy and are relatively content with ourselves. (Stapel & Koomen, 2000, pp. 1071–1072)

Participants in the self-immutability condition were given an introduction that stressed the fixed nature of the self:

Now we want to ask you some questions about how you see yourself. As you know, every person has a certain personality. Sometimes you feel happy, whereas at other times you feel a little depressed, but the structure of your personality will always constitute a solid background factor. There are certain things that you like or dislike because that is who you are. (Stapel & Koomen, 2000, pp. 1071–1072)

After having read this mutability manipulation, all participants answered some questions about themselves, ostensibly to determine whether their personality had any impact on their perceptions of the article. All participants rated themselves on the following adjectives: *attractive, happy, bright, ambitious, frustrated, successful, incompetent*. These items were rated on 7-point scales ranging from 1 (*not at all*) to 7 (*very*). Next, as a manipulation check of the mutability manipulation, participants were asked to indicate whether they thought personality was a variable (scored as 1) or stable (scored as 7) construct. Also, as a manipulation check of the comparison information manipulation, in the experimental conditions participants rated the target person on the following adjectives: *intelligent, successful, likable*. These items were rated on 7-point scales ranging from 1 (*not at all*) to 7 (*very*).

After completion of this task, participants were debriefed. None of the participants indicated suspicion of the actual relation between the different tasks or that the first task might have influenced performance on the second.

## Results

**Manipulation checks.** First, we checked whether the self-mutability manipulation was effective by investigating the impact of the experimental manipulations on participants’ ratings of the

variability question. As expected, the relevant ANOVA over the complete design revealed a main effect of self-mutability on this rating dimension,  $F(1, 173) = 110.20, p < .01$ , partial  $\eta^2 = .39$  (other effects,  $F_s < 1$ ). Participants who were given the “self is mutable” text indeed rated personality to be more variable ( $M = 3.86, SD = 1.10$ ) than participants who were given the “self is immutable” text ( $M = 5.72, SD = 1.25$ ). Next, we checked whether the positive comparison target was indeed judged more positively than the negative target. We averaged the three items into a single index (Cronbach’s  $\alpha = .87$ ). The relevant ANOVA revealed the predicted main effect of comparison target,  $F(1, 140) = 96.16, p < .01$ , partial  $\eta^2 = .41$  (other effects,  $F_s < 1$ ). Participants judged the positive target more as such ( $M = 5.88, SD = 1.29$ ) than the negative target ( $M = 3.80, SD = 1.15$ ).

**Self-evaluation.** We averaged all self-evaluation items into a single index after reverse scoring the negative items (Cronbach’s  $\alpha = .73$ ). Next, we investigated whether or not the mutability manipulation had an effect on the self-evaluation when no social comparison was presented to participants. Analyses revealed that the mutable self-view ( $M = 5.94, SD = 0.99$ ) and the immutable self-view ( $M = 5.94, SD = 1.09$ ) control conditions did not differ from each other.

The effects of comparison target (positive vs. negative), comparison type (explicit vs. comparison), and self-view (mutable vs. immutable) on the self-evaluation index were investigated by performing a Comparison Target  $\times$  Comparison Type  $\times$  Self-View ANOVA. This revealed a weak Comparison Target  $\times$  Comparison Type  $\times$  Self-View interaction,  $F(1, 134) = 2.94, p = .08$ , partial  $\eta^2 = .02$ ; a Comparison Target  $\times$  Self-View interaction,  $F(1, 134) = 4.06, p < .05$ , partial  $\eta^2 = .03$ ; a Comparison Target  $\times$  Comparison Type interaction,  $F(1, 134) = 30.0, p < .05$ , partial  $\eta^2 = .18$ ; and a main effect of comparison target,  $F(1, 134) = 4.30, p < .05$ , partial  $\eta^2 = .03$  (other effects,  $F_s < 1$ ).

As can be seen in Table 3, these effects reflect that in the mutable self-view conditions, explicit comparisons yielded assimilation whereas implicit comparison evoked contrast. Specifically, our participants rated themselves more positively when they had explicitly compared their intelligence with a high standard ( $M = 6.59, SD = 0.80$ ) than when a low standard was the comparison target ( $M = 5.29, SD = 1.53$ ),  $F(1, 140) = 12.21, p < .01$ , partial  $\eta^2 = .08$ . This effect was reversed when implicit comparisons were primed. Specifically, our participants rated themselves less positively when they were primed with a high standard ( $M = 5.26, SD = 1.52$ ) than when primed with a low standard ( $M = 6.58, SD = 0.84$ ),  $F(1, 140) = 10.45, p < .01$ , partial  $\eta^2 = .07$ . In the mutable control group condition, self-evaluations were halfway between self-evaluations in the mutable experimental conditions ( $M = 5.94, SD = 0.99$ ).

As can be seen in Table 3, in the immutable self-view conditions, social comparisons evoked contrast in the implicit conditions and null effects in the explicit comparison conditions. Specifically, our participants rated themselves less positively when they were primed with a high standard ( $M = 5.20, SD = 1.15$ ) than when primed with a low standard ( $M = 6.63, SD = .62$ ),  $F(1, 140) = 13.76, p < .01$ , partial  $\eta^2 = .09$ . This effect did not occur when participants had made explicit comparisons. The self-ratings of participants who had explicitly compared themselves with a high standard ( $M = 5.94, SD = 0.83$ ) did not differ from those who had explicitly compared themselves with a low standard ( $M = 6.00$ ,

Table 3  
*Self-Evaluations as a Function of Target (Positive vs. Negative), Type (Explicit vs. Implicit), and Self-View (Mutable vs. Immutable)*

| Self-view | Target   |          |
|-----------|----------|----------|
|           | Positive | Negative |
|           | Explicit |          |
| Mutable   |          |          |
| <i>M</i>  | 6.59     | 5.29     |
| <i>SD</i> | 0.80     | 1.53     |
| Immutable |          |          |
| <i>M</i>  | 5.94     | 6.00     |
| <i>SD</i> | 0.83     | 0.87     |
|           | Implicit |          |
| Mutable   |          |          |
| <i>M</i>  | 5.26     | 6.58     |
| <i>SD</i> | 1.52     | 0.84     |
| Immutable |          |          |
| <i>M</i>  | 5.20     | 6.63     |
| <i>SD</i> | 1.15     | 0.62     |

*Note.* Scale range is from 1 to 7. Higher numbers indicate more positive self-evaluations. Mean self-evaluations were 5.94 ( $SD = 0.99$ ) in the mutable control condition and 5.94 ( $SD = 1.09$ ) in the immutable control condition.

$SD = 0.87$ ,  $F < 1$ ). In the immutable control group condition, self-evaluations were halfway between those in the immutable implicit conditions and similar to self-evaluations in the immutable explicit conditions ( $M = 5.94$ ,  $SD = 0.62$ ).

### Discussion

These findings provide support for our perspective that the difference between explicit and implicit social comparisons matters not only for the extent to which one sees similarity between stimuli (Study 1), accessibility of self-knowledge (Study 2), and automatic behavior (Study 3) but also for a measure that is more mainstream in this domain of research, self-evaluation. Our findings suggest that the self-evaluative consequences of social comparison are assimilative when comparison is instigated explicitly, whereas they are contrastive when the comparison occurs implicitly. It is interesting to note that the present findings reveal an important boundary condition for the occurrence of assimilation effects after explicit social comparison. Whereas implicit social comparisons yielded contrast effects independent of self-mutability, explicit social comparisons only yielded assimilation effects when people perceived the self as a mutable rather than an immutable entity (see Stapel & Koomen, 2000). This supports the view that for explicit social comparisons to yield assimilation, there needs to be “room” in people’s self-views for inclusion. When the image of who or what you are is unclear, explicit social comparisons are more likely to be used for self-definitional purposes, for constructing a representation or evaluation of relevant self-aspects. Then, the interpretative forces pulling toward assimilation (trait priming and similarity focus) that are activated by explicit comparisons are sufficiently strong to exert their effect.

In sum, then, these findings show that how a comparison target affects one’s self-evaluation is dependent on whether a comparison occurs explicitly or implicitly. If a comparison occurs explicitly, another important determinant is whether one’s self-view is malleable or stable.

### Study 5: Why Self-Evaluate?

As we argue above, social comparisons provide people with information that could be relevant for self-assessment in two distinct ways (see also Mussweiler & Strack, 2000b). Comparison information can be used to define or interpret the self, such that this information is included in the self-view. When this occurs, assimilation typically ensues. However, comparison information can also be used as a comparison standard against which the implications of this information can be contrasted. Social comparison information may thus serve dual roles. The studies above suggest that implicit social comparisons typically serve the role of comparison standard and result in quite reliable, robust contrast effects. The effects of explicit social comparisons are less robust, however. In Studies 1–4, we found that information activated by explicit social comparisons is most likely to serve a sense-making, interpretative role (and result in assimilation) when certain boundary conditions are met (e.g., self-relevant responses are measured immediately after the act of comparing [Study 3]; people perceive the self as mutable [Study 4]). In the present study, we further explored the robustness of implicit versus explicit social comparison effects and investigated to what extent implicit versus explicit social comparison effects are dependent on the perspective (interpretation vs. comparison) with which self-evaluation tasks are approached or, to put it differently, the goal self-evaluation serves.

As Study 4 suggests, for people for whom self-evaluation means defining and categorizing the self, explicit social comparison has an impact that is different from the impact it has on people for whom the self is a clear and stable entity. In Study 5, we tested the hypothesis that the goal with which people approach the task of self-evaluation may affect the relative strength of the two roles social comparison information may serve: interpretation and comparison (see Stapel & Koomen, 2000). The results of Studies 3 and 4, as well as the findings of priming research investigating the impact of distinct person information (for a review see Stapel & Koomen, 2001c), suggest that the contrast effects that typically occur when distinct person information is activated by implicit social comparison are robust and reliable. Hence, we have no reason to expect that the activation of an interpretation versus a comparison goal affects the typical contrast effects that ensue after implicit social comparisons.

However, similar to what we found in Studies 3 and 4, we do expect that the goal with which people approach a self-assessment task will dictate whether the impact of explicit social comparisons is assimilation or contrast. When the task is to answer a global, self-defining question (“Who am I?”), the effect of explicit social comparison will be driven mainly by mechanisms pulling toward assimilation (trait priming and similarity focus). However, when the task is to answer a specific, comparative question (“How  $X$  am I?”) and people are interested in how they rank on a specific dimension ( $X$ , e.g., intelligence), the effect of explicit social comparison will be driven mainly by mechanisms pulling toward contrast (distinct person information is used as an extreme com-

parison standard). In other words, we predict that the way a self-assessment task is introduced (as a global, self-defining task or a specific self-ranking task) may affect the use of explicitly activated social comparison information.

### Method

**Participants and design.** One hundred twenty-four female psychology students were randomly assigned to the conditions of a 2 (comparison target: positive vs. negative)  $\times$  2 (comparison type: explicit vs. implicit)  $\times$  2 (self-evaluation goal: categorization vs. comparison) between-subjects design. Participants received partial course credit for their involvement.

**Procedure and materials.** The general procedure and comparison target and comparison type manipulations were identical to those used in Study 3 (e.g., Madame Curie vs. Pamela Anderson Lee). The dependent measure was different, however. After inducement of (explicit vs. implicit) comparison with (intelligent or unintelligent) targets, participants were asked to begin the next task. Similar to Study 4, this task was introduced as part of a general survey. All participants first answered several general questions, and then they answered a question about their intelligence. All participants were told that this part of the survey was done because the National Science Foundation (NSF) was interested in how students think about themselves regarding their intelligence. Next, in the interpretation conditions, participants were told that the NSF was interested especially in how “people think about themselves, how they describe and categorize themselves regarding their intelligence,” and they were asked to use the rating scale that would follow to define in which category of intelligence they felt they fitted. Thus, the global, interpretational, categorical, sense-making nature of the self-assessment task was emphasized. In the comparison conditions, participants were told that the NSF was interested especially in how “people evaluate themselves, how they judge and rank themselves regarding their intelligence,” and they were asked to use the rating scale to indicate how intelligent they thought they were. Thus, the specific, comparative, evaluative nature of the self-assessment task was emphasized.

After completion of this task, participants were debriefed. None of the participants indicated suspicion of the actual relation between the different tasks or that the first task might have influenced performance on the second.

### Results

The effects of comparison target (positive vs. negative), comparison type (explicit vs. implicit), and self-evaluation goal (interpretation vs. comparison) on the self-evaluation index were investigated by performing a Comparison Target  $\times$  Comparison Type  $\times$  Self-Evaluation Goal ANOVA. This revealed a Comparison Target  $\times$  Comparison Type  $\times$  Self-Evaluation Goal interaction,  $F(1, 116) = 4.93, p < .05$ , partial  $\eta^2 = .04$ ; a Comparison Target  $\times$  Self-Evaluation Goal interaction,  $F(1, 116) = 4.72, p < .05$ , partial  $\eta^2 = .04$ ; a Comparison Target  $\times$  Comparison Type interaction,  $F(1, 116) = 5.00, p < .05$ , partial  $\eta^2 = .04$ ; and a weak main effect of comparison target,  $F(1, 116) = 3.39, p = .07$ , partial  $\eta^2 = .03$  (other effects,  $F_s < 1$ ).

As can be seen in Table 4, these effects reflect that in the interpretation conditions, explicit comparisons yielded assimilation, whereas implicit comparison evoked contrast. Specifically, our participants rated themselves as more intelligent when they had explicitly compared their intelligence with Marie Curie’s ( $M = 6.60, SD = 0.83$ ) than when Pamela Anderson Lee was the comparison target ( $M = 5.64, SD = 1.45$ ),  $F(1, 116) = 5.21, p < .05$ , partial  $\eta^2 = .04$ . This effect was reversed when implicit

Table 4  
*Self-Evaluations as a Function of Target (Positive vs. Negative), Type (Explicit vs. Implicit), and Goal (Categorization vs. Comparison)*

| Goal           | Target   |          |
|----------------|----------|----------|
|                | Positive | Negative |
|                | Explicit |          |
| Categorization |          |          |
| <i>M</i>       | 6.60     | 5.64     |
| <i>SD</i>      | 0.83     | 1.45     |
| Comparison     |          |          |
| <i>M</i>       | 5.47     | 6.27     |
| <i>SD</i>      | 1.25     | 0.88     |
|                | Implicit |          |
| Categorization |          |          |
| <i>M</i>       | 5.38     | 6.20     |
| <i>SD</i>      | 1.26     | 0.94     |
| Comparison     |          |          |
| <i>M</i>       | 5.45     | 6.25     |
| <i>SD</i>      | 1.34     | 0.68     |

*Note.* Scale range is from 1 to 7. Higher numbers indicate more positive self-evaluations.

comparisons were primed. Specifically, our participants rated themselves as less intelligent when they were primed with Marie Curie ( $M = 5.38, SD = 1.26$ ) than when primed with Pamela Anderson Lee ( $M = 6.20, SD = 0.94$ ),  $F(1, 116) = 4.03, p < .05$ , partial  $\eta^2 = .03$ .

In the comparison conditions, social comparisons evoked contrast in both implicit and explicit comparison conditions. That is, participants rated themselves as less intelligent when the comparison target was Marie Curie ( $M = 5.47, SD = 1.30$ ) than when it was Pamela Anderson Lee ( $M = 6.26, SD = .78$ ),  $F(1, 116) = 8.07, p < .01$ , partial  $\eta^2 = .06$ , independent of the source of these comparisons.

### Discussion

These findings again show that an important determinant of whether social comparisons yield assimilation or contrast is whether these comparisons are instigated explicitly or whether they occur relatively implicitly. It is interesting to note that this discrepancy between explicit and implicit social comparison effects is most salient when people approach the task of self-evaluation with an interpretation goal (answering the question “Who am I?”). When this is the case, explicit social comparisons yield assimilation effects, whereas implicit social comparisons yield contrast. When people have a comparison goal (answering the question “How *X* am I?”), however, this discrepancy between comparison methods disappears, the impact of explicit social comparisons is akin to that of more implicit ones, and contrast ensues. Our findings thus support the view that when people have an interpretation goal, the effects of explicit social comparison are driven mainly by mechanisms pulling toward assimilation (trait priming and similarity focus). Conversely, when people have a comparison goal, the effects of explicit social comparisons are

driven mainly by mechanisms pulling toward contrast (distinct person information is used as an extreme comparison standard). In other words, how a comparison target affects one's self-evaluation is thus dependent on whether a comparison occurs explicitly or implicitly, but if a comparison occurs explicitly, another factor that is important is the goal with which one approaches the act of self-evaluation.

### General Discussion

For 2 decades, social psychologists seemed to appreciate only that social comparisons produce contrast (for an exception, see Wheeler, 1966). With the recognition that the affective outcome of a comparison is not intrinsically tied to its direction (Buunk et al., 1990), however, the potential for assimilation began to be appreciated and empirically validated (Collins, 1996; Brown et al., 1992; Taylor & Lobel, 1989). The present studies contribute a new, explanatory point: Whether assimilation or contrast occurs may depend on whether the social comparison is explicit or implicit.

#### Summary of Results

Our initial study shows that when people are explicitly asked to compare themselves with comparison standards, they are more likely to focus on similarities rather than on dissimilarities between stimuli. Thus, explicit social comparisons tend to activate a similarity focus. Stapel and Koomen (2001a, 2001b) have argued and demonstrated that social comparisons are more likely to yield assimilation when a similarity focus is activated, whereas contrast is more likely when a dissimilarity focus is activated (see also Mussweiler, 2003). Hence, the finding that a similarity focus is relatively accessible after explicit versus implicit social comparison implies that the former should more readily lead to assimilation. This is exactly what we found in Studies 2–5.

In Study 2, we showed that when people are explicitly asked to compare themselves with a superior or inferior other, aspects of the self that are congruent with the comparison other are more likely to become highly accessible for them, suggestive of assimilation. But when the comparison is not explicitly requested (spontaneous), self-knowledge incongruent with the other becomes more accessible—indicative of contrast.

In Study 3, we demonstrated that social comparisons can trigger behavior corresponding to the self-knowledge activated during the comparison process. Explicitly being asked to compare with Marie Curie was followed by better intellectual performance than when explicitly asked to compare with Pamela Anderson Lee—a pattern consistent with behavioral assimilation. But when Marie Curie was simply primed, and no explicit comparison was requested, then intellectual performance was worse than when Pamela Anderson Lee was primed—results indicating behavioral contrast. These different effects of explicit versus implicit comparison on behavior only are exhibited immediately after comparison, however. With delay, the trait priming and focus on similarity prompted by making an explicit comparison tend to dissipate, such that the effects of explicit comparison look like the behavioral contrast after implicit comparison.

In Study 4, we extended these results by showing that the same standard (either a very successful or very unsuccessful college

student) displaced self-evaluations toward the standard after explicit comparison but displaced evaluations away from the standard after implicit comparison. The assimilation produced by explicit comparisons only occurred, however, when people saw themselves as mutable. This occurs because assimilation requires that there be room in the self-concept for new information—that is, when the self is seen as mutable and malleable. Contrast, however, can occur after both implicit and explicit comparisons, because imposition of different standards change the anchors against which one evaluates oneself, independent of whether one has a clear view of oneself.

In Study 5, we extended this argument further by testing the effects of different self-evaluative goals. As we have seen, standards tend to be used as yardsticks and elicit contrast in implicit social comparisons. Explicit comparisons can serve either an interpretative, self-defining role (resulting in assimilation) or a comparative role (resulting in contrast), depending on whether outcomes are immediate (Study 3) or the self is mutable (Study 4). Study 5 showed that which role predominates in explicit comparison also depends on the individual's self-evaluative goal. Asking, "How X am I?" emphasizes rank or standing so the salience of the comparison other as a standard predominates, leading to contrast. But when people are trying to make sense of themselves—"Who am I?"—the comparison other serves an interpretative role so that assimilation results. Thus, the goal that people have determines the outcome of explicit comparison.<sup>2</sup>

#### Interpretation–Comparison

In addition to demonstrating the different effects of explicit versus implicit social comparisons, the current research more generally offers additional support for the ICM on social comparison (Stapel & Koomen, 2000, 2001a, 2001c). This approach posits that social comparison can instigate two different processes with opposing effects. Comparison information can serve as a standard against which the self is evaluated such that the information is excluded from the self-concept, and contrast is the consequence. On the other hand, the same information may provide an interpretative framework to define the self and be incorporated in the self-definition with assimilation as the result. In a sense, the interpretation comparison (IC) model is thus similar to Mussweiler's (2003) selective accessibility (SA) model. The SA model maintains that the impact of social comparison information is determined by what type of hypothesis testing is instigated during the comparison process: Similarity testing is more likely to produce assimilation; dissimilarity testing is more likely to produce contrast. However, there are several important differences between the IC and SA models (see Mussweiler, 2003). For one, the SA model relatively explicitly (Mussweiler & Strack, 2000a, p. 258)

<sup>2</sup> The attentive reader may have noted that in some of our studies, participants were men and women, whereas in other studies participants were women and that those comparisons were sometimes made to male comparison standards (e.g., Albert Einstein, a male student) and sometimes to female standards (e.g., Britney Spears, Madame Curie). It is important to note that we found no evidence in any of these studies on any of our dependent measures that the occurrence or strength of the social comparison effects reported here were moderated by the gender of the participant, the gender of the prime, or the match between them ( $F_s < 1$ ).

or implicitly (Mussweiler, 2003, p. 479) assumes that testing for similarity is a more common and natural process than testing for dissimilarity, whereas the IC perspective posits that there are no default processes and that both interpretative and comparative processes can occur spontaneously, naturally, and without much effort (e.g., Stapel et al., 2002, p. 71). Furthermore, whereas the SA model focuses more on a dissection of the essential ingredients of comparison processes (e.g., hypothesis testing), the IC model is concerned more with the use and impact of accessible knowledge on feelings, thoughts, and actions, be they comparative or interpretative. Thus, research inspired by the IC model focuses particularly on what factors determine whether interpretation (and a pull toward assimilation) or comparison (and a push toward contrast) wins out in any given situation. These factors include mutability of the self, distinctness of the comparison target, and whether the personal self or a differentiative mind-set versus the social self or an integrative mind-set is salient (Gardner, Gabriel, & Hochschild, 2002; Stapel & Koomen, 2001c). The present research contributes another factor—whether a comparison is explicitly required or is only implicit in the situation—to determine whether interpretation versus comparison forces are stronger.

### Method Matters

By implication, these results also show that comparison effects can be driven by the research paradigm adopted by the investigator. As noted earlier, a discrepancy in results between Mussweiler and Strack (2000b) and Dijksterhuis et al. (1998) is readily explainable after recognizing that the former, finding assimilation, used an explicit comparison procedure whereas the latter, reporting contrast, used an implicit one. It is therefore interesting to compare the current findings to those of Mussweiler and Strack.

Mussweiler and Strack (2000b) found that (what we would call) explicit social comparison results in contrast when the self-evaluative judgment takes the form of a subjective judgment along a given rating scale (e.g., “How athletic are you?”; 1 = *a little athletic*, 9 = *very athletic*), but in assimilation when it takes the form of an objective judgment about physical quantities (e.g., miles per hour, pounds). Their reasoning was that reference standards provide relevant information for subjective judgments but not for objective judgments. In order to make a subjective judgment, one first must interpret the given scale anchor, and to do so one is likely to use salient or cognitively accessible information. According to their reasoning (for details, see Biernat et al., 1991; Mussweiler & Strack, 2000a), objective judgments, however, are externally anchored by consensual standards and are therefore less likely to be influenced by accessible information that could be used as an anchor.

The current findings, however, suggest that perhaps Mussweiler and Strack (2000b) found assimilation on objective measures because they used an explicit rather than an implicit social comparison paradigm. To test this hypothesis, we performed an additional study ( $N = 75$ ), which represented a modification of Mussweiler and Strack (2000b, Study 4). In this experiment, we asked participants to judge the magnitude of their drug consumption after explicit versus implicit comparison with either the late Dutch musician Herman Brood (high standard) or the Belgian tennis professional Kim Clijsters (low standard; cf. Mussweiler & Strack, 2000b, Study 4). In the implicit social comparison conditions,

participants were simply given short paragraphs about either Brood or Clijsters. In the explicit social comparison conditions, participants were given these paragraphs and also were asked whether they consumed drugs and alcohol more or less often per month than Brood or Clijsters. All participants then estimated the number of times they consumed drugs and alcohol per month (objective scale), and they indicated how extensive their drug consumption was (1 = *not at all extensive*, 9 = *very extensive*; subjective scale). Results showed contrast on subjective judgments, independent of comparison type. Participants judged their drug consumption as lower when the comparison other was Brood ( $M = 4.62$ ,  $SD = 1.55$ ) than when it was Clijsters ( $M = 5.50$ ,  $SD = 0.97$ ),  $F(1, 73) = 8.61$ ,  $p < .01$ ,  $\eta^2 = .11$ . Comparison type did matter, however, for the objective measure. When comparisons were instigated explicitly, participants estimated their drug consumption as higher when the comparison other was Brood ( $M = 18.67$ ,  $SD = 8.34$ ) than when it was Clijsters ( $M = 14.67$ ,  $SD = 3.79$ ),  $F(1, 73) = 4.68$ ,  $p < .05$ ,  $\eta^2 = .06$ , whereas the reverse was true ( $M = 15.29$ ,  $SD = 3.94$ ;  $M = 19.44$ ,  $SD = 4.44$ , respectively) when the comparison was implicit,  $F(1, 73) = 5.38$ ,  $p < .05$ ,  $\eta^2 = .07$ .<sup>3</sup>

Together with the other studies reported here, the results of this additional experiment clearly demonstrate that the Mussweiler and Strack (2000b) findings should not be taken to mean that social comparison effects will typically yield assimilation on objective scales and contrast on subjective scales. Implicit comparisons typically yield robust and reliable contrast effects on nonanchored, objective, behavioral measures as well as anchored, subjective, judgmental measures. Explicit comparisons, however, may yield either contrast or assimilation, depending on the relative strength of the interpretative versus the comparative forces in the self-assessment task. Explicit social comparisons yield assimilative interpretation effects when objective measures are used, when the self is perceived as mutable, and when the goal of self-evaluation is self-definition. Conversely, explicit social comparisons yield contrastive comparison effects when objective measures are used, when the self is perceived as immutable, and when the goal of self-evaluation is self-evaluation.

In sum then, the current findings clearly and unequivocally show that implicit comparisons typically produce contrast, whereas explicit comparisons may lead to assimilation or contrast, depending on the configuration of the complete self-assessment situation. Because explicit comparison only leads to assimilation under particular boundary conditions, it is not surprising that contrast is the more typical outcome reported. For the same reason, we also should expect that contrast is more likely to be seen in daily life. Indeed, this seems to be confirmed in naturalistic studies of social comparison (Wheeler & Miyake, 1992; Wood et al., 2000).

### Explicit–Implicit

The present results also bear on theoretical discussions about whether social comparison should only be considered an explicit act (Wood, 1996) or whether comparisons can be automatic and

<sup>3</sup> For further details about this experiment and complete analyses based on standardized scores, write to Diederik A. Stapel.

unconscious. This is important because people receive a barrage of comparison information in everyday life. Intuition suggests that not all of these potential comparisons are registered, but as Wood (1996) wrote, "although not every social encounter with social information leads to social comparison, it seems reasonable that in many cases, when people stumble upon social information, they automatically compare themselves" (p. 532). Gilbert et al. (1995) presented evidence that although participants' ratings of competence were unaffected by being outperformed or underperformed by an accomplice under certain conditions (e.g., no cognitive load), their moods clearly registered the comparison. Indeed, in the present studies, under conditions when participants simply were exposed to a story about a successful or unsuccessful undergraduate and there was no explicit instruction to compare, the results showed clear impact of the comparison other's standing on participants' self-evaluations.

In the introduction, we mention Charles I's admonition against making comparisons. In view of the present results, however, his prescription may be impossible to follow. The monarch, reputed to be short, unattractive, and dull, perhaps feared the prospect of unflattering contrasts and failed to recognize the potential for assimilation. Of course, according to our findings, contrast is more likely to occur in response to implicit comparisons. And these are beyond even the control of kings.

## References

- Bargh, J. A., & Ferguson, M. J. (2001). Beyond behaviorism: On the automaticity of higher mental processes. *Psychological Bulletin*, *126*, 925–945.
- Biernat, M., Manis, M., & Nelson, T. E. (1991). Stereotypes and standards of judgment. *Journal of Personality and Social Psychology*, *60*, 485–499.
- Blanton, H. (2000). Evaluating the self in the context of another: Assimilation and contrast effects in social comparison. In G. Moskowitz (Ed.), *Cognitive social psychology: The Princeton Symposium and the legacy and future of social cognition* (pp. 75–88). Mahwah, NJ: Erlbaum.
- Brewer, M. B., & Weber, J. G. (1994). Self-evaluation effects of interpersonal versus intergroup social comparison. *Journal of Personality and Social Psychology*, *66*, 268–275.
- Brown, J. D., Novick, N. J., Lord, K. A., & Richards, J. M. (1992). When Gulliver travels: Social context, psychological closeness, and self-appraisals. *Journal of Personality and Social Psychology*, *62*, 717–727.
- Buunk, B., Collins, R., Taylor, S., Van Yperen, N., & Dakoff, G. (1990). The affective consequences of social comparison: Either direction has its ups and downs. *Journal of Personality and Social Psychology*, *59*, 1238–1249.
- Carver, C. S., Ganellen, R. J., Froming, W. J., & Chambers, W. (1983). Modeling: An analysis in terms of category accessibility. *Journal of Experimental Social Psychology*, *19*, 403–421.
- Cash, T., Cash, D., & Butters, J. (1983). "Mirror, mirror, on the wall . . .": Contrast effects and self-evaluations of physical attractiveness. *Personality and Social Psychology Bulletin*, *9*, 351–358.
- Collins, R. (1996). For better or worse: The impact of upward comparison on self-evaluations. *Psychological Bulletin*, *119*, 51–69.
- Dijksterhuis, A., Spears, R., Postmes, T., Stapel, D. A., Koomen, W., Van Knippenberg, A., & Scheepers, D. (1998). Seeing one thing and doing another: Contrast effects in automatic behavior. *Journal of Personality and Social Psychology*, *75*, 862–871.
- Gardner, W., Gabriel, S., & Hochschild, L. (2002). When you and I are "we," you are not threatening: The role of self-expansion in social comparison. *Journal of Personality and Social Psychology*, *75*, 1115–1131.
- Gentner, D., & Markman, A. D. (1997). Structure mapping in analogy and similarity. *American Psychologist*, *52*, 45–56.
- Gilbert, D. T., Giesler, R. B., & Morris, D. A. (1995). When comparisons arise. *Journal of Personality and Social Psychology*, *69*, 227–236.
- Goethals, G., & Darley, J. (1977). Social comparison theory: An attributional approach. In J. Suls & R. Miller (Eds.), *Social comparison processes: Theoretical and empirical perspectives* (pp. 259–278). Washington, DC: Hemisphere.
- Lockwood, P., & Kunda, Z. (1997). Superstars and me: Predicting the impact of role models on the self. *Journal of Personality and Social Psychology*, *73*, 91–103.
- Lyubomirsky, S., & Ross, L. (1997). Hedonic consequences of social comparison: A contrast of happy and unhappy people. *Journal of Personality and Social Psychology*, *73*, 1141–1157.
- Manis, M., Nelson, T. E., & Shedler, J. (1988). Stereotypes and social judgment: Extremity, assimilation, and contrast. *Journal of Personality and Social Psychology*, *55*, 28–36.
- Markman, A. D., & Gentner, D. (1996). Commonalities and differences in similarity comparisons. *Memory and Cognition*, *24*, 235–249.
- Markman, K., & McMullen, M. (2003). A reflection and evaluation model of comparative thinking. *Personality and Social Psychology Review*, *3*, 244–267.
- Morse, S., & Gergen, K. J. (1970). Social comparison, self-consistency, and the concept of the self. *Journal of Personality and Social Psychology*, *16*, 148–156.
- Mussweiler, T. (2001). "Seek and ye shall find": Antecedents of assimilation and contrast in social comparison. *European Journal of Social Psychology*, *31*, 499–509.
- Mussweiler, T. (2003). Comparison processes in social judgment: Mechanisms and consequences. *Psychological Review*, *110*, 472–489.
- Mussweiler, T., & Strack, F. (2000a). Consequences of social comparison: Selective accessibility, assimilation, and contrast. In J. Suls & L. Wheeler (Eds.), *Handbook of social comparison: Theory and research* (pp. 253–270). New York: Plenum Press.
- Mussweiler, T., & Strack, F. (2000b). The "relative self": Informational and judgmental consequences of comparative self-evaluation. *Journal of Personality and Social Psychology*, *79*, 344–351.
- Pelham, B. W., & Wachsmuth, J. O. (1995). The waxing and waning of the social self: Assimilation and contrast in social comparison. *Journal of Personality and Social Psychology*, *69*, 825–838.
- Schwarz, N., & Bless, H. (1992). Constructing reality and its alternatives: An inclusion/exclusion model of assimilation and contrast effects in social judgment. In L. L. Martin & A. Tesser (Eds.), *The construction of social judgments* (pp. 217–245). Hillsdale, NJ: Erlbaum.
- Stapel, D. A., & Koomen, W. (2000). Distinctness of others and malleability of selves: Their impact on social comparison effects. *Journal of Personality and Social Psychology*, *79*, 1068–1087.
- Stapel, D. A., & Koomen, W. (2001a). The impact of interpretation versus comparison goals on knowledge accessibility effects. *Journal of Experimental Social Psychology*, *37*, 134–149.
- Stapel, D. A., & Koomen, W. (2001b). I, we, and the effects of others on me: How self-construal moderates social comparison effects. *Journal of Personality and Social Psychology*, *80*, 766–781.
- Stapel, D. A., & Koomen, W. (2001c). Let's not forget the past when we go to the future: On our knowledge of knowledge accessibility effects. In G. Moskowitz (Ed.), *Cognitive social psychology* (pp. 229–246). Mahwah, NJ: Erlbaum.
- Stapel, D. A., Koomen, W., & Ruys, K. (2002). The effects of diffuse and distinct affect. *Journal of Personality and Social Psychology*, *83*, 60–74.
- Stapel, D. A., Koomen, W., & Van der Pligt (1997). Categories of category accessibility: The impact of trait versus exemplar priming on person judgments. *Journal of Experimental Social Psychology*, *33*, 44–76.

- Suls, J. (1986). Notes on the occasion of social comparison theory's thirtieth birthday. *Personality and Social Psychology Bulletin*, 12, 289–296.
- Suls, J., Marco, C., & Tobin, S. (1991). The role of temporal comparison, social comparison and direct appraisal in the elderly's self-evaluations of health. *Journal of Applied Social Psychology*, 21, 1125–1144.
- Suls, J., & Wheeler, L. (Eds.). (2000). *Handbook of social comparison*. New York: Kluwer Academic/Plenum Publishers.
- Taylor, S. E., & Lobel, M. (1989). Social comparison activity under threat: Downward evaluation and upward contacts. *Psychological Review*, 96, 569–575.
- Tesser, A., Millar, M., & Moore, J. (1988). Some affective consequences of social comparison and reflection processes: The pain and pleasure of being close. *Journal of Personality and Social Psychology*, 54, 49–61.
- Tiedens, L. Z., & Fragale, A. R. (2003). Power moves: Complementarity in dominant and submissive nonverbal behavior. *Journal of Personality and Social Psychology*, 84, 344–355.
- Van der Zee, K., Oldersma, F., Buunk, B., & Bos, D. (1998). Social comparison preferences among cancer patients as related to neuroticism and social comparison orientation. *Journal of Personality and Social Psychology*, 75, 801–810.
- Wheeler, L. (1966). Motivation as a determinant of upward comparison. *Journal of Experimental Social Psychology*, 2(Suppl. 1), 27–31.
- Wheeler, L., & Miyake, K. (1992). Social comparison in everyday life. *Journal of Personality and Social Psychology*, 62, 760–773.
- Wills, T. A. (1981). Downward comparison principles in social psychology. *Psychological Bulletin*, 90, 245–271.
- Wood, J. V. (1989). Theory and research concerning social comparison of personal attributes. *Psychological Bulletin*, 106, 231–248.
- Wood, J. V. (1996). What is social comparison and how should we study it? *Personality and Social Psychology Bulletin*, 22, 520–537.
- Wood, J. V., Michela, J., & Giordano, C. (2000). Downward comparison in everyday life: Reconciling self-enhancement models with the mood–cognition priming model. *Journal of Personality and Social Psychology*, 79, 563–579.
- Wood, J. V., Taylor, S., & Lichtman, R. (1985). Social comparison in adjustment to breast cancer. *Journal of Personality and Social Psychology*, 49, 1169–1183.

Received May 5, 2003

Revision received June 11, 2004

Accepted July 14, 2004 ■

### Call for Nominations

The Publications and Communications (P&C) Board has opened nominations for the editorships of *Clinician's Research Digest*, *Emotion*, *JEP: Learning, Memory, and Cognition*, *Professional Psychology: Research and Practice*, and *Psychology, Public Policy, and Law* for the years 2007–2012. Elizabeth M. Altmaier, PhD; Richard J. Davidson, PhD, and Klaus R. Scherer, PhD; Thomas O. Nelson, PhD; Mary Beth Kenkel, PhD; and Jane Goodman-Delahunty, PhD, respectively, are the incumbent editors.

Candidates should be members of APA and should be available to start receiving manuscripts in early 2006 to prepare for issues published in 2007. Please note that the P&C Board encourages participation by members of underrepresented groups in the publication process and would particularly welcome such nominees. Self-nominations also are encouraged.

Search chairs have been appointed as follows:

- *Clinician's Research Digest*: William C. Howell, PhD
- *Emotion*: David C. Funder, PhD
- *JEP: Learning, Memory, and Cognition*: Linda P. Spear, PhD, and Peter Ornstein, PhD
- *Professional Psychology*: Susan H. McDaniel, PhD, and J. Gilbert Benedict, PhD
- *Psychology, Public Policy, and Law*: Mark Appelbaum, PhD, and Gary R. VandenBos, PhD

Candidates should be nominated by accessing APA's EditorQuest site on the Web. Using your Web browser, go to <http://editorquest.apa.org>. On the Home menu on the left, find Guests. Next, click on the link "Submit a Nomination," enter your nominee's information, and click "Submit."

Prepared statements of one page or less in support of a nominee can also be submitted by e-mail to Karen Sellman, P&C Board Search Liaison, at [ksellman@apa.org](mailto:ksellman@apa.org).

The deadline for accepting nominations is **December 10, 2004**, when reviews will begin.