

## Assimilation in social comparison: Can we agree on what it is?

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### Abstract

Upward assimilation in social comparison should be defined as "an increase in the comparer's self-evaluation on a dimension as a result of comparing with someone better on that dimension." Current research does not always hew to this definition, confuses reflection in the Self Evaluation Maintenance model (Tesser, 1988) with assimilation,

uses dependent variables other than self-evaluation, and frequently lacks adequate control conditions to understand where the action is. As a result, progress is not as great as it could be. We make suggestions for bringing more order to this relatively new and terribly important topic.

### Key-words

Social comparison.  
Upward assimilation.  
Subjective self-evaluation. Affects,  
Forced social  
comparison

We have become concerned that the important phenomenon of assimilation in social comparison has been so broadly defined that different researchers are often talking about different phenomena. We are not alone in our concern. An anonymous reviewer of a recent paper we also reviewed commented, "I also want to convey a general observation pertaining to the 'assimilation/contrast' area as a whole. My impression is that the effects are generally very unstable. Virtually identical procedures seem to lead to assimilation in one lab and to contrast in another." This reviewer

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went on at length and concluded that we have "scientific progress that is very modest, and often even simply illusory. What this area needs is more thinking and theorizing and less experimenting." We do not agree that the effects are generally unstable or that there is too much experimentation. We think that the problem is that there are too many definitions of what counts as assimilation, combined with many different outcome measures based on these multiple definitions. In this paper, we will define assimilation, provide some history of the development of the concept, point to current inconsistencies, and suggest ways to reduce the confusion. We will draw freely from two excellent papers by Collins (1996, 2000), who was the first to review the concept systematically. We will not deal, except in passing, with process; this is not the place to look for an evaluation of theories. Until theorists can agree on what it is they are theorizing about, it is probably premature to make judgments about process. We will not deal with downward assimilation, because there is no convincing evidence that it occurs.<sup>1</sup> We will deal only with upward assimilation, defined as follows:

*Upward assimilation in social comparison is an increase in the comparer's self-evaluation on a dimension as a result of comparing with someone better on that dimension.*

Collins (1996) argued that upward comparison could lead to either contrast or assimilation, depending upon whether the comparison is construed as indicating similarity to, or difference from, the comparison person. Which conclusion one draws depends, at least in part, upon expectations. Drawing upon the work of Manis (Manis, Biernat, & Nelson, 1991; Manis & Paskewitz, 1984), Collins noted that assimilation and contrast processes occur simultaneously in social judgments: "... people may expect some similarity to any comparison target who is within their own range of ability, leading to some amount of assimilation in all or most comparison judgments. In many cases, contrast processes overwhelm assimilation processes. However, whenever situational or dispositional factors (e.g., direction of comparison, self-esteem, and shared distinctiveness) strengthen

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1 The uni-directional drive upward (Festinger, 1954) would lead to upward assimilation but not to downward assimilation. Although Buunk, Collins, Taylor, VanYperen, and Dakof (1990) found that participants sometimes felt worse after downward comparisons, this was probably due to fears of becoming like the target rather than beliefs that one was already similar to the target (Collins, 1996).

the expectation of similarity, assimilation may have the stronger effect, "(Collins, 1996, p 62) The inclusion of "direction of comparison" as one of the factors influencing the expectation of similarity refers to Collins' belief that we will assume upward similarity more readily than downward similarity. Collins concludes her 1996 paper by saying that her goal has not been to show that upward assimilation is more common than contrast but rather that it is not atypical. Determination of the relative frequency of assimilation *vs* contrast must wait upon the recording of typical experience, as with the social comparison record (Wheeler & Miyake, 1992) However, such studies must have, as Wheeler and Miyake unfortunately did not have, some determination of the objective status of comparison targets. Otherwise, what people label as lateral comparison may actually be upward assimilation. The only such research we are aware of is Nosanchuk and Erickson's (1985) study of bridge players, which showed that bridge players claimed to compare with other players of similar ability, but these other players turned out to be objectively superior according to lifetime playing records. The comparers had construed the difference between their ability and their comparison targets as being less than it really was

## How Can We Measure Assimilation?

Let us start with a situation in which assimilation might occur. George takes an IQ test and scores 120. George learns that Albert has taken the same test and scored 140. We ask George to describe his feelings to us, and we get the following possible responses:

1. I am very happy and feel good about myself
2. I am not very happy.

Which, if either, of these responses might indicate upward assimilation? The answer is that either response might indicate assimilation, but we cannot be sure without additional information. If the first statement, "I am very happy and feel good about myself" were followed by the statement "to have such an intelligent friend as Albert," it would not be assimilation but rather reflection (Tesser, 1988) or basking in reflected glory (Cialdini, Borden, Thorne, Walker, Freeman, & Sloan, 1976). It would not

be assimilation because assimilation requires a self-evaluative movement toward the comparison target on the comparison dimension, and having an intelligent friend does not necessarily make one feel more intelligent. Marilyn Monroe and Arthur Miller come to mind. Marilyn Monroe perhaps felt proud to be loved by such an intellectual as Arthur Miller, and Miller perhaps felt proud to be loved by such a beautiful woman as Monroe, but Miller probably did not feel more beautiful; nor Monroe, smarter.

Tesser (1988) is cited incorrectly so frequently as a proponent of assimilation that we must take the time here to restore his position. There are two competing processes in his self-evaluation maintenance model (SEM): Reflection and Comparison. The first of the three interdependent variables is Performance. To the extent that Performance of the other is high, one achieves a higher self-esteem or positive affect through reflection (basking in reflected glory), and one suffers a lower self-evaluation through comparison. Closeness to the other person (unit relatedness; Heider, 1958) increases both reflection and comparison. Whether one reflects or compares depends upon the Relevance of the dimension. The greater the relevance, the stronger is the tendency to compare rather than to reflect. A dimension is relevant if it is important to the individual's self-definition. In the 1988 paper, Tesser showed how individuals may try to change performance, closeness, or relevance in order to maintain a positive self-evaluation.

Assimilation does not exist in Tesser's model. The comparison process always leads to contrast. The reflection process leads to positive affect but not to increased self-evaluation on the comparison dimension. Reflection occurs when one gives up any claim to distinction on the comparison dimension and basks in the reflected glory of a psychologically/emotionally close other who is clearly superior on the comparison dimension.

Returning to the George and Albert example, if the first statement, "I am happy and feel good about myself" were followed by the statement, "to be in that group with Albert of intellectually brilliant people," it would indicate assimilation. George has construed the difference in IQ as small and has then made himself a member of Albert's intellectual class, those with an IQ of 120-140. But what of the second statement, "I am not very

happy?" This could be followed by, "that Albert has 20 IQ points on me, but we are still in the same intellectual ballpark " George was perhaps expecting less of an IQ difference than he observed, and so he is disappointed, but he is nevertheless assimilating and putting his IQ of 120 into the same category as Albert's 140. The point we are trying to make is that research cannot demonstrate assimilation using mood or state self-esteem as the dependent variable. We must know how the participants judge themselves on the comparison dimension itself.

## Research: An early clue

Although assimilation is usually demonstrated as a response to social comparison, the earliest hint of assimilation, as noted by Collins (1996), was shown in research on target selection. Wheeler (1966), using the rank-order paradigm, found that manipulated higher motivation increased the likelihood of upward comparison. More importantly for the present argument, 75% of the participants who made an upward comparison felt they were more similar to the person above them in the rank order than to the person below them. Only 36 % of the participants who compared downward felt more similar to the person above them. Wheeler (1966) argued that, "When an individual is highly motivated, he assumes similarity with someone who appears to be slightly superior in the ability in question. By comparing his ability with that of the slightly superior individual, the comparer is attempting to confirm the similarity he has assumed. The comparer is attempting to prove to himself that he is almost as good as the very good ones (p. 30)." This result got lost among other questions raised by the rank-order paradigm, and when Gruder (1977) summarized this research stream, very little additional information about assimilation was available. Wheeler (1966) used the term "assumed similarity" rather than "assimilation," but the two terms refer to the same general phenomenon, differing in that assumed similarity occurs before a comparison, and assimilation is the result of a comparison. Mussweiler and Strack (2000a) have also given assumed similarity a central role in their selective accessibility model of assimilation and contrast, arguing that anything that increases assumed similarity is likely to increase assimilation.

## Recent Research, 1990's

After many years of most people assuming that upward comparison lowered our self-evaluations and reduced positive mood (for review see Suls, Martin, & Wheeler, 2002), Buunk, Collins, Taylor, VanYperen, and Dakof (1990) found that respondents claimed to have made upward comparisons that made them feel inspired or comforted (cancer patients), or happy or pleased (married people). Important as this research was to the field in demonstrating that both upward and downward comparisons could have positive and negative effects, it did not demonstrate assimilation because of the dependent variables used. For example, feeling inspired by a cancer patient who is doing well does not necessarily make one feel that one is also doing well.

Brown, Novick, Lord, and Richards (1992) were the first to use the word "assimilation" in the social comparison literature. They found that low self-esteem females who had the same birthday as an attractive comparison target female assimilated their own attractiveness ratings toward that target. If they did not have the same birthday, they contrasted their attractiveness ratings away from her. Brown *et al.* (1992) argued that this was different from Tesser's (1988) reflection process because the self-evaluation maintenance (SEM) model deals only with overtly competitive situations, and reflection occurs only when the relevance of the dimension is low for the comparer. There was no explicit competition in the Brown *et al.* procedure, and attractiveness is certainly relevant to college age females. Brown *et al.* (1992) explained their results as being due to a unit relationship (Heider, 1958) that, once established through a shared birthday, causes the characteristics of one of the entities to extend to the other entity.

Brewer and Weber (1994) found assimilation on intellectual/academic ability when a member of a minority (20 % of the population) social category was exposed to a highly capable in-group member, and when the out-group was different on the dimension. These authors also stressed that the SEM model (Tesser, 1988) could not explain their results because reflection should occur only if the comparison dimension is not relevant to

the comparer's self-esteem Intellectual/academic ability was certainly relevant to the college student participants in this study. It is important that both Brown *et al* (1992) and Brewer and Weber (1994) made the point that SEM (Tesser, 1988) could not account for their results because the dimension was quite relevant to their participants. These researchers were aware that they were onto something new. Very quickly, however, problems developed in the literature. Pelham and Wachsmuth (1995) defined assimilation as the tendency to overestimate similarity with comparison others. Accordingly, they assessed the degree to which participants under- or overestimated their actual similarity to their friends across the five SAQ-S attributes (eg intelligence, sociability, attractiveness). We would have called this "projection" rather than "assimilation." The Pelham and Wachsmuth (1995) model makes this even clearer with such predictions as: If self-certainty is high, and one feels close to the interaction partner, then one will adopt a "birds of a feather" heuristic, and assimilation will result. In other words (our words), the more certain I am that I cannot carry a tune, and the closer I feel to my friend Pavarotti, the more I will assimilate and come to believe that I can sing. This obviously cannot be what they meant to convey. We think they probably meant that the more certain I am that I cannot carry a tune, and the closer I feel to my friend (whose singing ability I don't know much about), the more I will project that he cannot sing either. In short, this model is not about assimilation at all but rather about projection (and is probably a useful model concerning that phenomenon). Nevertheless, papers on assimilation in social comparison frequently cite the Pelham and Wachsmuth (1995) article, suggesting to us that researchers don't always read what they cite.

## Current research: The need for control groups

Mussweiler and Strack (2000a, 2000b; Mussweiler, 2001, 2003), in their Selective Accessibility (SA) model, argue that engaging in a comparison involves searching for information that the self is similar to the comparison target on the performance dimension. Testing this similarity hypothesis increases the accessibility of information that one actually is similar to the target. The simi-

larity hypothesis is most likely to be tested when there is reason to assume similarity with the target—as when comparers feel psychologically close to the target and when the target's status seems attainable. According to Mussweiler (2003) assimilation is most likely to occur on absolute judgments, such as the number of math problems George thinks he can solve after comparing himself to the high IQ Albert. On subjective judgments, such as “How good are you at math”, George might, in addition to assimilating his math ability to Albert's, use Albert as a standard or reference point and contrast himself, feeling that he is not very good at math. Thus, both assimilation and contrast will occur at the same time, and the resulting subjective judgment will depend upon which process is the stronger. When subjective judgments are used, it is difficult to know whether contrast occurs because of (1) dissimilarity testing, or (2) a stronger effect of reference point use than of similarity testing. Assimilation, however, is due only to similarity testing. When subjective judgments produce assimilation, we know that the effects of selective accessibility were stronger than the effects of reference point use.

Mussweiler hews closely to the definition of assimilation we proposed above, and we consider that a major virtue. However, the related research would be more useful if it included control groups. For example, Mussweiler (2001) demonstrated that “assimilation occurs if participants are procedurally primed to focus on similarities to the standard, whereas contrast results if they are primed to focus on dissimilarities,” (p. 499). A 2 (High Standard *vs* Low Standard)  $\times$  2 (Similarity Focus *vs* Dissimilarity Focus) produced a significant interaction, and the High and Low Standard differed significantly from one another under both Similarity Focus and Dissimilarity Focus (but in different directions). The Figure showing the z-scores is lovely. However, if there had been a No Standard condition, we could determine whether downward assimilation, for example, actually occurred. For that matter, we could test whether upward assimilation actually occurred. All we can conclude about assimilation from this experiment is that a High Standard produced a higher self-evaluation than did a Low Standard. It is possible that one or even both of these conditions would not differ from a No Standard condition.

One of the Selective Accessibility experiments contained the equivalent of a control group (Mussweiler, Rüter, & Epstude, 2004, Study 3). The purpose of the study was to show that subliminal comparison standards would affect self-evaluation if participants were engaged in self-reflection during the subliminal exposure but not if participants were merely thinking about the dimension during subliminal exposure. Thus, the condition in which participants were merely thinking about the dimension of aggression served as a no-comparison control group for the self-reflection condition, where the comparison effects were expected. Results showed that subliminal exposure to an aggressive target (Arnold Schwarzenegger) produced a more aggressive objective self-evaluation (perceived likelihood of various aggressive behaviors in fight with friend) when participants were self-reflecting than when they were thinking about the dimension. However, subliminal exposure to a less aggressive target (Nena, a German pop singer) did not produce a significantly less aggressive self-evaluation when participants were self-reflecting (T. Mussweiler, personal communication, January 23, 2006). In short, participants assimilated toward the more aggressive target but not toward the less aggressive target. There is an interesting issue here about whether the assimilation toward Schwarzenegger's aggressiveness is upward or downward assimilation. We normally think of aggressiveness as being a negative trait, in which case assimilation toward Schwarzenegger would be downward assimilation. However, Schwarzenegger should not be confused with Mike Tyson. Schwarzenegger's aggressiveness is shown by being a champion body builder, film star, and governor of California more than by the film roles he has played (even then, justified aggressiveness). He has bitten off no ears. We think that this level of aggressiveness is a positive trait, and that this is upward assimilation. Mussweiler *et al.* (2004) didn't call it either upward or downward; for their purposes it was sufficient to demonstrate a difference between the two standards.

## Current Research: Subjective Self-evaluation and Affect Are Not the Same

Stapel and Koomen (2000) argued that "Assimilation is more likely in situations that instigate the inclusion of social comparison information in self-definitions or self-evaluations, whereas contrast is the more probable outcome when information about another person is used as a reference point for self-judgments," (p. 1069) Becoming more specific, they argued that assimilation would occur when the social comparison information is indistinct (e.g., intelligent) and when the self is mutable. Contrast would occur when the information is distinct (e.g., Einstein). Mutability of the self was manipulated. When the dependent variable was subjective self-evaluation of intelligence (intelligent, competent, bright), results supported the hypothesis. Participants contrasted their intelligence from that of Einstein and assimilated their intelligence to the indistinct prime of intelligence when the self was mutable. When the dependent variable was mood, however, participants showed more positive mood when intelligence was primed, regardless of mutability, whereas mood was unaffected by person priming. In two additional experiments, similar mood "assimilation" was found and again did not match the results for self-evaluation assimilation. The authors argued that the positive tone of the intelligence prime created spontaneous global affective feelings that differed from the "more reflexive, self-related responses to the primed information", (p. 1075) For our purposes, this is a clear demonstration that upward assimilation on performance dimensions doesn't necessarily match affective responses.

In a test of their identification-contrast model, Buunk and Ybema (1997) argued that in the case of vivid descriptions of comparison targets, individuals will identify with the targets and feel happy or unhappy if the target has done well or poorly. However, self-evaluation on the comparison dimension will not follow such a pattern and will instead show contrast. An upward comparison will make one evaluate oneself lower than will a downward comparison. Buunk and Ybema (2003) exposed Dutch married women to a description by another married woman of her either happy or unhappy marriage. As predicted, affect was more posi-

tive following an upward (happy) comparison, but subjective evaluation of the participant's relationship was lower. As Buunk and Ybema (2003, p. 624) noted, "the present research seems to suggest that social comparison has assimilation effects upon mood, and contrast effects upon evaluation." They noted that the contrast effects for relationship evaluation were "precisely in line with what social comparison theorists would predict..." without acknowledging that other theorists discussed in the current article might well have predicted assimilation. This lapse aside, two alternative explanations of the results occur to us. First, there was no control condition, so it is possible that the upward comparison did increase feelings of marital satisfaction, but just not as much as the downward comparison did. Second, relationship evaluation was measured with two subjective scales, and perhaps the contrast or referent point process was stronger than the assimilation process (see above the description of Mussweiler & Strack's SA model). An objective scale with such items as "How many times a week do you do enjoyable things together," might have shown stronger assimilation effects. At any rate, the Buunk and Ybema (2003) paper is another demonstration that self-evaluation and affect do not necessarily respond the same to social comparison.

### Current Research: Comparison with a Person Who is No Longer There

The work of Lockwood and Kunda (1997) on superstars is often cited as evidence for upward assimilation. First- and fourth-year students were exposed to a newspaper article about an outstanding fourth-year student of matching major and gender. The student was multidimensionally outstanding, with a superb academic record, involvement in student government, sports, volunteer activities, leadership, and community involvement. In a control condition, the students were not exposed to any target. The dependent variable was self-ratings on 10 adjectives relevant to general career success. For the 4<sup>th</sup> year students, the superstar had no effect on self-ratings, but for the 1<sup>st</sup> year students, those exposed to the superstar rated themselves considerably higher. A follow-up study showed that the superstar effect occurred only

for 1<sup>st</sup> year students with a malleable theory of intelligence, suggesting that the 1<sup>st</sup> year students were looking forward to becoming as successful as the comparison target. This is related to the mutability idea later tested by Stapel and Koomen (2000).

This is interesting and important research because, by making the comparison target advanced in the time sequence, any possibility of actual competition is removed, the attainability of the reward is made apparent, and the inspirational aspect of the target is thereby distilled. It was a creative step in the history of social comparison research. However, as in the subsequent research by Stapel and Koomen (2001) using a similar paradigm, it is not clear what has happened. Has assimilation occurred (i.e., my traits and abilities are currently high and similar to the target's), or has optimism blossomed about the possibility of having similar traits and abilities in the future, or has mood been raised by hearing of the success of another person who is not a competitor?

Stapel and Koomen (2001) conducted similar research to investigate assimilation and contrast as a function of self-construal. The comparison target, a recently graduated psychology student, was described as outstanding in many different activities, or as a loser who had dropped out of university. Self-evaluation was measured with 15 adjectives (attractive, kind, happy, bright, friendly, ambitious, frustrated, successful, sincere, undetermined, lucky, incompetent, balanced, promising, tense). Downward contrast effects (but not upward contrast effects) were obtained when personal self-construal ("I") was made accessible, and upward assimilation effects (but not downward assimilation effects) were obtained when social self-construal ("We") was made accessible. These results were predicted because personal self-construal should lead to contrast, but only when contrast is self-enhancing, and social self-construal should lead to assimilation, but only when assimilation is self-enhancing.

Collins (2000) argued that Lockwood and Kunda (1997) had not demonstrated upward assimilation because their participants were responding to "... what might be in the future, not because of their current standing on the comparison dimension. In contrast, upward assimilation theory hypothesizes a basic perceptual bias that influences self-evaluations, regardless of

expected future status," (pp 162-163) Collins' remark would apply equally to the Stapel and Koomen (2001) research. We tend to disagree with Collins on this one point and think that participants probably see themselves as currently having the attributes of the successful proxy (see also Martin, 2000) However, we'd like to see stronger evidence for our belief

## Naturalistic Forced Comparison

Marsh, Kong, and Hau (2000) looked at assimilation in the context of the big-fish-little-pond effect (BFLPE) in Hong Kong. The BFLPE refers to a lowering of academic self-concept because of attending a high ability school relative to attending a lower ability school, and is presumably due to forced contrastive upward comparisons (although there is no direct evidence for this). Marsh *et al* reasoned that there should be a simultaneous assimilation effect caused by exposure to the highly capable students. Each student indicated his perceived academic status of his school, and as predicted, this perceived status positively predicted academic self-concept. However, objective school-average ability negatively predicted academic self-concept (the BFLPE). The latter contrast effect was stronger than the former assimilation effect, and the net effect of school-average ability on academic self-concept was negative.

This research is relevant to the current paper because the authors equate assimilation and reflected glory. They are not alone in doing this (as noted earlier), but they are the most vocal in justifying it—arguing that assimilation and contrast are purely descriptive terms from psychophysics work indicating a judgment shifting toward or away from the background or context of the judgment. According to Marsh *et al* (2000), "These terms [assimilation and contrast] are purely descriptive, but more 'meaningful' terms are sometimes used: *reflected glory*, *labeling*, and *identification* for assimilation; *negative social comparison* or negative BFLPE for contrast," (p 337).

It is true that assimilation and contrast were once purely descriptive terms from psychophysics (see Suls & Wheeler, 2007), but the terms have moved well beyond that in social psychology. We are now concerned with the different processes that lead to judg-

ments shifting toward the context. In this paper we have stressed the clear difference in social comparison research between assimilation and reflection, both of which show a kind of movement toward the context but which have totally different implications for the person. It is scientifically unproductive to lump terms together when these terms have come to mean different things. It is more useful for us to be able to say that Marsh *et al.* (2000) demonstrated assimilation (about which we have considerable theoretical knowledge) than to say that they demonstrated movement toward the context of the judgment for no specified reason (assimilation or reflected glory or reflection or labeling or identification).

### Assimilation at the Behavioral Level

Another variation on the assimilation theme was shown in research by Blanton, Buunk, Gibbons, and Kuyper (1999) and by Huguet, Dumas, Monteil, and Genestoux (2001). To the extent that secondary school students compared upward (with students who had objectively better grades), they subsequently made better grades themselves, with prior grades controlled. Although this is not assimilation by our self-evaluation definition, it is behavioral assimilation. Rather than displacing their self-evaluations in the direction of the comparison target, these students displaced their grades in the direction of the comparison target. The authors of these papers argued that upward comparison improves grades by giving information about how to improve or by increasing motivation to improve. It could also be that a third variable, such as need for achievement, influences both grades and comparison choice independently. Various moderator variables in the Huguet *et al.* (2001) study failed to help us understand the results.

A different demonstration of behavioral assimilation comes from the social cognition research on priming. As background, subliminal priming with a stereotype leads to behavior in line with the activated constructs (Bargh & Ferguson, 2000). For example, priming undergraduates with the elderly stereotype causes them to walk more slowly (Bargh, Chen & Burrows, 1996). The social cognition thesis is that priming increases the accessibility of

stereotypic knowledge and activates corresponding action tendencies because they follow the same laws as semantic concepts and become activated in a similar fashion (Carver, Ganellen, Froming, & Chambers, 1983)

Most relevant to this paper, Dijksterhuis and van Knippenberg (1998) wanted to demonstrate that behavioral assimilation is not restricted to relatively simple actions. In their experiments, they found that priming the stereotype of professor (*vs* secretary or no prime) led to more correct answers on a knowledge test. Dijksterhuis and van Knippenberg did not assume that priming activated specific kinds of knowledge or magically made the participants more knowledgeable; rather the professor stereotype activated related actions such as “concentration” and “thinking systematically about possible solutions” (p. 874), thereby presumably improving performance. The researchers made clear, however, that direct evidence for the mechanisms responsible for these complex behavioral assimilation effects is needed. For example, it was not merely due to those primed with the professor stereotype taking more time with each item because the effect occurred even when all participants received the same pacing.<sup>2</sup> It is not clear whether the behavioral assimilation reported by Dijksterhuis and van Knippenberg (1998) is different from the kind described by Blanton *et al* (2001) and Huguet *et al* (2001). In both cases, intellectual performance was improved as a result of exposure to someone of superior intellectual performance, but there are vast differences between the two procedures.

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2 In addition, some studies have reported evidence for behavioral contrast when distinctive comparison targets (as opposed to vague stereotypes) are provided. For example, Dijksterhuis, Spears, Postmes, Stapel, Koomen, van Knippenberg, and Scheepers (1998) primed exemplars of “intelligence” or “unintelligence” (Einstein and Claudia Schiffer, a well-known supermodel) and found better or worse intellectual performance, respectively. Stapel and Suls (2004, Study 3) found something similar. But, in both studies, there was no control group, and so we do not know where the action was. Also, behavioral contrast—requiring both elicitation of the opposing stereotype and its corresponding action tendencies—seems like an even more complex process than behavioral assimilation.

## The Point

The basic problem in the literature is that upward assimilation has come to refer to any kind of positive change following an upward comparison. This can be a change in mood, self-evaluation on a particular dimension, self-esteem, optimism, increased motivation, or behavior. Because these dependent variables do not all operate the same way, there is no consistency in the results of research or in the theories explaining the results.

## Recommendations

1. Researchers should make clear distinctions among (single) attribute assimilation, global evaluative assimilation, mood changes, and behavioral assimilation. Perhaps these descriptions should be in the title or abstract so that we have an early warning about the dependent variables of the research. And we should be warned if the comparison target is older or more experienced as opposed to being a current peer.
2. Researchers should recognize that Tesser's reflection (or Cialdini's BIRGing) is something different from assimilation; treating them as the same creates confusion.
3. Control conditions of some sort should be used so that we can know whether the upward target or downward target is attracting or repelling or both are acting. This is a particular problem for downward assimilation for which the evidence is so very limited that we did not discuss it at any length. Only a handful of studies have employed these controls in experiments containing downward targets (Mussweiler, Rüter, & Epstude, 2004, Study 3; Stapel & Koomen, 2000, 2005; Stapel & Schwinghammer, 2004; Stapel & Suls, 2004); the results typically are non-significant for downward comparison. It is tempting to conclude from the available evidence that Collins (1996, 2000) was correct that people think they are good and assume similarity upward, not downward.
4. Reliance on subjective judgments only (How athletic are you?) must end. Mussweiler (2003) has provided convincing theoretical justification for using objective measures (How many push ups can you do in a minute?) in addition to subjective measures.

Advancing our understanding of these questions seems to require more careful definitions and distinctions. Scientists, however, are just as prone as everyone else to sometimes lump disparate things together because science, among other things, involves the passionate pursuit of commonalities and connections. And an attribute of scientists is that they are all fallible. Even Einstein (reputedly) said, "I'm no Einstein," presumably meaning, "I am not this mystical creature you created but a limited and fallible person." We should be comforted that even for Einstein there was room for upward assimilation.

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