

# Social Comparison: Motives, Standards, and Mechanisms

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Social comparisons – comparisons between the self and others – are a fundamental psychological mechanism influencing people’s judgments, experiences, and behavior. People constantly engage in social comparisons. Whenever they are confronted with information about how others are, what others can and cannot do, or what others have achieved and have failed to achieve, they relate this information to themselves (Dunning & Hayes, 1996). Likewise, whenever they want to know how they themselves are or what they themselves can and cannot do, they do so by comparing their own characteristics, fortunes, and weaknesses to those of others (Festinger, 1954). Social comparisons are even engaged with others who are unlikely to yield relevant information concerning the self (Gilbert, Giesler, & Morris, 1995), or who – phenomenologically – are not even there, because they were perceived outside of conscious awareness (Mussweiler, Rüter, & Epstude, 2004a; Stapel & Blanton, 2004).

Because comparisons with others are such a fundamental, ubiquitous, and robust human proclivity, it may not be surprising that for over fifty years social comparison has been a highly studied topic in social psychological research. This research was guided by three central questions: Why do people engage in social comparisons? To whom do they compare themselves? How do social comparisons influence the self? Before presenting research attempting to answer these three questions, we want to acknowledge briefly the theory of social comparison processes by Festinger (1954) as one major point of departure for the field.

## Festinger’s Social Comparison Theory

Festinger’s social comparison theory is a successor of his theory of informal social communication (1950). As a student of Kurt Lewin, who in his field theory (1951) theorized about forces of the environment (including the situation and other people) on the individual,

**Table 5.1** Hypotheses of the theory of social comparison processes.

No.	<i>Hypothesis</i>
I	There exists, in the human organism, a drive to evaluate his opinions and his abilities.
II	To the extent that objective, nonsocial means are not available, people evaluate their opinions and abilities by comparison respectively with the opinions and abilities of others.
III	The tendency to compare oneself with some other specific person decreases as the difference between his opinion or ability and one's own increases.
IV	There is a unidirectional drive upward in the case of abilities which is largely absent in opinions.
V	There are nonsocial restraints which make it difficult or even impossible to change one's ability. These nonsocial restraints are largely absent for opinions.
VI	The cessation of comparison with others is accompanied by hostility or derogation to the extent that continued comparison with those persons implies unpleasant consequences.
VII	Any factors which increase the importance of some particular group as a comparison group for some particular opinion or ability will increase the pressure toward uniformity concerning that ability or opinion within that group.
VIII	If persons who are very divergent from one's own opinion or ability are perceived as different from oneself on attributes consistent with the divergence, the tendency to narrow the range of comparability becomes stronger.
IX	When there is a range of opinion or ability in a group, the relative strength of the three manifestations of pressures toward uniformity will be different for those who are close to the mode of the group than those who are distant from the mode. Specifically, those close to the mode of the group will have stronger tendencies to change the positions of others, relatively weaker tendencies to narrow the range of comparison, and much weaker tendencies to change their position compared to those who are distant from the mode of the group.

From "A theory of social comparison processes," by L. Festinger, 1954, *Human Relations*, 7, 117–140.

Festinger set out to answer questions such as why do people talk, to whom do they talk, and what is the result of their talking (Wheeler, 1970). He hypothesized that communication primarily serves to reach agreement in the group and that this pressure toward uniformity of opinion is based on two reasons: first, the need for group locomotion makes it necessary that all of the group members hold similar opinions and, second, there exists a need to agree on a social reality, because this would validate the accuracy of one's individual opinions and preferences (Festinger, 1950). Thus, in his theory of informal social communication, Festinger stressed the importance of others in the formation of one's opinions. In the theory of social comparison processes, he added the realm of abilities and emphasized how individuals use others to fulfill their own need to gain knowledge about themselves.

Festinger (1954) based his theory on nine hypotheses (Table 5.1) and specified it with eight corollaries and eight deviations. Even though the theory emerged out of Festinger's interest in the development of opinions and some of the hypotheses (Hypotheses IV and V) specify expected differences between the influence on opinions versus abilities, most of the research that is based on this theory has concentrated on comparisons of abilities (e.g., Wheeler, 1966), emotions (e.g., Wrightsman, 1960), or personality traits (e.g., Hackmiller, 1966), and very little on comparisons of opinions. This shift might have occurred because Festinger himself did not linger for long with his theory of social comparison processes but quickly moved on to formulate the theory of cognitive dissonance (1957).

Notwithstanding, his theory inspired the research on social comparison and already his hypotheses offer some answers to the three central questions that guided this research.

Hypotheses I and II speak to why people engage in social comparisons. Festinger points out that “the holding of incorrect opinions and/or inaccurate appraisals of one’s abilities can be punishing or even fatal in many situations” (Festinger, 1954, p. 117). Thus, the need to know the self combined with the impossibility to determine opinions or abilities by reference to the physical world in many situations motivates people to compare themselves to other people.

Hypotheses III, IV, and VIII summarize Festinger’s understanding of with whom people will compare. In essence, he postulates that people will seek out similar others for comparisons, or, in the case of abilities, others who are slightly better. He argues that comparisons with people whose opinion or ability are too divergent does not provide much useful information for assessing the accuracy of one own opinion or ability – mostly because the result of such a comparison is known beforehand.

Finally, Hypotheses V, VI, VII, and IX point out some consequences of social comparisons to the self. Comparisons might cause a change in one’s opinion or ability, and most likely this change goes in the direction of uniformity (i.e., assimilation). The amount of change greatly depends on the importance, relevance, and attraction to the comparison group, and the inability to reach uniformity is perceived as unpleasant.

In the following we will turn to each of these questions individually and thereby outline how Festinger’s initial ideas were, over the decades, expanded or sometimes questioned.

## Why Do People Engage in Social Comparisons?

The classic answer to why people compare themselves to others is based on motivational considerations. In Festinger’s (1954) original theory of social comparisons, he stresses the desire of people to know themselves. As outlined above, Festinger postulates that people have a basic need to maintain a stable and accurate self-view. Therefore they seek informative feedback about their characteristics and abilities. From Festinger’s point of view, people mainly rely on objective standards for such evaluations. However, objective standards are not always available, or comparisons with them are hard to achieve. In this case, people may fall back on social comparisons with others. Later research questions this preference for objective standards. Instead, people appear to compare with others even if objective standards are present (Klein, 1997). In any case, one of the main motives for social comparisons seems to be the need for accurate self-evaluations (for an overview, see Taylor, Wayment & Carrillo, 1996).

However, sometimes people do not seek accurate feedback about themselves, but try to create and maintain a positive self-image. To this end, people might also purposefully engage in comparisons with others. Especially downward comparisons – comparison with others one outperforms – can serve this goal (Wills, 1981). Even failures might suddenly appear to be successes in comparisons with other who performed even worse than oneself.

A third need eventually fulfilled by social comparison is the need to self-improve (Taylor & Lobel, 1989). To gain information and hints on how to advance, people seek comparisons particularly with upward standards – others who are better than themselves.

Thus, social comparisons are typically portrayed as strategic processes, which are executed to satisfy certain motives or goals (Taylor et al., 1996). Specifically, social comparison is mostly understood as a process which is engaged to fulfill fundamental needs such as self-evaluation, self-enhancement, and self-improvement (Kruglanski & Mayseless, 1990; Suls, Martin, & Wheeler, 2002; Wood & Taylor, 1991). However, not all social comparisons appear to be such a deliberate and strategic process. Quite the contrary, they are often conducted spontaneously and without intention (e.g., Mussweiler et al., 2004a). In this case, they might not be strategic means to fulfill a certain goal. The existence of such spontaneous comparisons suggests that there have to be additional reasons why people compare with others.

One of these additional reasons arises from logical and conversational considerations. Information about characteristics, abilities, and performances often concerns attributes and dimensions that are defined in a relative manner. To say somebody is athletic, intelligent, or attractive implies that this person is more athletic, more intelligent, and more attractive than others (Huttenlocher & Higgins, 1971). Therefore it is necessary to compare the target with relevant standards to interpret incoming information correctly and to communicate outgoing information successfully. If, for example, one hears the simple statement “Tom is tall,” one would estimate his body height differently if Tom were a toddler rather than a basketball player. In absolute numbers, the tall toddler is most likely much smaller than the tall athlete. Research in social psychology has repeatedly demonstrated that people usually consider their communication partners’ norms and standards while processing or exchanging social information (Schwarz, 1994; Schwarz, Bless, Bohner, Harlacher, & Kellenbenz, 1991).

A rather new answer to the question of why people engage in social comparisons is offered by a social cognitive perspective on social comparison. Here, the basic social cognition principle of cognitive efficiency is applied to the realm of social comparison research. People as cognitive misers (Taylor, 1981) have to be efficient in the use of their scarce cognitive resources, and efficiency in comparison processes may well be the reason why comparisons are so frequently engaged in the first place.

Mussweiler and Epstude (2009) have suggested that comparisons in general are so ubiquitous because they allow us to process information in a more efficient manner than more absolute modes of information processing. This may be the case, because comparisons in general, as well as social comparisons in specific, limit the range of information that has to be considered to evaluate or judge a given object. Assume, for example, that you were to evaluate your athletic abilities. To do so in an absolute manner, i.e., with little use of comparisons, you would have to consider all the different aspects of athletic ability and retrieve all the information you have available about these aspects. In principle, you would have to consider all the information that may say something about your athletic abilities, such as your success on the soccer field, the weights you lift in the gym, your performance in sports during high school, whether you are out of breath running to catch a bus, etc. Clearly, considering all this information has the potential to become an endless task. In marked contrast, evaluating your athletic abilities in a comparative manner, for example by comparing yourself with your best friend Tom, seems considerably easier. Instead of considering all the information that has some implication concerning your athletic abilities, you would merely have to consider the particular information that is relevant for the comparison with Tom.

If Tom does not play soccer at all, for example, your abilities as a soccer player have no relevance for the comparison and thus do not have to be considered.

To demonstrate the efficiency advantage of comparative information processing in general, Mussweiler and Epstude (2009) primed participants to process information in either a more comparative or a more absolute manner. To do so, participants were given a pair of pictures and were asked either to compare or to describe them before they received the critical judgment task. Participants who compared the two pictures were likely to rely more heavily on comparisons in the subsequent critical judgment task than participants who described the two pictures. In this critical judgment task, participants were asked to judge a fictitious city on several dimensions (e.g., number of inhabitants, number of students). The results indicate that comparative processing is indeed more efficient. Participants who were induced to make these judgments in a more comparative manner were faster in making the critical judgments and had more resources available for the processing of a secondary task (e.g. Macrae, Milne, & Bodenhausen, 1994). This indicates that comparative information processing does indeed hold valuable efficiency advantages. Furthermore, in another study, Mussweiler and Epstude (2009) found evidence that this efficiency advantage partially emerged because participants rely on less information while judging in a comparative manner.

In much the same way, social comparison is also likely to involve a focus on a small subset of all the information that is potentially relevant for a given self-evaluation. Thus, social comparison may be an efficient way of self-evaluation, because the less information people have to consider, the faster they come to a conclusion, as demonstrated, for example, in research on the use of categorical thinking (Macrae & Bodenhausen, 2000) and heuristics (Tversky & Kahneman, 1974). Determining who we are, what we can and cannot do may require less processing capacity if we do so in comparison to others. That might also be a reason why comparisons with others play such a central role in our mental lives.

Taken together, several reasons appear to exist why people compare themselves to others. On the one hand, people might want to fulfill certain goals or satisfy certain needs such as self-evaluation, self-enhancement, and self-improvement via social comparisons (Festinger, 1954; Taylor & Lobel, 1989; Taylor et al., 1996; Wills, 1981). On the other hand, social comparisons or the reference to comparison standards might be necessary to communicate successfully with others (Huttenlocher & Higgins, 1997; Schwarz, 1994). Finally, social comparisons might be an efficient cognitive tool to gain self-knowledge without binding to many cognitive resources (Mussweiler & Epstude, 2009).

## **To Whom Do People Compare Themselves?**

There are an infinite number of potential comparison standards for each social comparison. To evaluate your athletic abilities, for example, you could compare yourself to your spouse, your brother, your little daughter, the basketball player Michel Jordan, the Pope, or any other real or imagined person you know personally or through the media. People face such a great selection of potential standards that the question is whom to select.

The classical answer to this question again emphasizes motivational aspects. Based on his assumption that social comparisons were primarily conducted to gain accurate

self-knowledge, Festinger (1954) hypothesized that people select comparison standards that are similar to themselves on the critical dimension. The selection of a similar other is important, because only comparisons with similar standards provide diagnostic information for the self-evaluation (Festinger, 1954). If people compared themselves with dissimilar others, the result of this comparison would remain ambiguous. For example, if you are detected to be more athletic than a very unathletic person such a result says little about your athletic ability. Thus, a comparison with a dissimilar standard offers little helpful information for an accurate self-evaluation.

Later research on the similarity hypothesis indicates that it is not so much similarity on the critical dimension (Wheeler, 1966), but rather similarity on related attributes, that is decisive for the diagnosticity of comparison information (Goethals & Darley, 1977). Related attributes are closely associated with the critical dimension and partially determine the performance on the critical dimension. Therefore, diagnostic standards have to be similar on such attributes, because otherwise performance differences may be attributed to the differences on the related attributes rather than to differences in the ability on the critical dimension. If you, for example, compare yourself to a much older person and outperform this person in an athletic competition, this does not necessarily speak for your excellent athletic ability, because the age difference readily explains the performance difference. However, if your competitor is the same age as yourself, your victory clearly indicates your superior athletic ability. Much empirical evidence supports the hypothesis that similarity on the critical dimension (Gruder, 1971; Wheeler, 1966) as well as on related attributes (Miller, 1982, 1984; Suls, Gaes, & Gastorf, 1979; Suls, Gastorf, & Lawhon, 1978; Wheeler, Koestner, & Driver, 1982; Zanna, Goethals, & Hill, 1975) is an important factor in the standard selection process. Thus, the need for accurate self-evaluation leads predominantly to the selection of similar standards.

Self-enhancement – the need to maintain a positive self-view – on the other hand might lead to the selection of inferior standards. Wills (1981) postulates in his theory of downward comparisons that people seek such standards to boost their self-view with a favorable comparison. Not only social comparisons with other people, but also temporal comparisons with oneself in the past could serve such a purpose (Hanko, Crusius, & Mussweiler, 2010; Wilson & Ross, 2000). Because downward comparisons have the potential to protect or enhance one's self-view, people with a threatened self-view will be especially prone to engage in them (Wills, 1981). For example, women whose self had been threatened by recent breast cancer compared themselves primarily with other patients whose condition was more critical (Wood, Taylor, & Lichtman, 1985).

The need to self-improve, finally, is most likely fulfilled by comparisons with upward standards. Upward comparisons can motivate people and can provide information on how to make progress (Bandura, 1986, 1997). People who are slightly better than oneself, especially, are selected as comparison standard for this purpose. Those upward standards could serve as models and might, for example, improve performance through increased perceived self-efficacy (e.g., Lirgg & Feltz, 1991; Maddux, 1995). However, only if the self is perceived as mutable (Stapel & Koomen, 2000) and the standard as attainable (Lockwood & Kunda, 1997) are people motivated by such comparisons. Interestingly, even unattainable or threatening upward comparisons might motivate and improve

performance, but only if the performance emerges in a different domain than the comparison (Johnson & Stapel, 2007a, 2007b).

Even though people might seek social comparisons with superior others to improve, upward comparisons could also be threatening to the self. In the same way in which downward comparisons might maintain or enhance one's positive self-view, upward comparisons might question this image (Tesser, 1988). To reduce the negative effect of comparisons with superior others, people could react defensively. People might, for example, undermine or dispute the relevance of the standard (Mussweiler, Gabriel & Bodenhausen, 2000; Stapel & Johnson, 2007; Stapel & Schwinghammer, 2004) or derogate the superior standard (Parks-Stamm, Heilman, & Hearn, 2008).

Thus, to be able to satisfy varying motives, social comparisons have to be carefully crafted. Lateral comparisons serve self-evaluation, downward comparisons serve self-enhancement, and upward comparisons serve self-improvement. Even though many other factors can in addition influence the standard selection process (Taylor et al., 1996), these preferences could be understood as a simplified rule. Since different standards are required for self-enhancement, self-evaluation, or self-improvement, comparers can only guarantee that the comparison will lead to the desired outcome by strategically selecting an appropriate comparison standard (Kruglanski & Mayseless, 1990; Suls et al., 2002; Wood & Taylor, 1991). However, trying to select the most suitable standard will bring with it a high price.

Take as an example a standard selection process based on similarity on the critical dimension itself (Festinger, 1954) or on attributes that are related to this dimension (Goethals & Darley, 1977) (for a discussion of the limitations of both notions, see Miller & Prentice, 1996). This normative perspective on standard selection is supported by considerable empirical evidence (e.g., Gruder, 1971; Suls et al., 1978; Wheeler, 1966; Zanna et al., 1975). At the same time, however, the efficiency of these arduous processes and thus their practicability is typically not taken into account. Finding a standard which is similar on the critical dimension or on related attributes is an elaborate process in which different dimensions, different potential standards, and different criteria have to be considered (Festinger, 1954; Gorthals & Darley, 1977; Wood & Taylor, 1991). Often, there seem to be too many choices and too little time. In principle, people may satisfy their different motives via arduous standard selection processes, but often they may lack the extensive processing capacities these processes require. Therefore, the pressure to be efficient is another factor influencing the choice of comparison standard (Mussweiler & Rüter, 2003).

One of the main tools applied to simplify complex decisions and consequently to make them more efficient is the application of routines (e.g., Aarts & Dijksterhuis, 2000; Betsch, Haberstroh, Glöckner, Haar, & Fiedler, 2001; Verplanken, Aarts, van Knippenberg, & van Knippenberg, 1994; for an overview, see Verplanken & Aarts, 1999). Applying the concepts of routines to social comparison may provide a more efficient alternative to such a strategic standard selection process. Instead of engaging in the arduous and often impossible task of finding the most diagnostic standard, one may simply compare with those standards that one routinely uses for comparison. The development of such a routine would then depend on the frequency of prior use of the routine standard. The more often a particular standard has been used, the more strongly it would be associated with the self-evaluation task and the more likely one would be to engage in further comparisons with this standard. In this

respect, routine standards enable people to skip a standard selection process altogether and still engage in comparative self-evaluation.

To investigate the use of routine standards in social comparison, Mussweiler and Rüter (2003) conducted a series of studies demonstrating a preference either for naturally occurring routine standards (e.g., the best friend) or for experimentally created routine standards (based on frequent previous comparisons) during self-evaluations. In one study they showed that subsequent to a series of self-evaluative judgments (compared to a series of evaluations of another person), participants were faster at recognizing the name of their best friend (i.e., the routine standard) than the name of an ex-friend (i.e., the control standard) in a lexical decision task. Because these response latencies indicate the accessibility of the people identified with the names, these data confirmed the hypothesis that people activate their best friends as a natural routine standard during self-evaluations. In another study they also found evidence that the routine standard is indeed preferred to a strategically more suitable standard. In this case, participants evaluated themselves on a dimension on which they perceived their best friend as very dissimilar to themselves (which indicates the standard's low diagnosticity for self-evaluation). However, participants were still faster in judging their dissimilar best friend than in judging their similar acquaintance on the dimension on which they had previously evaluated themselves. This suggests that participants had activated information about the best friend's standing on the judgmental dimension during self-evaluation. Thus, people seem to use the routine standard even though this person is not an adequate standard from a strategic point of view. These findings indicate that our participants skipped the elaborate standard selection process altogether and instead fell back on a standard with which they were used to comparing themselves (Mussweiler & Rüter, 2003; Rüter & Mussweiler, 2005).

Skipping an elaborate standard selection process, however, is just one efficiency advantage of routine standards – the advantages may go even further. Given that a routine standard is created by repeatedly comparing with the same standard, this comparison is also highly practiced. Thus, the comparison process itself may profit from the use of routine standards and become more efficient. In another series of studies Corcoran and Mussweiler (2009) showed that comparisons between the self and a routine standard (e.g., the best friend) are conducted faster than comparisons between the self and other standards (e.g., ex-friends). Furthermore, this result could be replicated for routine standards established in the experiment by repeated comparisons with the self. The mere practice of repeatedly comparing a person with the self facilitates further comparisons with the same standard even if the control standard has been used equally often in previous comparisons (but not with the self) and the subsequent comparisons take place on new, unrelated dimensions. Thus, practice effects (see also Smith, 1989; Smith, Branscombe, & Bormann, 1988; and Smith & Lerner, 1986, for practice effects in social judgments in general) may be the second base for the efficiency of routine standards during self-evaluations.

Using routine standards in order to be efficient, however, might also come with a certain risk, especially if the routine standard is an upward standard on the comparison dimension. Tesser (1988) argues in his self-evaluation maintenance model that an upward comparison is most threatening when the superior other is "psychologically close." Because only people with whom one frequently compares oneself become routine standards, such standards are typically close to oneself, like one's best friend. Research on social comparisons within

romantic relationships, however, demonstrates that people who feel very close to their partners are positively affected by such upward comparisons through a process of relationship affirmation (Lockwood, Dolderman, Sadler, & Gerchak, 2004; Pinkus, Lockwood, Schimmack, & Fournier, 2008).

Taken together, several factors influence the selection of comparison standards. On the one hand, the same motives that might explain why people engage in social comparison also explain which standard people select. To gain accurate self-knowledge, people use similar others as comparison standards, because only people who are similar to themselves provide diagnostic information for the self-evaluation. If people rather strive to self-enhance, they do not want accurate information about themselves but rather want to maintain a positive self-image. To do so, they look out for inferior others, because in light of such downward comparisons the self appears to be positive. Finally, if the comparison serves the goal to self-improve, superior others seem to be the perfect standards, because upward comparisons might be motivating and helpful to improve. However, goals, motives, and need are not the only reasons why people compare and are not the only factors influencing the standard selection process. Another important principle is the need to be efficient with one's cognitive resources. Social comparison is an efficient way to self-evaluate, and this efficiency advantage could easily be wasted by an arduous standard selection process. However, people can circumvent such a demanding process by relying on routine standards during self-evaluations. Instead of selecting the most suitable standard, they simply compare themselves to the person they usually compare themselves to.

## How Do Social Comparisons Influence the Self?

Social comparison shapes self-evaluations in multiple and variable ways (for reviews see Blanton, 2001; Collins, 1996; Mussweiler, 2003a, 2003b; Mussweiler & Strack, 2000a; Taylor et al., 1996; Wood, 1989). Self-perception, affective reactions, motivation, and behavior are all shaped by comparisons with others. Participants, for example, evaluate their athletic ability to be lower after a comparison with the basketball player Michel Jordan than after a comparison with the Pope (Mussweiler, Rüter, & Epstude, 2004b). After comparing their performance with a superior standard, participants feel worse than after comparing it with an inferior standard (Gilbert et al., 1995). However, in another study they were more motivated and showed a better performance after an upward than after a downward comparison (Seta, 1982). The research on social comparison provides much evidence and empirical support for the numerous consequences of social comparisons on the self. Therefore it seems to be undisputable that social comparison has a great influence on the self.

Dispute, however, exists about the direction of this influence. In the original social comparison theory, Festinger (1954) predicted a pressure toward uniformity, which would result in assimilation (e.g., Lockwood & Kunda, 1997; Mussweiler & Strack, 2000b; Pelham & Wachsmuth, 1995). In this case, people evaluate themselves to be better after a comparison with a high than a low standard (Mussweiler et al., 2004b). But sometimes, social comparison leads to a contrast effect. In this case, people evaluate themselves to be worse after a comparison with a high, superior standard than a low, inferior standard (e.g., Morse & Gergen, 1970).

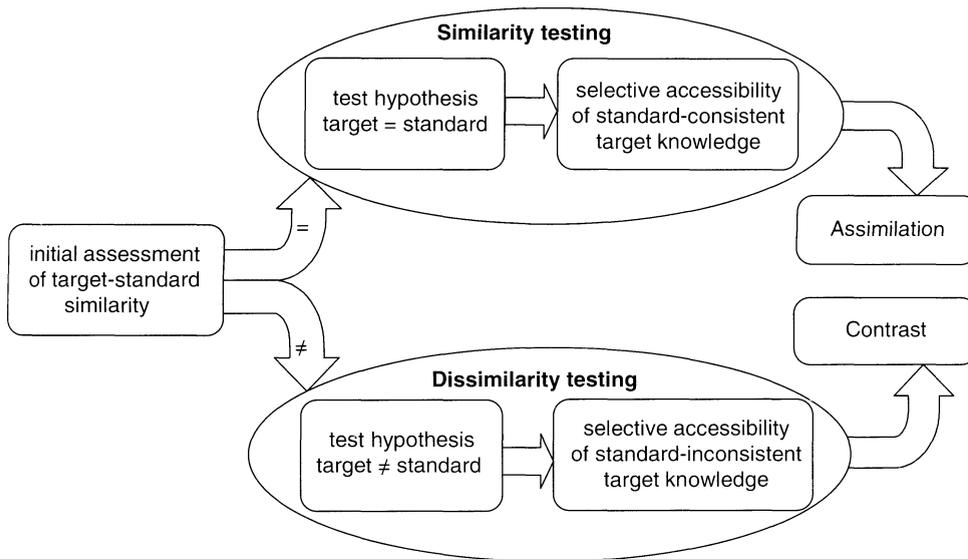
One important factor that influences whether people assimilate to or contrast away from comparison standards seems to be how they construe their self before engaging in social comparison. For example, Stapel and Koomen (2001) demonstrated that inducing a personal self-construal by priming participants with the pronouns “I” and “me” led to contrast to a successful or unsuccessful comparison standard. Inducing a social self-construal by priming participants with the pronouns “we” and “us” fostered assimilation. Further findings point to motivational causes of these effects. Comparisons after activated self-construals followed a self-enhancing pattern: a downward standard led to particularly strong positive self-evaluations (contrast) when personal self-construals had been activated. An upward standard led to particularly strong positive self-evaluations (assimilation) when social self-construals had been activated. Parallel findings have been obtained by comparing participants with primed or chronically high-independent versus interdependent selves (Gardner, Gabriel, & Hochschild, 2002; Kimmelmeier & Oyserman, 2001).

Another way in which self-construal affects assimilation and contrast in social comparison is highlighted by findings of Lockwood and Kunda (1997): participants who saw intelligence as a malleable trait assimilated to a highly intelligent comparison standard. Blanton (2001) follows up on this result in his three-selves model of social comparison. He suggests that in addition to personal and social selves the possible self also affects social comparison outcomes. The possible self is not constrained by the current characteristics of a person because it entails everything that he or she might become at some point. Hence, traits of the comparison standard can be included in the self, resulting in assimilation. To test this reasoning, Blanton and Stapel (2008, Studies 1 a, b) induced a possible-self mindset by asking participants to write an essay on the topic “Who can I become?” Consistent with the three-selves model, these participants assimilated their self-evaluations to a very intelligent or very unintelligent comparison standard.

In sum, there are convergent findings that chronic or situationally induced self-construals are an important predictor of the direction of social comparisons. Furthermore, effects of personal and social self-construals have been related to the self-enhancement motive.

However, whether social comparison results in assimilation or contrast depends on a host of additional moderators that are not necessarily tied to motivational processes such as, for example, the extremity of the standard (Herr, 1986; Herr, Sherman, & Fazio, 1983; Mussweiler et al., 2004b), the ambiguity of the self-knowledge (e.g., Herr et al., 1983; Stapel, Koomen, & van der Pligt, 1997), whether the standard belongs to the ingroup or an outgroup (e.g., Blanton, Crocker, & Miller, 2000; Mussweiler & Bodenhausen, 2002; Mussweiler et al., 2000), whether one cooperates or competes with the standard (Stapel & Koomen, 2005), the psychological closeness between the self and the standard (Lockwood & Kunda, 1997; Pelham & Wachsmuth, 1995; Tesser, Miller, & Moore, 1988), etc. Contrast is more likely if the standard is an extreme standard, if the standard belongs to an outgroup, or if the self-knowledge holds clear implications for the upcoming self-evaluation. On the other hand, social comparison may result in assimilation if the standard is a moderate standard, if the standard belongs to the same category as the self, or if the self-knowledge is ambiguous concerning the dimension on which the self-evaluation occurs (Mussweiler, 2003a).

In the perspective of the Selective Accessibility Model (Figure 5.1; Mussweiler, 2003a), these converse consequences of social comparison can be explained by the change of



**Figure 5.1** The selective accessibility mechanism.

From "Comparison processes in social judgment: Mechanisms and consequences," by T. Mussweiler, *Psychological Review*, 110, 472–489.

accessible self-knowledge. Like any judgment, post-comparison self-evaluations are based on the implications of the judgment-relevant knowledge that is accessible at the time the judgment is made (for an overview, see Higgins, 1996). Social comparisons may therefore affect self-evaluations because they influence what knowledge is rendered accessible and is consequently used as a basis for the evaluation. Thus, understanding what knowledge is sought and activated during the comparison and is consequently rendered accessible is crucial to understand their self-evaluative consequences.

To carry out a social comparison, people have to obtain specific judgment-relevant information about the self and the standard, which allows them to evaluate both persons relative to one another. To decide whether oneself or one's best friend is more athletic, for example, one has to activate knowledge about the athletic abilities of both people. This specific knowledge is best obtained by an active search for judgment-relevant information through a processes of hypothesis testing (Trope & Liberman, 1996). Such hypothesis-testing processes are often selective in that they focus on one single hypothesis which is then evaluated against a specific criterion (Sanbonmatsu, Posavac, Kardes, & Mantel, 1998; see also Klayman & Ha, 1987; Trope & Liberman, 1996). Rather than engaging in an exhaustive comparative test of all plausible hypotheses, judges follow the efficiency principle and limit themselves to the test of a single focal hypothesis. Therefore, the critical question is which concrete hypothesis will be tested during the comparison. In principle, two hypotheses can be distinguished. People can either test the possibility that the self is similar to the standard or they can test the possibility that the self is dissimilar from the standard. When comparing one's athletic abilities to those of one's best friend, for example, one may either assume either that both are about equally athletic or that one is clearly more athletic.

To know how social comparison might influence the self, one therefore first has to determine which of these hypotheses is tested during the comparison. The choice of the hypothesis depends on the overall perceived similarity of the self and the standard. As the first step in the selective accessibility mechanism, judges engage in a quick initial assessment of the self and the standard (Smith, Shoben, & Rips, 1974) in which they briefly consider a small number of features (e.g., category membership, salient characteristics) to decide whether both are generally similar or dissimilar. The outcome of this initial screening is a broad assessment of perceived similarity. If, for example, one's best friend belongs to a category that clearly sets him apart with respect to athletic abilities (e.g., he is a professional athlete), then the initial assessment of similarity is likely to indicate that self and standard are generally dissimilar with respect to the critical dimension. However, in the absence of such clear indications of dissimilarity this assessment is likely to indicate that self and standard are generally similar. Although such a broad assessment is by itself too general to be used as the basis for self-evaluation, it is sufficient to determine the specific nature of the hypothesis that is then tested in more detail. If this assessment indicates that the self is generally similar to the standard, judges will engage in a process of similarity testing and test the hypothesis that the self is similar to the standard. If the initial assessment indicates that the self is dissimilar from the standard, however, judges will engage in a process of dissimilarity testing and test the hypothesis that the self is dissimilar from the standard.

Because the critical initial assessment of self–standard similarity is conceptualized as a quick screening, features that are salient, easy to process, and have immediate implications for target-standard similarity are especially influential during this stage of the comparison process. Two features which fulfill these criteria are category membership and standard extremity. Similarity testing, for example, is more likely to be engaged for standards that belong to the same category as the standard (Mussweiler & Bodenhausen, 2002) and whose standing on the judgmental dimension is moderate rather than extreme (Mussweiler et al., 2004b). Furthermore, the motivational underpinnings of the comparison situation may influence the outcome of this initial assessment. If judges are, for example, motivated to maintain a positive self-image when confronted with a low standard they may focus more on the ways in which they are different from this standard and consequently engage in dissimilarity testing.

Once a hypothesis is selected, it is often tested by focusing on hypothesis-consistent evidence (Klayman & Ha, 1987; Snyder & Swann, 1978; Trope & Bassok, 1982; Trope & Liberman, 1996). Applied to the case of social comparison, this suggests that judges selectively generate information that is consistent with the focal hypothesis of either similarity or dissimilarity. Judges who engage in similarity testing when comparing their athletic abilities to those of their best friend may thus focus on those aspects of their self-knowledge which indicate that they are both similarly athletic. By the same token, if judges test the hypothesis that the self is dissimilar from the standard, they do so by selectively searching for standard-inconsistent self-knowledge – evidence indicating that the self is different from the standard. The selectivity in the acquisition of judgment-relevant self-knowledge has therefore clear consequences for the accessibility of self-knowledge. The mechanism of similarity testing selectively increases the accessibility of standard-consistent self-knowledge, whereas dissimilarity testing selectively increases the accessibility of standard-inconsistent self-knowledge. Because judges use the self-knowledge that became accessible during the comparison as a

basis for self-evaluations, their subsequent judgment will reflect the implications of this knowledge. The consequence of basing self-evaluations on the implications of standard-consistent knowledge is thus assimilation. Basing target evaluations on the implications of standard-inconsistent knowledge, however, results typically in contrast.

Empirical evidence supports the hypothesis that the direction of comparison consequences is determined by the judges' informational focus on similarities versus differences (Mussweiler, 2001). Here, participants are procedurally primed to focus either on similarities or on differences. To this end, participants worked prior to the social comparison task on an unrelated task in which they compared sketches of two scenes. Roughly half the participants were asked to list all the similarities between the two scenes they could find. The other half were asked to list all the differences they could find. In both cases, the respective informational focus on similarities or differences should become proceduralized (Smith, 1994) and carry over to the subsequent comparison. Subsequent to the procedural priming task, participants compared themselves with a social standard which was either high or low on the critical dimension of adjustment to college. They then evaluated their own adjustment to college. Consistent with a selective accessibility perspective on comparison consequences, subsequent self-evaluations critically depended on whether participants were induced to focus on similarities or differences. Participants who were primed to focus on similarities and to thus engage in similarity testing assimilated self-evaluations toward the standard and evaluated their own adjustment to college to be better after a comparison with a high rather than a low standard. Participants who were primed to focus on differences and to thus engage in dissimilarity testing, on the other hand, contrasted self-evaluations away from the standard. They evaluated their own adjustment to college to be worse after a comparison with a high rather than a low standard.

In addition, there is evidence that assimilative and contrastive social comparison consequences are often accompanied by traces of the two alternative selective accessibility mechanisms of similarity and dissimilarity testing (Mussweiler et al., 2004b). In one study, participants compared themselves with either moderate or extreme comparison standards of athletic ability before evaluating their own athletic ability. For example, participants were either asked to compare themselves with the moderately low standard Bill Clinton or with the extremely low standard Pope John Paul. Consistent with evidence in the social judgment literature (Herr, 1986), participants assimilated their self-evaluations to the moderate standards and contrasted them away from the extreme standards. Subsequently, participants were asked to compare two pictures and to indicate how similar they were. If assimilative comparison consequences are indeed produced by an informational focus on similarities and contrastive consequences result from a focus on dissimilarities, then these respective foci should carry over to this picture-comparison task. The results indicate that participants who assimilated self-evaluations toward the moderate standards indeed focused on similarities between the two pictures and rated them to be more similar than participants who contrasted self-evaluations away from extreme standards. This finding suggests that the alternative informational foci on similarities versus dissimilarities do indeed underlie assimilative and contrastive comparison consequences.

The selective accessibility model suggests that these varying social comparison consequences are produced by differences in the accessibility of self-knowledge. Whereas similarity

testing increases the accessibility of self-knowledge indicating that self and standard are similar on the critical dimension, dissimilarity testing selectively increases the accessibility of self-knowledge that indicates that self and standard are dissimilar on the critical dimension. This hypothesis was also tested directly. In these studies (Mussweiler & Bodenhausen, 2002), participants compared themselves with intracategorical versus extracategorical standards, which typically leads to either similarity testing and assimilation or dissimilarity testing and contrast. Social comparison with an ingroup standard, on the one hand, should involve similarity testing so that standard-consistent self-knowledge is rendered accessible. Comparisons with an outgroup standard, on the other hand, should involve dissimilarity testing so that standard-inconsistent self-knowledge is rendered accessible. Subsequent to the comparison, participants worked on a special type of lexical decision task (Dijksterhuis et al., 1998) that assessed the accessibility of standard-consistent versus standard-inconsistent self-knowledge. The results indicate that standard-consistent self-knowledge is more accessible after a spontaneous comparison with an ingroup member than after a comparison with an outgroup member. Thus, under conditions that promote similarity testing, the accessibility of standard-consistent target knowledge is increased. Under conditions that promote dissimilarity testing, however, standard-inconsistent knowledge becomes more accessible.

Changes in the accessibility of self-knowledge may thus be the critical mechanism that drives the effects social comparisons have on the self. If a social comparison involves a focus on the ways in which self and standard are similar, then the accessibility of standard-consistent self-knowledge is increased so that self-evaluations are assimilated toward the standard. If a social comparison involves a focus on the ways in which self and standard are different, then the accessibility of standard-inconsistent knowledge is increased so that self-evaluations are contrasted away from the standard.

## **Applications of Social Comparison Theory**

In light of the fact that social comparisons are an integral part of our psychological functioning and daily lives, it is not surprising that many researchers have used social comparison theory to explain phenomena in applied contexts. The diverse topics include, for example, the importance of comparisons with others in the development of the academic self-concept and academic performance (e.g., Marsh & Hau, 2003; Marsh & Parker, 1984), pay-level satisfaction (e.g., Harris, Anseel, & Lievens 2008; Williams, McDaniel, & Nguyen, 2006), decision making in organizations (Bandura & Jourden, 1991), virtual work environments (Conner, 2003), romantic relationships and marital functioning (e.g., Buunk, VanYperen, Taylor, & Collins, 1991; Lockwood et al., 2004), gossip (Wert & Salovey, 2004), the use of deception in consumer behavior (Argo, White, & Dahl, 2006), the role of comparative processes in sports judgments (Damisch, Mussweiler, & Plessner, 2006), and many more. Particular theoretical and empirical interest has been devoted to the role of social comparisons in health psychology as well as to the impact of idealized media images on self-evaluation, which we will briefly discuss below.

When faced with a serious health problem, people find themselves in a situation that meets all the criteria outlined by Festinger (1954) that should increase the need for social

comparisons: health is of utmost importance, the future is unclear, and there are no objective standards of how to cope. In line with this view, a growing body of evidence has documented the frequency and the importance of social comparisons at the onset and the course of diseases and other health threats (for comprehensive reviews see Buunk & Gibbons, 1997; Tennen, McKee, & Affleck, 2000).

Besides providing valuable information to patients, social comparisons might also fulfill the need for self-enhancement (see above). Much of the research has focused on the question of whether comparisons with others who are worse off can make people feel better. For example, in the now classic study by Taylor, Wood, and Lichtman (1983), the vast majority of a sample of breast cancer patients reported that they spontaneously compared downward to other cancer victims in order to cope. Independent of the severity of their condition, these women assumed that there were others who were worse off. Downward comparisons and their contributions to subjective well-being have been reported with regard to many other grave health issues such as chronic pain, eating disorders, depression, infertility, AIDS, and heart disease (Buunk & Gibbons, 1997).

However, the complementary conclusion, that patients will avoid comparisons to upward standards, because others who are better off endanger one's self-esteem, is not warranted. In contrast, in a number of studies patients even seem to show a preference for upward comparisons. For example, in the study of Mollemann, Pruyn, and van Knippenberg (1986) cancer patients strongly preferred to interact with other cancer patients who were similar to themselves or slightly better off. According to Taylor and Lobel (1989) this reflects the aforementioned motive to self-improve by affiliating with others who can serve as a role model and give hope. Several studies have supported this assertion. For example, Stanton, Danoff-Burg, Cameron, Snider, and Kirk (1999) asked cancer patients to listen to audiotaped interviews with other cancer patients with good or poor health status. Patients expressed greater interest in emotional and informational support from well-adjusted targets, but rated their own coping and prognosis better in response to poorly adjusted targets. Irrespective of the target, all participants reported that listening to the interview made them feel better about their own condition, thus supporting the view that both downward and upward comparisons can be beneficial to patients.

Another topic that has been analyzed from a social comparison perspective concerns the effects of idealized media images on the perceiver's self-evaluation. People portrayed in the modern mass media, such as actors or models in advertisement campaigns, are mostly highly attractive and thus often present extreme comparison standards in terms of their physical features. Most researchers have assumed that in comparison to these "perfect" bodies, perceivers should be less satisfied with their own appearance, which might in the long term even contribute to psychological problems such as eating disorders (Polivy & Herman, 2002). In line with this view, a number of studies have shown that exposure to such idealized media images can have detrimental effects on self-evaluation; however, other studies also found beneficial effects (for a meta-analysis, see Groesz, Levine, & Murnen, 2002), suggesting that the relationship is more complicated than initially thought. Recent research has begun to delineate the conditions which result in assimilation or contrast after comparisons with highly attractive media portrayals.

For example, the results of Trampe, Stapel, and Siero (2007) suggest that exposure to thin female body shapes is not equally detrimental to all women. In their studies, women who

were already dissatisfied with their bodies were especially vulnerable to adverse effects of comparisons with professional models. This effect might be based in the specific comparison tendencies of these women. Trampe et al. (2007) found that the more women were unhappy with their bodies, the more they reported that they compared their own body with those of other women. Furthermore, they seemed to differentiate less between potential comparison standards. While body-satisfied women did not show comparison effects in response to attractive models, but only to equally attractive non-models, body-dissatisfied women showed comparison effects regardless of whether the standards were models or not, and even in response to inanimate objects such as thin vases.

Adopting the Selective Accessibility Model (Mussweiler, 2003b), Häfner (2004) predicted that even very subtle differences in the presentation of advertisements can have strikingly different effects on self-evaluation, leading to both contrast and assimilation to highly attractive standards. To manipulate the direction of the initial similarity assessment, he presented advertisement models with different headlines. As expected, headlines pointing to similarities (e.g., “same body – same feeling”) led to self-evaluative assimilation, whereas headlines pointing to differences (e.g. “feel the difference”) resulted in self-evaluative contrast.

In a similar vein, Smeesters and Mandel (2006) showed that characteristics of media images can moderate their effect by affecting the kind of self-knowledge that becomes accessible during social comparison. As evidenced by lexical decision tasks, the presentation of extremely thin models rendered self-knowledge about heaviness more accessible and, correspondingly, led to more negative self-views. Conversely, the presentation of moderately thin models rendered self-knowledge about thinness more accessible and led to more positive self-views. Interestingly, in addition to these findings, other data of Smeesters and Mandel (2006) point to a methodological reason why assimilation to media images has been documented so rarely: the pattern of the effects on self-evaluation critically depended on the response format of the measures. Differential effects of moderate and extreme standards were only found on self-evaluation measures using an open response format. On rating scales, both types of standards seemed to have led to contrast, probably because the models were used as reference points when answering the scales (Mussweiler & Strack, 2000b). Thus, while participants actually were happier with their own physical appearance after having seen a moderately thin model, this effect was concealed on the rating scales, because items like “I am slim” changed their meaning in the context of the presented models.

Taken together, these findings indicate that characteristics of perceivers, comparison standards, and subtle situational differences all affect the impact of idealized media images on self-evaluation in a way predicted by social comparison theories.

## **Conclusion**

Social comparison is a remarkably ubiquitous process which influences how people think about themselves, how they feel, what they are motivated to do, and how they behave. Social comparison consequences thus span all core arenas of human psychological functioning. This striking ubiquity is matched by a similarly striking complexity and multi-facetedness of the core comparison process itself. Not only do social comparisons influence cognition,

affect, motivation, and behavior, they are also shaped by cognitive, affective, and motivational factors. To date, these different influences on social comparison processes have been mostly studied in relative isolation. In fact, the history of social comparison research is a history of consecutively switching foci (Buunk & Mussweiler, 2001; Suls & Wheeler, 2000), starting with a strong focus on motivational influences and a relative neglect of cognitive underpinnings and ending with a strong focus on cognitive underpinnings and a relative neglect of motivational influences. It seems clear that, particularly for a process that is as ubiquitous as social comparison, a more encompassing perspective that integrates cognitive, motivational, and affective influences is needed.

## References

- Aarts, H., & Dijksterhuis, A. (2000). Habits as knowledge structures: Automaticity in goal directed behavior. *Journal of Personality and Social Psychology, 78*, 53–63.
- Argo, J. J., White, K., & Dahl, D. W. (2006). Social comparison theory and deception in the interpersonal exchange of consumption information. *Journal of Consumer Research, 33*, 99–108.
- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice-Hall.
- Bandura, A. (1997) *Self-efficacy: The exercise of control*. New York: Freeman.
- Bandura, A., & Jourden, F. J. (1991). Self-regulatory mechanisms governing the impact of comparison on complex decision making. *Journal of Personality, 60*, 941–951.
- Betsch, T., Haberstroh, S., Glöckner, A., Haar, T., & Fiedler, K. (2001). The effects of routine strength on adaptation and information search in recurrent decision making. *Organizational Behavior and Human Decision Processes, 84*, 23–53.
- Blanton, H. (2001). Evaluating the self in the context of another: The three-selves model of social comparison assimilation and contrast. In G. B. Moskowitz (Ed.), *Cognitive social psychology: The Princeton Symposium on the Legacy and Future of Social Cognition* (pp. 75–87). Mahwah, NJ: Erlbaum.
- Blanton, H., Crocker, J., & Miller, D. T. (2000). The effects of in-group versus out-group social comparison on self-esteem in the context of a negative stereotype. *Journal of Experimental Social Psychology, 36*, 519–530.
- Blanton, H., & Stapel, D. A. (2008). Unconscious and spontaneous and ... complex: The three selves model of social comparison assimilation and contrast. *Journal of Personality and Social Psychology, 94*, 1018–1032.
- Buunk, B. P., & Gibbons, F. X. (Eds.). (1997). *Health, coping, and well-being: Perspectives from social comparison theory*. Mahwah, NJ: Erlbaum.
- Buunk, B. P., & Mussweiler, T. (2001). New directions in social comparison research. *European Journal of Social Psychology, 31*, 467–475.
- Buunk, B. P., VanYperen, N. W., Taylor, S. E., & Collins, R. L. (1991). Social comparison and the drive upward revisited: Affiliation as a response to marital stress. *European Journal of Social Psychology, 21*, 529–546.
- Collins, R. L. (1996). For better or worse: The impact of upward social comparison on self-evaluations. *Psychological Bulletin, 119*, 51–69.
- Conner, D. S. (2003). Social comparison in virtual work environments: An examination of contemporary referent selection. *Journal of Occupational & Organizational Psychology, 76*, 133.
- Corcoran, K., & Mussweiler, T. (2009). The efficiency of social comparisons with routine standards. *Social Cognition, 27*, 939–948.
- Damisch, L., Mussweiler, T., & Plessner, H. (2006). Olympic medals as fruits of comparison? Assimilation and contrast in sequential performance judgments. *Journal of Experimental Psychology: Applied, 12*, 166–78.
- 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.
- Dunning, D., & Hayes, A. F. (1996). Evidence of egocentric comparison in social judgment. *Journal of Personality and Social Psychology, 71*, 213–229.
- Festinger, L. (1950). Informal social communication. *Psychological Review, 57*, 271–282.

- Festinger, L. (1954). A theory of social comparison processes. *Human Relations*, 7, 117–140.
- Festinger, L. (1957). *A theory of cognitive dissonance*. New York: Row, Peterson.
- Gardner, W. L., 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*, 82, 239–51.
- Gilbert, D. T., Giesler, R. B., & Morris, K. A. (1995). When comparisons arise. *Journal of Personality and Social Psychology*, 69, 227–236.
- Goethals, G. R., & Darley, J. M. (1977). Social comparison theory: An attributional approach. In J. M. Suls & R. L. Miller (Eds.), *Social comparison processes: Theoretical and empirical perspectives* (pp. 259–278). Washington, DC: Hemisphere.
- Groesz, L. M., Levine, M. P., & Murnen, S. K. (2002). The effect of experimental presentation of thin media images on body satisfaction: A meta-analytic review. *International Journal of Eating Disorders*, 31, 1–16.
- Gruder, C. L. (1971). Determinants of social comparison choices. *Journal of Experimental Social Psychology*, 7, 473–489.
- Hackmiller, K. L. (1966). Threat as a determinant of downward comparison. *Journal of Experimental Social Psychology*, 2(Suppl. 1), 32–39.
- Häfner, M. (2004). How dissimilar others may still resemble the self: Assimilation and contrast after social comparison. *Journal of Consumer Psychology*, 14, 187–196.
- Hanko, K., Crusius, J., & Mussweiler, T. (2010). When I and me are different: Assimilation and contrast in temporal self-comparisons. *European Journal of Social Psychology*, 140, 160–168.
- Harris, M. M., Anseel, F., & Lievens, F. (2008). Keeping up with the Joneses: A field study of the relationships among upward, lateral, and downward comparisons and pay level satisfaction. *Journal of Applied Psychology*, 93, 665–673.
- Herr, P. M. (1986). Consequences of priming: Judgment and behavior. *Journal of Personality and Social Psychology*, 51, 1106–1115.
- Herr, P. M., Sherman, S. J., & Fazio, R. H. (1983). On the consequences of priming: Assimilation and contrast effects. *Journal of Experimental Social Psychology*, 19, 323–340.
- Higgins, E. T. (1996). Knowledge activation: Accessibility, applicability, and salience. In E. T. Higgins & A. W. Kruglanski (Eds.), *Social psychology: Handbook of basic principles* (pp. 133–168). New York: Guilford Press.
- Huttenlocher, J., & Higgins, E. T. (1971). Adjectives, comparatives, and syllogisms. *Psychological Review*, 78, 487–504.
- Johnson, C. S., & Stapel, D. A. (2007a). No pain, no gain: The conditions under which upward comparisons lead to better performance. *Journal of Personality and Social Psychology*, 92, 1051–1067.
- Johnson, C. S., & Stapel, D. A. (2007b). When different is better: Performance following upward comparison. *European Journal of Social Psychology*, 37, 258–275.
- Kemmelmeier, M., & Oyserman, D. (2001). The ups and downs of thinking about a successful other: Self-construals and the consequences of social comparisons. *European Journal of Social Psychology*, 31, 311–320.
- Klayman, J., & Ha, Y.-W. (1987). Confirmation, disconfirmation, and information in hypotheses testing. *Psychological Review*, 94, 211–228.
- Klein, W. M. (1997). Objective standards are not enough: Affective, self-evaluative, and behavioral responses to social cognition information. *Journal of Personality and Social Psychology*, 72, 763–774.
- Kruglanski, A. W., & Mayseless, O. (1990). Classic and current social comparison research: Expanding the perspective. *Psychological Bulletin*, 108, 195–208.
- Lewin, K. (1951). *Field theory in social science: selected theoretical papers* (Edited by Dorwin Cartwright.). Oxford England: Harpers.
- Lirgg, C. D., & Feltz, D. L. (1991). Teacher versus peer models revisited: Effects on motor performance and self-efficacy. *Research Quarterly for Exercise and Sports*, 62, 217–224.
- Lockwood, P., Dolderman, D., Sadler, P., & Gerchak, E. (2004). Feeling better about doing worse: Social comparisons within romantic relationships. *Journal of Personality and Social Psychology*, 87, 80–95.
- 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.
- Macrae, C. N., & Bodenhausen, G. V. (2000). Social cognition: Thinking categorically about others. *Annual Review of Psychology*, 51, 93–120.
- Macrae, C. N., Milne, A. B., & Bodenhausen, G. V. (1994). Stereotypes as energy-saving devices: A peek inside the cognitive toolbox. *Journal of Personality and Social Psychology*, 66, 37–47.

- Maddux, J. E. (1995). Self-efficacy theory: An introduction. In J. E. Maddux (Ed.), *Self-efficacy, adaptation, and adjustment: Theory, research, and application* (pp. 3–33). New York: Plenum Press.
- Marsh, H. W., & Hau, K. (2003). Big-fish-little-pond effect on academic self-concept. A cross-cultural (26-country) test of the negative effects of academically selective schools. *American Psychologist*, *58*, 364–76.
- Marsh, H. W., & Parker, J. W. (1984). Determinants of student self-concept: Is it better to be a relatively large fish in a small pond even if you don't learn to swim as well? *Journal of Personality and Social Psychology*, *47*, 213–231.
- Miller, C. T. (1982). The role of performance-related similarity in social comparison of abilities: A test of the related attributes hypothesis. *Journal of Experimental Social Psychology*, *18*, 513–523.
- Miller, C. T. (1984). Self-schemas, gender, and social comparison: A clarification of the related attributes hypothesis. *Journal of Personality and Social Psychology*, *46*, 1222–1229.
- Miller, D. T., & Prentice, D. A. (1996). The construction of social norms and standards. In E. T. Higgins and A. W. Kruglanski (Eds.), *Social Psychology: Handbook of basic principles* (pp. 799–829). New York: Guilford Press.
- Molleman, E., Pruijn, J., & Van Knippenberg, A. (1986). Social comparison processes among cancer patients. *British Journal of Social Psychology*, *25*, 1–13.
- Morse, S., & Gergen, K. J. (1970). Social comparison, self-consistency, and the concept of 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. (2003a). Comparison processes in social judgment: Mechanisms and consequences. *Psychological Review*, *110*, 472–489.
- Mussweiler, T. (2003b). "Everything is relative": Comparison processes in social judgment. *European Journal of Social Psychology*, *33*, 719–733.
- Mussweiler, T., & Bodenhausen, G. (2002). I know you are but what am I? Self-evaluative consequences of judging ingroup and outgroup members. *Journal of Personality and Social Psychology*, *82*, 19–32.
- Mussweiler, T., & Epstude, K. (2009). Relatively fast! Efficiency advantages of comparative information processing. *Journal of Experimental Psychology: General*, *138*, 1–21.
- Mussweiler, T., Gabriel, S., & Bodenhausen, G.V. (2000). Shifting social identities as a strategy for deflecting threatening social comparisons. *Journal of Personality and Social Psychology*, *79*, 398–409.
- Mussweiler, T., & Rüter, K. (2003). What friends are for! The use of routine standards in social comparison. *Journal of Personality and Social Psychology*, *85*, 467–481.
- Mussweiler, T., Rüter, K., & Epstude, K. (2004a). The man who wasn't there: Subliminal social comparison standards influence self-evaluation. *Journal of Experimental Social Psychology*, *40*, 689–696.
- Mussweiler, T., Rüter, K., & Epstude, K. (2004b). The ups and downs of social comparison: Mechanisms of assimilation and contrast. *Journal of Personality and Social Psychology*, *87*, 832–844.
- 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*, 23–38.
- Parks-Stamm, E. J., Heilman, M. E., & Hearn, K. A. (2008). Motivated to penalize: Women's strategic rejection of successful women. *Personality and Social Psychology Bulletin*, *34*, 237–247.
- 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.
- Pinkus, R. T., Lockwood, P., Schimmack, U., & Fournier, M. A. (2008). For better and for worse: Everyday social comparisons between romantic partners. *Journal of Personality and Social Psychology*, *95*, 1180–1201.
- Polivy, J., & Herman, C. P. (2002). Causes of eating disorders. *Annual Review of Psychology*, *53*, 187–213.
- Rüter, K., & Mussweiler, T. (2005). Bonds of friendship: Comparative self-evaluations evoke the use of routine standards. *Social Cognition*, *23*, 137–160.
- Sanbonmatsu, D. M., Posavac, S. S., Kardes, F. R., & Mantel, S. P. (1998). Selective hypothesis testing. *Psychonomic Bulletin and Review*, *5*, 197–220.
- Schwarz, N. (1994). Judgment in social context: Biases, shortcomings, and the logic of conversation. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (pp. 125–162). San Diego, CA: Academic Press.

- Schwarz, N., Bless, H., Bohner, G., Harlacher, U., & Kellenbenz, M. (1991). Response scales as frames of reference: The impact of frequency range on diagnostic judgment. *Applied Cognitive Psychology*, 5, 37–50.
- Seta, J. J. (1982). The impact of comparison processes on coactors' task performance. *Journal of Personality and Social Psychology*, 42, 281–291.
- Smeesters, D., & Mandel, N. (2006). Positive and negative media image effects on the self. *Journal of Consumer Research*, 32, 576–582.
- Smith, E. E., Shoben, E. J., & Rips, L. J. (1974). Structure and process in semantic memory: A featural model for semantic decisions. *Psychological Review*, 81, 214–241.
- Smith, E. R. (1989). Procedural efficiency: General and specific components and effects on social judgment. *Journal of Experimental Social Psychology*, 25, 500–523.
- Smith, E. R. (1994). Procedural knowledge and processing strategies in social cognition. In R. S. Wyer & T. K. Srull (Eds.), *Handbook of social cognition* (2nd ed., Vol. 1, pp. 99–152). Hillsdale, NJ: Erlbaum.
- Smith, E. R., Branscombe, N. R., & Bormann, C. (1988). Generality of the effects of practice on social judgment tasks. *Journal of Personality and Social Psychology*, 54, 385–395.
- Smith, E. R., & Lerner, M. (1986). Development of automatism of social judgments. *Journal of Personality and Social Psychology*, 50, 246–259.
- Snyder, M., & Swann, W. B. (1978). Hypothesis-testing processes in social interaction. *Journal of Personality and Social Psychology*, 36, 1202–1212.
- Stanton, A. L., Danoff-Burg, S., Cameron, C. L., Snider, P. R., & Kirk, S. B. (1999). Social comparison and adjustment to breast cancer: An experimental examination of upward affiliation and downward evaluation. *Health Psychology*, 18, 151–8.
- Stapel, D. A., & Blanton, H. (2004). From seeing to being: Subliminal social comparisons affect implicit and explicit self-evaluations. *Journal of Personality and Social Psychology*, 87, 468–481.
- Stapel, D. A., & Johnson, C. S. (2007). When nothing compares to me: How defensive motivations and similarity shape social comparison effects. *European Journal of Social Psychology*, 37, 824–838.
- Stapel, D. A., & Koomen, W. (2000). Distinctiveness of others, mutability of selves: Their impact on self-evaluations. *Journal of Personality and Social Psychology*, 79, 1068–1087.
- Stapel, D. A., & Koomen, W. (2001). I, we, and the effects of others on me: How self-construal level moderates social comparison effects. *Journal of Personality and Social Psychology*, 80, 766–781.
- Stapel, D. A., & Koomen, W. (2005). Competition, cooperation, and the effects of others on me. *Journal of Personality and Social Psychology*, 88, 1029–1038.
- Stapel, D. A., Koomen, W., & van der Pligt, J. (1997). Categories of category accessibility: The impact of trait concept versus exemplar priming on person judgments. *Journal of Experimental Social Psychology*, 33, 47–76.
- Stapel, D. A., & Schwinghammer, S. A. (2004). Defensive social comparisons and the constraints of reality. *Social Cognition*, 22, 147–167.
- Suls, J., Gaes, G., & Gastorf, J. W. (1979). Evaluating a sex-related ability: Comparison with same-, opposite-, and combined-sex norms. *Journal of Research in Personality*, 13, 294–304.
- Suls, J., Gastorf, J. W., & Lawhon, J. (1978). Social comparison choices for evaluating a sex- and age-related ability. *Personality and Social Psychology Bulletin*, 4, 102–105.
- Suls, J., Martin, R., & Wheeler, L. (2002). Social comparison: Why, with whom, and with what effect? *Current Directions in Psychological Science*, 11, 159–163.
- Suls, J., & Wheeler, L. (2000). A selective history of classic social comparison theory and neo social comparison theory. In J. Suls & L. Wheeler (Eds.), *Handbook of social comparison: Theory and research* (pp. 3–22). New York: Kluwer Academic/Plenum Press.
- Taylor, S. E. (1981). The interface of cognitive and social psychology. In J. Harvey (Ed.), *Cognition, social behavior, and the environment* (pp. 182–211). Hillsdale, NJ: Erlbaum.
- Taylor, S. E., & Lobel, M. (1989). Social comparison activity under threat: Downward evaluation and upward contacts. *Psychological Review*, 96, 569–575.
- Taylor, S. E., Wayment, H. A., & Carrillo, M. (1996). Social comparison, self-regulation, and motivation. In R. M. Sorrentino & E. T. Higgins (Eds.), *Handbook of motivation and cognition* (pp. 3–27). New York: Guilford Press.
- Taylor, S. E., Wood, J. V., & Lichtman, R. R. (1983). It could be worse: Selective evaluation as a response to victimization. *Journal of Social Issues*, 39, 19–40.
- Tennen, H., McKee, T. E., & Affleck, G. (2000). Social comparison processes in health and illness. In J. Suls & L. Wheeler (Eds.), *Handbook of social comparison: Theory and research* (pp. 443–483). Dordrecht, Netherlands: Kluwer.

- Tesser, A. (1988). Toward a self-evaluation maintenance model of social behavior. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 21, pp. 181–227). San Diego, CA: Academic Press.
- Tesser, A., Miller, 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.
- Trampe, D., Stapel, D. A., & Siero, F. W. (2007). On models and vases: body dissatisfaction and proneness to social comparison effects. *Journal of Personality and Social Psychology*, *92*, 106–118.
- Trope, Y., & Bassok, M. (1982). Confirmatory and diagnostic strategies in social information gathering. *Journal of Personality and Social Psychology*, *43*, 22–34.
- Trope, Y., & Liberman, A. (1996). Social hypothesis testing: Cognitive and motivational factors. In E. T. Higgins & A. W. Kruglanski (Eds.), *Social psychology: Handbook of basic principles* (pp. 239–270). New York: Guilford Press.
- Tversky, A., & Kahneman, D. (1974). Judgment under uncertainty: Heuristics and biases. *Science*, *185*, 1124–1130.
- Verplanken, B., & Aarts, H. (1999). Habit, attitude, and planned behavior: Is habit an empty construct or an interesting case of goal-directed automaticity? In W. Stroebe & M. Hewstone (Eds.), *European review of social psychology* (Vol. 10, pp. 101–134). Chichester, England: Wiley.
- Verplanken, B., Aarts, H., van Knippenberg, A., & van Knippenberg, C. (1994). Attitude versus general habit: Antecedents of travel mode choice. *Journal of Applied Social Psychology*, *24*, 285–300.
- Wert, S. R., & Salovey, P. (2004). A social comparison account of gossip. *Review of General Psychology*, *8*, 122–137.
- Wheeler, L. (1966). Motivation as a determinant of upward comparison. *Journal of Experimental Social Psychology*, *2*(Suppl. 1), 27–31.
- Wheeler, L. (1970). *Interpersonal influence*. Boston: Allyn & Bacon.
- Wheeler, L., Koestner, R., & Driver, R. E. (1982). Related attributes in the choice of comparison others: It's there, but it isn't all there is. *Journal of Experimental Social Psychology*, *18*, 489–500.
- Williams, M. L., McDaniel, M. A., & Nguyen, N. T. (2006). A meta-analysis of the antecedents and consequences of pay level satisfaction. *Journal of Applied Psychology*, *91*, 392–413.
- Wills, T. A. (1981). Downward comparison principles in social psychology. *Psychological Bulletin*, *90*, 245–271.
- Wilson, A. E., & Ross, M. (2000). The frequency of temporal and social comparison in people's personal appraisals. *Journal of Personality and Social Psychology*, *78*, 928–942.
- Wood, J. V. (1989). Theory and research concerning social comparisons of personal attributes. *Psychological Bulletin*, *106*, 231–248.
- Wood, J. V., & Taylor, K. L. (1991). Serving self-relevant goals through social comparison. In J. Suls & T. A. Wills (Eds.), *Social comparison: Contemporary theory and research* (pp. 23–49). Hillsdale, NJ: Erlbaum.
- Wood, J. V., Taylor, S. E., & Lichtman, R. R. (1985). Social comparison in adjustment to breast cancer. *Journal of Personality and Social Psychology*, *49*, 1169–1183.
- Wrightsmann, L. S., Jr. (1960). Effects of waiting with others on changes in the level of felt anxiety. *Journal of Abnormal and Social Psychology*, *61*, 216–222.
- Zanna, M. P., Goethals, G. R., & Hill, J. F. (1975). Evaluating a sex-related ability: Social comparison with similar others and standard setters. *Journal of Experimental Social Psychology*, *11*, 86–93.