Social Comparison Before, During, and After the Competition

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Chapter in press for J. Suls, R. Collins & L. Wheeler (Eds),

Social Comparison, Judgment and Behavior, Oxford University Press.

Abstract

This chapter provides an overview of the interplay between social comparison and competition before, during, and after the competition. We define competition broadly to include an act or process of competition, explicit or implicit, and link it to basic social comparison processes. *Before the competition*, we consider the lessons of the social comparison literature on motives, individual differences, cultural and social norms, and competition entry decisions. We then review relevant findings on the role of individual factors (personal and relational) as well as situational factors that affect motivation and competitive behavior *during the competition*. Finally, the chapter examines the social comparison literature on downward comparison, upward comparison, and competition re-entry decisions *after the competition*.

Keywords: competition, rivalry, decision making, social comparison, entry decisions

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The social psychological study of competition, which historically has been intermittent and until recently was largely dated (e.g., Triplett, 1898; Deutsch, 1949), is experiencing something of a renaissance (e.g., Eisenkraft, Elfenbein, & Kopelman, 2017; Garcia, Tor, & Schiff, 2013; Murayama & Elliot, 2012; Schurr & Ritov, 2016). By now there are several literature reviews that touch upon the intersection of social comparison and competition. Indeed, two of us have previously proposed a model of social comparison and competition that identifies and distinguishes among individual-based and situation-based factors that can facilitate social comparison and thus competitiveness (Garcia, Tor, & Schiff, 2013). Others have variously articulated a framework for understanding when social comparisons lead to healthy versus unhealthy competition (Johnson, 2012) and a "relational model" focusing on the competitive interaction between rivals specifically (Kilduff, Elfenbein, & Staw, 2010). Hence, rather than merely reviewing extant frameworks that address the relationship between social comparison and competition, the present chapter offers a broader, overarching structure for the literature as a whole. In particular, we organize relevant findings around three consecutive chronological stages at which social comparison and competition intersect: before the competition, during the competition, and after the competition. As this chapter shows, the three-stage structure developed here both organizes diverse extant findings into a more coherent whole and reveals new directions for potentially fruitful research in this domain.

We begin by delineating our usage of competition, then describe the social comparison–competition link. The chapter follows with an examination of the distinct ways in which social comparison and competition interact before, during, and after the competition. Notably, this

three-stage structure also highlights the cyclical nature of the social comparison–competition link, revealing how the outcomes of competition can influence social comparison and subsequent entry into future competitions.

Delineating Competition

"Competition" is a widely-used term, bearing a broad range of potential meanings, within and without social psychology. Typical dictionary definitions of competition include "the act of competing" and "a test of skill or ability; a contest" (e.g., The American Heritage Dictionary of the English Language, Fifth Edition, 2017). Such definitions focus either on the act or process of competition among individuals or on its institutional setting, "the contest," which pits competitors against one another. These common definitions help clarify the different ways in which social comparison relates to competition within the three-stage structure we develop in this chapter.

For present purposes, competition encompasses both the process of competition and the institutional setting of a competition, though the ubiquitous presence of competition in social behavior extends well beyond that latter, narrow meaning. The act or process of competition occurs, for instance, in the common rivalry among siblings, friends, classmates or co-workers, even absent an "official" competition. Siblings may compete over parental attention, friends over popularity, classmates over grades, and co-workers over salary or promotion. In all of these cases, the process of competition—which requires individuals to examine their abilities or performance vis-à-vis their competitors—makes social comparison unavoidable. Perhaps Johnson, Johnson, and Roseth (2012; p. 1072) overstate the case somewhat when they state that "[a]ll competition does involve social comparison…," but not by much.

From this perspective, social comparison *before* the competition concerns the ways in which social comparison can generate competitive behavior, from Festinger's (1954a) "unidirectional drive" through later theories which explained social comparison as a process driven by a need for self-evaluation (e.g., Mussweiler & Strack, 1999) or self-enhancement (e.g., Taylor & Lobel, 1989). Yet other, related factors, including individual differences factors (e.g., Houston, Mcintire, Kinnie, & Terry, 2002) and cultural and social norms (e.g., Buunk, Carmona, Peiró, Dijkstra, & Dijkstra, 2011) can also generate social comparison that facilitates competitive behavior.

In the same vein, social comparison *during* the competition involves situations in which competition precedes the social comparison process. Social comparison often occurs when individuals find themselves in competitive settings, whether or not they chose to place themselves in these circumstances. Indeed, much of the research to date that touches on social comparison and competition falls into this category. In numerous studies, scholars have examined the role of both individual factors (e.g., Kilduff, Elfenbein, & Staw, 2010; Tesser, 1988) and situational factors (e.g., Garcia, Tor, & Gonzalez, 2006; Garcia & Tor, 2009; Poortvliet, 2012) in determining the relationship between ongoing, competitive social situations and the social comparison process.

Finally, within the chapter's structure, social comparison *after* the competition refers to the consequences of competitions—whether in the sense of the competitive act or process or in the sense of an institutionalized contest—for social comparison. Studies examined in this category primarily consider the effects of upward or downward social comparisons (e.g., Larsen, McGraw, Mellers, & Cacioppo, 2004; Medvec, Madey, & Gilovich, 1995) that competition frequently brings about. Moreover, as this chapter shows, a consideration of the social

comparison process as both a consequence of competition and its antecedent sheds new light on the cyclical nature of the social comparison—competition relationship. That is, social comparison may facilitate competitive behavior, and the resulting competition, in turn, may bring about further social comparison. Sometimes, this resulting comparison (e.g., a self-enhancing downward social comparison) in its own turn may encourage individuals to reengage in competition yet again.

Social Comparison and Competition: Early Roots

Festinger's theory (1954a) emphasized the way in which individuals use social comparison processes as a source of self-evaluation information. In particular, Festinger noted that people desire to know where they stand relative to others in the domains of opinions and abilities in order to accurately assess their position. Most relevant for our present focus, he posited that "[t]here is a unidirectional drive upward in the case of abilities" (Hypothesis IV, p. 124), a drive that gives competitive motivation towards better relative performance a central role in social comparison. For instance, Hoffman, Festinger, and Lawrence (1954, p. 156) stated that "[c]ompetition arises because individuals, in situations where they are evaluating some ability, are strongly motivated by a concern about their comparability to other members of the group with respect to the ability which they are evaluating."

Festinger further suggested that the unidirectional drive intensifies with the quality of performance, that the desire of "doing better and better…means that the higher the score on performance, the more desirable it is" (Festinger, 1954a, p. 125). More recent findings also support the notion that those who are highly ranked on a performance dimension manifest the

unidirectional drive and thus social comparison concerns more strongly (Garcia, Tor, & Gonzalez, 2006).

The basic drive towards social comparison is closely related to competitive behavior, and so is the very act of social comparison. People who observe, or even merely anticipate, a potentially disadvantageous discrepancy between their own performance or standing and that of another (i.e., where the other person is or may be performing better than them) experience a social pressure that can lead them to behave competitively to reduce that disadvantageous discrepancy. Festinger also noted that such competitiveness can take myriad forms: "Competitive behavior, action to protect one's superiority, and even some kinds of behavior that might be called cooperative, are manifestations in the social process of these pressures…" (Festinger, 1954a, p. 126).

We can observe some of these competitive dynamics in later work. For example, consider Morse and Gergen's famous "Mr. Clean/Mr. Dirty" study (1970). Job applicants experienced a drop in self-esteem when a stimulus individual, a competitor who was also interviewed for a job, was well-dressed and well-groomed, and a boost in self-esteem when the stimulus individual was raggedly dressed and ungroomed. Although no direct measures of competitiveness were obtained, job applicants' differing reactions to the state of their competitor are telling, especially in the condition in which the confederate was applying and thus competing for the same job. Later research by Abraham Tesser and colleagues made the connection between social comparison and competitiveness more explicit. For example, Pleban and Tesser (1981) found that research participants who were bested by a confederate participant in a self-relevant competitive game were more likely to sit farther away from that confederate afterwards. In another study, Seta and colleagues made the link between social comparison and competitive

task performance more explicit by showing that individuals actually performed better on a task when paired with a slightly superior counterpart (Seta, 1982).

In Festinger's work, the unidirectional drive "in the case of abilities" was concerned with "what one is and is not capable of doing" (Festinger, 1954b, p. 217). Yet the social comparison literature that soon followed construed the concept far more broadly to include any relevant dimension on which one's relative performance or standing can be measured (e.g., Wheeler, 1966; Garcia, & Tor, 2007; Hakmiller, 1966; Wills, 1981). Examples include performance on a test under some cover story (Wheeler, 1966), supposed intelligence tests (Tesser, 1988), and even more social dimensions such as participants' supposed level of "hostility toward one's parent" (Hakmiller, 1966). We also know from early work on the rank-order paradigm that individuals prefered compare their performance with someone of adjacent but higher rank, when they knew approximately the value of the highest and lowest score or the plausible range (Wheeler et al., 1969). Thus, the upward drive and its associated competitive motivation can involve any measure, from one's test performance, to the miles per gallon capabilities of one's car or the number of Facebook friends one amasses and more, as long as that measure appears to reflect on one's relative standing on a relevant dimension (cf. Wood, 1996).

SOCIAL COMPARISON BEFORE THE COMPETITION

Motives

Social comparison research offers a number of precursors of competitive behavior, from the "unidirectional drive" through self-evaluation and mastery or self-improvement to self-enhancement. As mentioned above, the "unidirectional drive upward"—a motivation to increase

one's performance—was central to the early formulation social comparison theory (Festinger, 1954a). The upward drive is a motivation to improve performance and therefore closely associated with competitive behavior, once placed within a social context in which "doing better" necessarily translates to "doing better than others."

Social comparison theorists also identified individuals' need for self-evaluation as a common driver of social comparison processes (Festinger, 1954a; Thornton and Arrowood, 1966; Goethals and Darley, 1977). Unlike the case of the upward drive, the link between one's need for more accurate self-evaluation and competition is less obvious. However, competitions can offer valuable self-evaluation information through our performance on the competitive task (Trope, 1986). For example, carnival revelers may attempt to throw a ball into a hoop of a specific distance and size, or to hammer with all their might to see whether they can force a ball to strike a bell, outperforming their companions. In such situations, the motivation to compete may be driven by a need for self-evaluation, as individuals seek to determine whether they are better able than others to perform the task, and if so, by how much.

Whereas some individuals have mastery goals, namely goals of self-improvement irrespective of others' performance, individuals who hold performance goals exhibit another motivation for social comparison that may facilitate competition (Darnon, Dompnier, & Poortvliet, 2012; Summers, Schallert, & Muse Ritter, 2003). Generally speaking, people with performance goals are motivated to perform better than others on some task (Darnon, Dompnier, & Poortvliet, 2012). One might consider an Olympic athlete who follows the 10,000-hour rule to practice constantly (Gladwell, 2008; c.f. Macnamara, Hambrick, & Oswald, 2014) and thus is motivated to compete to benchmark her own progress, with the broader intention of performing better than others and winning future competitions. A similar dynamic can be observed in the

quest to continually advance to new levels on mobile puzzle games, such as *Candy Crush*, or the desire to take yet another 500 steps a day as monitored by a sports wrist-watch to reach a new goal. Thus, performance goals can prompt social comparison and increase the motivation to compete.

Finally, the widely studied self-enhancement motivation leads individuals in competitive settings to draw on similar comparison information, but to a different end (Taylor & Lobel, 1989). According to Sedikides and Strube (1995), "[p]eople are motivated to elevate the positivity of their self-conceptions and to protect their self-concepts from negative information" (p. 212). It should come as no surprise, then, that people tend to engage in self-enhancement when they experience self-threat (Taylor & Lobel, 1989), and thus become motivated to make downward comparisons—that is, to compare themselves to those whose performance is inferior to their own (Wills, 1981), although a recent meta-analysis casts doubt on the evidence of downward comparison theory (c.f., Gerber, Wheeler, & Suls, in press). For instance, in one study, subjects received bogus feedback on an exam; those who "earned" low grades were particularly likely to review exams of other participants, but only if they were led to believe those other participants also performed poorly or worse (Pyszczynski, Greenberg, & LaPrelle, 1985). Thus, self-enhancement goes beyond the informational value of knowing where one stands relative to others to using this information to crown oneself superior to those inferior others (Taylor & Lobel, 1989). In fact, these processes inspired Wheeler (1991) to offer the then-new perspective on social comparison theory (which was originally predicated on an accurate appraisal of the self), dubbed "neo-social comparison theory," to accommodate individuals' competitive, ego-enhancing motives which may disregard the accuracy of the comparison assessment.

Individual Differences

In addition to the ways in which the general motives that underlie social comparison can facilitate competition, individual difference factors can contribute to such behavior as well. Most obviously, individuals with greater social comparison orientation—that is, those with a pronounced interest in relating the abilities and opinions of others to those of the self—have a greater potential for competitive behavior than those who score lower on social comparison orientation (Gibbons & Buunk, 1999). For example, people who scored high on the social comparison orientation scale expressed a significantly higher degree of competitive motivation in a small competition than individuals who were low on social comparison orientation (Garcia & Tor, 2009). However, Houston, Mcintire, Kinnie, and Terry (2002) have perhaps most explicitly captured the extent to which social comparison motivates competition for a given individual with their two-factor model of competitiveness (c.f. Newby & Klein, 2014). One of the factors, which they label self-aggrandizement (e.g., "I want an A because that means I am better than other people"), points directly back to social comparison with respect to the "upward drive." The second factor, which they label interpersonal success (e.g., "I like competition because it teaches me a lot about myself."), points instead to social comparison as a source of self-evaluation information. This contemporary model of competitiveness therefore focuses on the important interplay between the self and the interpersonal social world, recasing what Festinger (1954a) first made explicit in his pioneering work.

Cultural and Social Norms

Cultural norms may also affect whether social comparison prompts people to compete. For example, Alan Page Fiske (1992) uncovered four basic psychological models of social life: communal sharing, authority ranking, equality matching, and market pricing. Considering these alternative models, under communal sharing norms, one would not expect that social comparison would prompt people to compete. On the other hand, under conditions of market pricing, one might expect social comparison to lead to competition. Thus, some cultures may be more conducive to social comparison-based competition depending on the dominant form of sociality.

Other empirical research suggests that social comparison tendencies also vary across countries. Buunk and colleagues found that the frequency of workplace social comparisons varies by national culture, as does the focus of such comparisons (i.e., focus on effort versus achievement); what's more, noteworthy differences between private and public corporations or men and women in social comparison behavior found in Spain were completely absent in The Netherlands (Buunk, Carmona, Peiró, Dijkstra, & Dijkstra, 2011). Such findings underscore the weight national culture and norms may carry in influencing one's self-construal. For example, individuals holding a primarily independent self-construal, as most western people do (Markus & Kitayama, 1991), may be more motivated to pursue social comparisons and competitions that permit the demonstration of one's superiority than someone with a primarily interdependent self-construal. Indeed, American undergraduates score higher on self-report measures of trait competitiveness than Chinese or Japanese undergraduates (Houston, Harris, Moore, Brummett, & Kametani, 2005). Hence, differing cultural norms may make Americans more inclined than East Asians to rely on social comparison as a means of measuring their social status, with social comparison information consequently prompting different degrees of competitiveness in these two cultural groups.

Competition Entry

Research into the psychological processes that shape the decision to enter competitions also suggests a significant role for social comparison. One stream of research focuses on how explicit or implicit errors in social comparison lead to excessive competition entry. Another stream examines how various social factors also affect our social comparison preferences and thus entry decision.

Regarding the first stream, one of us (Tor, 2002, 2016), for instance, explained the puzzling economic phenomenon of excess entry into manufacturing industries by drawing on evidence regarding entrepreneurs' judgment and decision biases, including social judgment errors. Specifically, a large body of industrial organization evidence strongly suggests that firms and, particularly, new entrepreneurs frequently attempt entering new markets in circumstances that render their attempts inadvisable on purely economic grounds (e.g., Dunne, Roberts, & Samuelson, 1988; see generally Tor, 2002, 2016). In part, such entry stems from biased perceptions of one's likelihood of success vis-à-vis other competitors. Among the contributing factors, optimistic bias and related phenomena lead individuals to hold inflated views of their comparative ability and prospects and, consequently, to overestimate their probability of success and underestimate their vulnerability to risk (Cain, Moore, & Haran, 2015; Kruger & Dunning, 1991; Taylor & Brown, 1988; Weinstein, 1980; Weinstein & Klein, 1996).

One experimental study of entry decision making (Camerer & Lovallo, 1999), offered evidence for the importance of both self- and social perceptions in generating biased entry decisions. Camerer and Lovallo (1999) created an experimental game, where participants chose simultaneously, without communicating with each other, whether to enter a market. Participants

were told in advance the "capacity" of the market—that is, the number of participants who can make a positive profit from entering. Naturally, the larger the number of participants who decided to enter the experimental market, the lower the average returns to the entrants. Participants were also informed that not all entrants will receive the same returns. Instead, their returns depended on how they ranked compared to their counterparts, with the ranking determined based on either a random drawing or their performance in either a skill or trivia task. Under these circumstances, most participants realized that the average profit of entrants would be negative yet still believed that their own profits would be positive (Camerer & Lovallo, 1999). Moreover, Camerer and Lovallo (1999) found an especially strong bias when only participants who self-selected to participate in a skill-based entry game competed among themselves. These latter participants exhibited significant overconfidence in their comparative skill, failing to account for the greater intensity of competition they were bound to face in this self-selection condition, where only participants who considered themselves skilled enough to win positive returns chose to enter.

Another literature where implicit or explicit errors in social comparison affect social judgment and thus individuals' entry decisions concerns the *Dunning-Kruger Effect* (*DK Effect*) (Kruger & Dunning, 1999; Dunning, 2011). This effect reveals a more ability-contingent path to overconfidence and entry by suggesting that some individuals are incapable of reliably estimating their relative skill and ability. Specifically, people who are particularly incompetent and perform poorly have difficulty gauging their own competence. Such individuals are therefore particularly vulnerable to making misguided entry decisions. For example, after taking an exam, students rated their mastery of the material and their perceived placement on the percentile distribution. Results showed that while top performers were relatively accurate at assessing their

mastery and placement, those students in the bottom quartiles overestimated their mastery and placement considerably (Dunning, Johnson, Ehrlinger, & Kruger, 2003). Ironically, those who performed worst were the same people who were unable to reckon they had performed poorly. Given that competition entry is contingent on a favorable perception of one's relative prospects, the DK Effect suggests that low ability may ironically encourage entry that is less likely to bring about success.

There is also ample evidence suggesting that the perceived easiness of a task can alter people's estimates of their own ability (e.g., Burson, Larrick, & Klayman, 2006; Krueger & Mueller, 2002; Hartwig & Dunlosky, 2014). For example, research participants who performed an easy task were more likely to think that they performed better than average, while those participants who completed a difficult task thought they performed worse than average (Burson, Larrick, & Klayman, 2006). One implication of these findings, taken together, is that people might overestimate their ability to perform in a competition, especially one that they perceive to be easy, and thus enter competitions for which they really have less of a chance of winning.

We next turn to the second stream of research that examines how social factors can affect our social comparison preferences and thus competition entry. The *Frog-Pond Effect* (Frank, 1985; Seaton, Marsh, & Craven, 2010) characterizes one common dilemma in the choice of which competitions to join. Would you rather be a large frog in a small pond or a small frog in a large pond? For example, would you rather live in the nicest house in a typical neighborhood, or would you rather live in a slightly below average house in the nicest neighborhood? The Frog-Pond Effect literature thus examines the social comparison-related tradeoff between individuals' inter-group and within-group status.

Economics research suggests that people's preferences in this respect vary across domains. For example, people might prefer to be among the most intelligent individuals in a neighborhood of average intelligence than an individual of average intelligence in a highly intelligent neighborhood (Solnick & Hemenway, 1998). Recent research also uncovered possible cultural differences with respect to such preferences (Wu, Garcia, & Kopelman, 2017). Thus, if given a choice between being a large frog in a small pond versus a small frog in a large pond, East Asians (e.g., Chinese) show a greater tendency than Westerners (e.g., Americans) to prefer the latter over the former. In one study, participants were given a choice of which college they would prefer to attend: a National Top 10 college in which their academic performance would be below-average – OR – a National Top 100 college in which their academic performance would be above-average. Results showed that 58% of Chinese participants preferred to attend the National Top 10 college where their academic performance would be below-average, compared to only 29% of Americans who made that choice.

Gender is another important factor that affects competition entry and selection, particularly in the tournament setting. Tournament competitions are inherently related to the social comparison process since they are predicated on continued comparisons of performance. When given the option to garner compensation by competing on a task in a tournament versus a noncompetitive piece-rate process, men are more likely to prefer to enter the tournament whereas women tend to prefer the non-competitive pay-per-piece (Niederle & Vesterlund, 2007; see also Datta Gupta, Poulsen, & Villeval, 2013). Similarly, when participants must choose between entering a smaller competition and entering a larger competition, men tend to enter the latter while women tend to enter the former (Hanek, Garcia, & Tor, 2016). In one study, for instance, participants were about to enter a competition to solve as many anagrams (e.g., TONE can be

rearranged to NOTE) as they could, in which the top 10% in performance would receive a cash prize. However, participants could choose whether they wanted to compete in a pool of 10 competitors or a pool of 100 competitors. Results showed that 53% of the women opted for the smaller competition whereas 59% of the men opted for the larger one.

SOCIAL COMPARISON DURING THE COMPETITION

In already competitive social situations, numerous factors moderate people's tendency to engage in social comparison and, consequently, the intensity of their competitive behavior. To help organize these moderators, Garcia, Tor, and Schiff (2013) have created a model of social comparison and competition that distinguished between individual factors and situational factors. *Individual factors*, which depend on a given actor's identity and thus naturally vary from person to person, include in turn both *personal factors* and *relational factors*. Personal factors pertain to an actor's personal preferences and inclinations, while relational factors pertain to how an actor relates to a specific comparison target or competitor. *Situational factors*, on the other hand, tend to exert a similar effect on similarly situated individuals. They are features of the social comparison landscape within which the actor and target competitor compete. Next we therefore enumerate some common individual and situational factors that shape competitive behavior through social comparison.

Individual Factors: Personal Factors

Personal factors depend on the identity of the particular actor, influencing her tendency to engage in social comparison and thus act competitively.

Dimension Relevance. Perhaps one of the most intuitive predictors of comparison concerns is the degree to which an individual considers the performance dimension (athletic, such as a tennis match; academic, as in the case of a course grade; and so on) relevant to her self-definition. This notion of dimension self-relevance was articulated nicely by Tesser (1988), who explained: "A dimension is important to an individual's self-definition to the extent that he strives for competence on the dimension, describes himself in terms of the dimension, or freely chooses to engage in tasks that are related to the dimension" (p. 4).

In other words, the activities most salient to our identities are highly self-relevant. LeBron James would probably be more competitive on a basketball court than in a sewing circle, because sewing (likely) is less significant than basketball for his self-definition. Upward comparisons on self-relevant dimensions can threaten our self-evaluations, and so we become more competitive in the presence of such comparisons as a self-protective measure (Hoffman, Festinger, & Lawrence, 1954). For instance, research has shown that individuals will provide hostile evaluations of rivals, or even sabotage the performance of friends, when outperformed on a self-relevant dimension (Salovey & Rodin, 1984; Tesser & Smith, 1980).

While dimension relevance tends to be rather stable, it is important to note that dimension relevance – and individual factors more generally - can change over time. For example, we may increase our interest in and engagement with a given pursuit (e.g., sewing quilts) over time and thereby render that pursuit increasingly relevant for our self-definition and thus a self-relevant performance dimension.

Individual differences. One personal factor that affects the degree of social comparison and competitiveness during an extant competitive situation pertains to individual differences. Note that the same individual differences factors already mentioned above as influencing

whether social comparison will prompt people to compete also affect individuals' behavior in competitive settings. However, one individual difference that manifests specifically *during* a competition concerns the activation of personal goals. For instance, if an individual's goals are *performance* related (swimming faster than her opponent) rather than *mastery* related (improving at swimming), she will be more prone to engage in social comparison, and thus to act competitively (Darnon, Dompnier, & Poortvliet, 2012; Summers, Schallert, & Muse Ritter, 2003). Furthermore, recent work suggests that there are important differences between approach goals, which focalize the pursuit of success, and avoidance goals, which focalize the avoidance of failure, in terms of competitive outcomes. Whereas an approach mindset has been shown to facilitate proactive behavior and productivity (Kilduff & Galinsky, 2013), an avoidance approach ironically seems to impact performance negatively (Muryama & Elliot, 2012; c.f. Johnson, Johnson, & Roseth, 2012).

Individual Factors: Relational Factors

Relational factors concern the interpersonal relationship between the actor and the comparison target, namely the potential competitor. Relational factors that affect the tendency to engage in social comparison and thus competitive behavior include similarity, relationship closeness, and personal history. These relational factors are individual-based because they depend on the identity of the particular actor and hence vary from one actor to another (i.e., my close friends are not your close friends). Like other individual factors, they tend to be stable yet may vary over time (e.g., people to whom we are similar in high school may be quite different from those we are similar to in middle age).

Similarity. Similarity has two different meanings, both pertinent to a discussion of social comparison. In common language, as well as in some of the relevant psychological literature (e.g., Festinger, 1954a; Wood, 1989), similarity between two individuals can imply a convergence of values and interests. Two women who attend the same church, vote for the same elected officials, and engage in the same athletic activities would be said to be similar in this sense.

Similarity can also refer to commensurate performance on a measurable task (what Festinger refers to as "abilities"), such as running speed or intelligence. This type of similarity also predicts comparison concerns (Hoffman, Festinger, & Lawrence, 1954). Certainly no recreational tennis player would lose sleep comparing herself to Venus Williams, but Venus may be especially concerned about a match against her equally (if not more) talented sister, Serena. Each sister will use the other as a standard against which to compare herself, ultimately hoping to turn out slightly better than the other (Festinger, 1954a).

Broadening the perspective on similarity of opinion or ability as the only basis for comparison, Goethals and Darley (1977) pointed out that for individuals to compare themselves to similar others, they would first have to assess similarity, which inevitably involves comparison. They propose instead a "related attributes" definition of similarity, suggesting that individuals will choose targets of comparison who perform similarly on dimensions closely related to the dimension in question. For instance, rather than compare one's salary to those of others who have similar salaries (which may be difficult to identify and less informative), one might compare to the salaries of others who have achieved similar professional success as measured by other metrics. The related-attributes hypothesis has garnered much support (Wheeler, Koestner, & Driver, 1982), and other researchers have demonstrated that sharing basic

characteristics, such as sex (Wood, 1989), or even non-salient, trivial characteristics, such as "dot estimation ability" (Miller, Turnbull, & McFarland, 1988), may provide sufficient grounds for comparison. Of note, Gilbert, Giesler, and Morris (1995) found that people compare themselves to dissimilar others as well, yet, such comparisons are perceived as non-diagnostic and are therefore undone spontaneously and effortlessly.

All in all, similarity – in its many forms - induces social comparison. We also know that similarity can fuel competitive behavior. For example, Hoffman, Festinger, and Lawrence (1954) found that when one individual in a group of comparably situated individuals is given a slight advantage, the rest of the group will form a coalition against him; but when that individual is given an extreme advantage, no such coalition will form. One explanation for this pattern of behavior is that individuals are motivated to minimize discrepancies in performance via competitive behavior only when such discrepancies are sufficiently small to make comparison meaningful. Other support for the role of social comparison in linking similarity and competition comes from Dakin and Arrowood (1981), who suggested that individuals may conflate similarity with likelihood of success, which inevitably influences performance (see *resultant valence theory*: Lewin, Dembo, Festinger, & Sears, 1944). In other words, similarity may both render others' performance more meaningful and, at the same time, imply that an increase in competitive effort by the actor may yield a better chance of outperforming the target. Finally, an analysis of National Collegiate Athletic Association basketball teams, researchers (Kilduff et al., 2010) have also found that rivalry between teams increases when they are similar in terms of geographical proximity, performance histories, and academic quality.

Relationship Closeness. Relationship closeness is another factor that facilitates social comparison and, in turn, more competitive behavior. Indeed, though intuition might suggest that

comparisons made to friends are more benign or amicable, research shows that these comparisons can be more intense and may breed more interpersonal competitive behavior (Tesser, 1988; Zuckerman & Jost, 2001). In one study (Tesser, 1980), for instance, researchers asked pairs of participants to play the game Password, in which one partner tries to guess a key word based on clues provided by the other partner. When pairs of participants were led to believe that performance on this task was self-relevant (i.e., an indicator of intelligence), participants who were friends of their partner tended to provide more difficult clue words than did those who did not know their partner. To explain this counterintuitive finding, Tesser offered a broader definition of closeness, proposing that it is "similar to Heider's (1958) notion of a unit relation...Closeness increases with similarity, physical proximity, family ties, similarity in place of origin, and the like" (Tesser, 1988, p. 438). Note that while this definition includes at least some aspect of similarity in the definition of closeness, it is ultimately the actor's subjective perception of the target's relationship closeness that distinguishes the effects of this factor from the effects of similarity writ large, sans closeness.

Research (Zuckerman & Jost, 2001) has also shown that friends dislike it when their friends become more successful than they are, such as when these friends garner a big promotion or pay raise. A century ago the satirist H.L. Mencken (1920) even noted how this closeness dynamic plays out in relative comparisons of salary within families, among those predominantly male wage earners of his time, defining wealth as: "Any income that is at least $100 more a year than the income of one's wife's sister's husband." Significantly, these behaviors have not been shown to apply to romantic relationships, wherein empathy and intimacy seem to mitigate comparison concerns (Pinkus, Lockwood, Schimmack, & Fournier, 2008).

Personal History. Personal history with one's competitor has emerged in recent years as another predictor of competitiveness. No competition occurs in a vacuum. Outside the laboratory, competitors are often familiar acquaintances who compete with each other time and time again. Such repeated competitions with the same individuals can lead to more intense feelings of rivalry, which in turn impact competitive drive and performance (Kilduff, 2014). Kilduff and colleagues revealed that NCAA basketball teams who had been matched and competed with each other frequently in the past were more likely to develop a rivalry, and this rivalry predicted greater defensive performance (Kilduff, Elfebein, & Staw, 2010). Although not explicitly linked to social comparison, such concerns may well have partly mediated the effect of personal history on rivalry, since comparison statistics in these professional athletic rivalries, permit the constant monitoring and comparison of rivals' performance.

Situational Factors

Whereas individual factors – both personal and relational – are inextricably tied to the identities of the specific actor and target and thus inevitably vary from person to person, *situational factors* are features of the social comparison landscape that impact similarly situated actors through the context in which the actors' behavior takes place. Among the various potential situational factors of social comparison, the literature to date has established already the impact of proximity to a standard, the number of competitors, social category fault lines, and task versus scale comparisons.

Proximity to a Standard. We live in a society saturated with rankings: colleges ranked by U.S. News and World Report, cars ranked by J.D. Powers and Associates, billionaires ranked by Forbes, and companies ranked by Fortune. Beyond these formal rankings, there are also myriad

informal, ongoing competitions ranging from amassing the largest number of Facebook "friends," LinkedIn "connections," or even Instagram "likes." It seems that everyone is jockeying for the #1 position, or at least trying to get as close to it as possible. Yet these ubiquitous explicit and implicit rankings play a critical role in understanding how standards – whether the obviously desirable #1 ranking or other qualitative thresholds – facilitate social comparison and competitive behavior.

For example, recall from childhood when someone shouts "First one to the tree is the coolest person in the world!" or "Last one there is a rotten egg!" Of course, everyone starts to run. However, competition itself is not uniformly distributed among the racing children. In the former case, it is those children who are closest to the tree who will be tugging and pulling at each other more than those who are further behind. In the latter case, on the other hand, it is the potential "rotten eggs" who will tug and pul at each other more strongly than their peers who are safely ahead. Indeed, by using rankings to systematically vary one's distance from a standard (whether the #1 rank or another qualitative threshold), social comparison researchers have been able to vary the degree of social comparison and thus competitive behavior (Garcia et al., 2006; Garcia & Tor, 2007; Poortvliet et al., 2009; Vandegrift & Holaday, 2012; Zink et al., 2008).

To demonstrate, in one study (Garcia, Tor, & Gonzalez, 2006), participants were asked to imagine being the CEO of a Fortune 500 company, and then asked whether they would enter a joint venture with a rival company. Without a joint venture, their company's profits would increase by 5% and the rivals by 1%. With the joint venture, their company's profits would increase by 6% and their rivals by 6%. In the high ranking condition, the participant's company was ranked #3 and the rival company was ranked #4. In the intermediately ranking condition, the participant's company was ranked #103 and the rival company was ranked #104. And in the

bottom ranking condition, the participant's company was ranked #500 and the rival company was ranked #501 (just off the Fortune 500). Results showed that only 39% of the participants in the high ranking condition and only 50% of those in the bottom ranking condition chose the profit maximizing joint venture, compared to 79% in the intermediately ranked condition. Thus, competitive behavior was strongest in the proximity of a standard (i.e., the #1 ranking, the threshold of the being on the Fortune 500). An additional study also revealed that it did not matter whether one is ranked just one spot ahead (e.g., self is #3, rival is #4) versus behind the rival (self is #4, rival is #3) and that participants felt it was even more important to out-compete their rival as their proximity to the standard increased. While this latter finding helps suggest that the "unidirectional drive upward" (Festinger, 1954a) increases in the proximity of a standard, other studies also link the effect to social comparison, showing that people report that the pain of upward comparison is greater in the proximity of standard.

For example, another study (Poortvliet et al., 2009) found that those who are highly ranked are less likely to cooperate to maximize joint gains. Participants were asked to order twelve items of the "winter survival exercise," and then given bogus feedback about their rank in approaching the ideal solution. Afterwards, they were given the opportunity to exchange information with another participant who was similarly ranked. Results showed that individuals who were highly ranked (#4) indicated they would be less willing to work with another similarly ranked participant (#5), compared to individuals who were intermediately ranked (#51) and had the opportunity to work with another similarly ranked participant (#52). Other studies have also shown that people would rather earn less money than maximize joint gains (e.g., both nonprofit organizations get 5% increase in donations vs. self's nonprofit gets 7% increase in donations

while the other nonprofit gets 25%) when highly ranked than when intermediately ranked (Garcia, Tor, & Gonzalez, 2006).

The impact of rankings has also been observed on actual competitive behavior. For instance, using a similar paradigm to that of Poortvliet et al.'s (2009) study, Poortvliet (2012) asked participants to complete the winter survival exercise and then gave them bogus rankings. Thereafter, participants had an opportunity to inflict harm on another, similarly-ranked participant by increasing the decibels of the noise that the other participant heard while trying to solve another round of the winter survival exercise. Results showed that participants actually inflicted more harm on their counterparts when they were highly ranked than when they were intermediately ranked. Furthermore, the effect of rankings on competitive behavior was found in real-world evidence of organization-level behavior. In an analysis of trading patterns in Major League Baseball, researchers found that teams that are highly ranked are less likely to trade high threat players (i.e., players who were strong) with each other than teams that are intermediately ranked (Garcia & Tor, 2007).

Social comparison and competition also increase in the proximity of other qualitative standards such being ranked at the bottom of a class, or even at the bottom of the income distribution (Garcia, Tor, & Gonzalez, 2006; Poortvliet, 2013; Kuziemko, Buell, Reich, & Norton, 2014). Dubbing this effect "last place aversion," Kuziemko and colleagues (2014) showed, for example, that people would choose gambles with the potential to move them out of last place, even though they would reject such gambles at other parts of the distribution. One can also see this aversion in swimming relay competitions, where swimmers in later positions exhibit higher performance compared to their baseline performance in individual heats (Hüffmeier & Hertel, 2011). That said, personal goals also play an important role here. For example, Poortvliet

and colleagues (2009) showed that people with mastery goals – goals that emphasized the possibility of self-improvement – were actually less competitive at the bottom position, compared to people who were given performance goals – goals which emphasized out-performing others.

Finally, the competitive effects of ranking also spill over into related behaviors. For example, recent findings show that being highly ranked can lead to more unethical behavior, as highly ranked people are more willing than those who were intermediately ranked to lie to improve their ranking status (Vriend, Jordan, & Janssen, 2016). In fact, the competitive effects of rankings can even manifest in facial expressions of cooperativeness. For example, in an analysis of the official photos of business school deans, results showed that deans' facial expressions were perceived as being increasingly less cooperative as the rank of their business school increased (Chen, Myers, Kopelman, & Garcia, 2012).

Number of Competitors. Suppose that you are running a marathon with others of roughly similar ability, and that the top 20% would receive a prize. Would you try harder to compete if there were only 10 competitors than if there were 100? If you were interviewing for a job and knew that the top 30% would be given job offers, would you be more likely to feel competitive toward another interviewee in the waiting room if there were 10 applicants than 100 applicants?

In many real-world competitive situations we might expect competitive behavior to increase when a decreasing number of competitors is associated with a greater likelihood of success and thus with stronger incentives to compete. In line with this prediction, behavioral economics studies show that competitive behavior can increase as a decrease in the number of competitors increases the expected value of success and thus provides increased incentives to compete. For example, in an analysis of online auctions, Ku, Malhotra, and Murnighan (2005)

showed that as the number of bidders decreases (and expected value increases) in an auction, the more competitive arousal the remaining bidders experience and thus their willingness to out-bid the rival bidder. Pillutla and Ronson (2005) demonstrated a similar effect in an analysis of the TV game show "The Weakest Link." In this group game, while there is an incentive to keep the sharpest minds to boost the value of the collective purse, as the "weakest links" get voted off the group, the remaining contestants become even more interpersonally competitive and begin to vote off the sharpest minds. Studies on tournaments (Ehrenberg & Bognanno, 1990; Boudreau, Lacetera, & Lakhani, 2011; Casas-Arce & Martínez-Jerez, 2009) generally show a similar pattern. In such studies, the increasingly competitive behavior that is associated with a decrease in the number of competitors may be caused by increasing incentives to compete, though a selection effect in which the remaining competitors also tend to be more competitive by disposition may also contribute (cf. Vandegrift & Holaday, 2012). These findings are also compatible with a social-comparison based account according to which individuals tend to engage more in social comparison in smaller than in larger groups and therefore manifest more competitive behavior as the number of competitors diminishes. However, earlier studies did not distinguish among the potential contributions of the different causal mechanisms of incentives, selection, and social comparison to the relationship between the number of competitors and competitive behavior.

More recent research clearly shows, however, that the number of competitors can impact social comparison concerns and the motivation to compete, even when incentives and selection play no role (Garcia & Tor, 2009; Tor & Garcia, 2010; Garcia, Tor, & Schiff, 2013). A series of studies establishing this finding, known as the *N-Effect*, revealed that the number of competitors per se has a negative impact on the motivation to compete, even when controlling for expected

value. In one experiment, for example, participants were asked to complete an easy quiz as fast as possible without compromising the accuracy of their responses. Participants were also told that those in the top 20% in terms of finishing times would receive a cash prize. In addition, participants were informed they were competing in a pool of either 10 competitors or 100 competitors. Results showed that participants who believed they were competing in a pool of 10 competitors finished the easy quiz significantly faster than did those who were competing in a pool of 100 competitors, without compromising their accuracy (Garcia & Tor, 2009). Thus, as N increases, the motivation to compete decreases, even when expected value and thus the incentive structure remain the same for both smaller and larger N settings.

The *N-Effect* has also been found in real-world situations in which the number of competitors present was unrelated to one's likelihood of success. In a panel analysis of SAT test-scores at the state level, researchers (Garcia & Tor, 2009) calculated how many test-takers show up on average at any given state's test-taking venues ("test-taker density") and what is the average SAT score for that particular state. Test-taker density was calculated by dividing the total number of test-takers for each state by the total number of test-taking opportunities in that state. Correlational analyses revealed an inverse correlation, controlling for various demographic and other factors (i.e., % of state test-takers who take the ACT college entrance exam): The higher the test-taker density for a given state, the lower its average SAT scores. Moreover, an earlier study examining how dense a room could feel found a similar pattern in which male test-takers, who were all similarly spaced apart, tended to perform better on the SAT in a smaller room than a larger room (Paulus, 1980). Thus, even the mere presence of a larger number of competitors can diminish competitive motivation and performance.

Further studies (Garcia & Tor, 2009) have shown social comparison to be a significant mediator of the *N-Effect*, finding that as the number of competitors increases, social comparison concerns decrease and with them the competitive behavior they facilitate. For example, in a hypothetical context of a job interview in which 20% of the candidates would be offered a job, participants' reported that their tendency to socially compare themselves with another interviewee exiting her interview would decrease as the size of the candidate increased from 10 to 30, 50, and then 100. Another study found that social comparison mediated the impact of N on the motivation to compete. Participants considering a small number of competitors who were asked, "To what extent would you be inclined to compare your own progress to your competitors' progress?" reported they would be more inclined to do so than those who considered the same question for a large number of competitors.

Interestingly, these results may also be related to the greater salience of competitors in small N environments compared to large N environments. For example, Locke (2007) found that contestants in a triathlon who reported having personalized comparison (comparing to specific individuals) finished the race more quickly than those who made generalized comparisons (comparing to others more generally). Work on the local dominance effect also fits this account, as people's self-evaluations are influenced more by how they compare to a specific set of others versus a more general average (Zell & Alicke, 2010; See also chapter X, this volume). Recent research further echoes these findings, showing that runners who competed in races with rivals tended to run significantly faster than in races without any specific rival (Kilduff, 2014).

While we focus on the effect of small versus large N on social comparison and the motivation to compete, it is also important to note that older studies have also shown that the presence of others can increase motivation in the performance of individual tasks, such as in

social facilitation (Zajonc, 1965). That earlier literature contrasted individual performance while working alone with "co-action" situations, where an individual and a few others are simultaneously working on the same individual tasks, ultimately concluding that coaction improves the dominant response; the presence of others improves performance on easy or well-rehearsed tasks, and decreases performance on difficult or novel tasks (Zajonc, Heingartner, & Herman, 1969). Later research on coaction effects have also implicated social comparison processes among the mediators of facilitation (Muller, Atzeni, & Butera, 2004; Baron, Moore, & Sanders, 1978). Thus, the social facilitation literature compares individual performance alone to coaction among a few others, while the N-effect concerns coaction among a few versus many others.

Social Category Fault Lines. We all belong to numerous different social categories from demographic ones, such as gender or race, to professional, academic, and even mundane categories such as being right or left-handed. Depending on salient environmental cues, we tend to self-categorize into any number of these categories. For example, a tourist from Los Angeles may self-categorize as an "American" upon arriving in Paris but as an "Angelino" upon arriving in New York City.

The process of self-categorization relies heavily on social comparison processes and cannot occur without comparison, as individuals must compare their social category membership against the backdrop of a different social category (Hogg & Terry, 2000; Tajfel, 1972; Turner, 1975). Consequently, social comparison concerns are particularly salient across social category lines, and the literature is replete with examples of how social categorization can lead to competitive behavior. For example, studies of payoff allocations in intergroup settings (Tajfel, Billig, Bundy, & Flament, 1971; Turner, Brown, & Tajfel, 1979) found that group members

tended to maximize payoff differences between their group and another group instead of choosing payoffs that would maximize the payoff for both groups or the payoff that would maximize the in-group's profits, even when the chosen allocation required a personal or group sacrifice (Tajfel et al., 1971; Turner et al., 1979).

Competitive preferences also emerge when payoffs are non-monetary. For example, in one study (Garcia & Miller, 2007), University of Michigan (UM) students read about a hotel vacancy dilemma in which two student groups – one from UM and one from Harvard – were traveling together. Option A was to place both student groups in a 1-star hotel, while Option B was to place the UM student group in a 2-star hotel and the Harvard student group in a 4-star hotel. Results showed that the UM participants tended to choose Option A and were less likely to maximize hotel quality, compared to a control condition in which both student groups were from UM. Although intergroup exchanges do not always lead to competitive behavior (see Brewer, 1999; Halevy, Bornstein, & Sagiv, 2008), social-category fault lines amplify social comparison concerns and facilitate competitive behavior.

Research findings on competitive motivation have also shown that social-category fault lines matter, and that social comparison is a necessary precondition for their effect. For example, individuals show a higher motivation to compete when they are being outperformed by an outgroup member than when being outperformed by an ingroup member (Lount & Phillips, 2007). Because social-category fault lines increase social comparison and competitiveness, social categorization can be leveraged to impact behavior within a group. For instance, adding an outgroup as a reference point can help ingroup members work harder on a task and become less vulnerable to social loafing or free riding on the efforts of other group members (Bornstein & Erev, 1994; Bornstein, Erev, & Rosen, 1990; Erev, Bornstein, & Galili, 1993).

There is also evidence that uninvolved third parties are sensitive to social comparisons among members of different social categories (Garcia & Miller, 2007; Garcia & Ybarra, 2010). To illustrate, imagine that you are an administrator deciding the type of music to be played at the high school prom. If half the students want "pop" and the other "alternative," it may seem reasonable to flip a coin: heads – "pop," tails – "alternative." However, if preferences correlated with social category lines, such that one ethnic group wanted "pop" and another ethnic group "alternative," then flipping a coin is no longer a viable solution, as the social comparison between the groups, so to speak, becomes *whose* preference prevails, instead of *which* preference prevails (Garcia & Miller, 2007).

Task versus Scale Comparisons. Another situational factor that moderates social comparison and thus competitive behavior is whether or not performance on a given task (e.g., a test score) affects one's relative position on a more general, underling scale (i.e., an underlying skill). If performance on the task at hand does not affect one's comparative standing on the larger scale, social comparison concerns and competitive behavior subside. For example, if a rival performs better than me on a test but I know that my performance has little bearing on my relative standing with respect to the skill tested, I am not so competitive toward my rival. However, if performance on a task affects my status vis-à-vis the underlying scale, then I will experience greater social comparison concerns and thus feel more competitive and act accordingly (i.e., I will become more competitive toward my rival with respect to the test performance because it has implications for my overall standing).

To illustrate the differential effects of task versus scale comparisons, Garcia and Tor (2007) manipulated whether or not task performance potentially exposed actors to being surpassed on an underlying scale. Participants were asked, first, to imagine playing in a one-day

poker tournament of 500 players and, then, whether they would practice with a rival: "Strategy A: if you decide not to practice, your tournament earnings will increase by 5% and your rival's by 5%" or "Strategy B: if you practice with your rival, your tournament earnings will increase by 10% and your rival's by 25%."

In a within-subjects design, participants responded to the question, "'If before the final round your rank is #1 [#101] in tournament earnings and your rival's is #2 [#102], which strategy would you pursue?'' Results showed that only 25% chose Strategy B and maximized earnings when they and their rivals were highly ranked, while 79% maximized earnings when they were intermediately ranked. This pattern is consistent with the proximity to a standard effect discussed above. However, in a second condition, where another group of participants were told in Strategy B that "their relative standing on the scale was not in jeopardy" – in other words, where performance on the task did not influence performance on the more general scale – participants were more likely to maximize earnings in both the high ranking (74%) and intermediate ranking condition (77%). Thus, when performance on the task at hand has no implication for standing on the more significant scale, social comparison concerns and competitive behavior diminish.

Moreover, it appears that much of the longstanding evidence for social comparison concerns with respect to task performance may reflect individuals' implicit assumption that an upward comparison on the task translates into upward comparison on the scale. In another study, Garcia and Tor (2007) asked people in a competition control condition whether they would want to maximize personal earnings by practicing with an "arch-rival" who would benefit more financially than they would; rankings were not mentioned. Another two conditions, however, added that the participant and the rival were ranked #3 and #4, respectively, in total earnings and

the final round would either place the rival ahead (scale comparison condition) or would not do so (no scale comparison condition). Results showed that participants in the competition control condition and scale comparison conditions tended to exhibit a clear preference to continue avoiding upward comparison and commensurately low rates of earnings maximization (33% and 19%, respectively), whereas participants in the no scale comparison condition were likely to maximize personal earnings (69%). Thus, it is notable that even in the competition control condition, where the effects of task performance on scale positions are unknown, individuals largely behave as if they assume that performance on the task will have implications for the broader scale.

Besides these established situational factors, other recent research, which does not yet offer direct evidence for the role of social comparison, suggests some additional situational variables that may facilitate comparison concerns and competitive behavior. One such factor is the identifiability of a competitor. While it has been established that identifying a specific competitor increases competitiveness (Locke, 2007), researchers are now beginning to show that even the provision of irrelevant, non-identifying competitor information– that is, when a competitor's identity has been determined but not revealed – also increases the intensity of competition (Haran & Ritov, 2014). In a similar vein, other studies found that another situational factor of being slightly behind a competitor midway through a competition actually increases the chances of winning because competitors who lag become more motivated to win, paradoxically suggesting that almost losing can lead to winning (Berger & Pope, 2011). Although, in this latter example, it may be due to the timing of when one is slightly behind, the progress of the competition, or some combination of both.

SOCIAL COMPARISON AFTER THE COMPETITION

Social comparisons do not cease once a competition concludes. However, post-competition comparisons concern actual rather than possible outcomes or the comparison of one's progress to that of another. Did I win or lose? Are there contestants who placed behind me? Other contestants who placed before me? For such comparisons, the long-standing evidence on upward and downward social comparison is highly relevant.

Downward Comparison

Winning a competition naturally brings about downward social comparison: the often satisfying observation that one has performed better than one's competitors. Such an observation is positive for one's self-esteem (Gibbons & Gerrard, 1989). For instance, researchers found that frequent downward social comparisons in the workplace are positively correlated with work satisfaction and retention – that is, there is a positive relation between performance superior to that of one's colleagues and work satisfaction (Brown, Ferris, Heller, & Keeping, 2007). Indeed, studies (Garcia, Song, & Tesser, 2010) show that individuals who have high standing on a self-relevant dimension (e.g., quality of publications) are inclined to retain their high standing - and thus downward comparison - by preventing job candidates with an even higher standing on the relevant dimension (e.g., higher quality publications) from being offered jobs and entering their work group (i.e., from achieving a position that would generate undesirable upward comparisons).

Downward social comparisons are so rewarding that individuals, especially when under a threat to self-esteem, will even construct imaginary, inferior comparison targets (Taylor, 1983).

For instance, Wood and colleagues performed informational interviews on breast cancer patients to investigate their comparative coping strategies (Wood, Taylor, & Lichtman, 1985). One participant reported: "I had just a comparatively small amount of surgery on the breast, and I was so miserable, because it was so painful. How awful it must be for women who have had a mastectomy" (Wood et al., 1985, p. 1178). This excerpt from one woman's interview indicates that even in unfortunate circumstances, we can often shift our focus toward inferiorly situated individuals in an effort to boost our self-perception.

Downward social comparisons on a competitive task also have a clear impact on subsequent task performance, in that they tend to foment status conservatism. For instance, Mussweiler and Mayer (2011) found that, after making a downward social comparison on an initial task, participants sacrificed speed for accuracy on a subsequent task, presumably in attempt to prevent losing their early accomplishment. And more recent research reveals that "winners" of competition have a greater tendency to lie or cheat following a competition because they feel more entitled following the downward comparison generated by winning. However, this post-competition effect, only manifests when the winners won by performing better than others, not when winning by mere chance (Schurr & Ritov, 2016).

Upward Comparison

Upward comparisons lead to diverse affective and performance outcomes – both positive and negative –depending largely upon the individual's motivation for the comparison. According to Wood (1989), upward comparison can fulfill three different comparison goals: self-evaluation, self-improvement, and self-enhancement. A drive for mere self-evaluation, Festinger (1954a) reminds us, is fulfilled in any competition against commensurate opponents regardless

of the outcome, as one approaches a more accurate understanding of his or her own ability whether through winning or through losing. Individuals driven by self-improvement may find inspiration in a superior opponent's performance, learning how they can improve their own performance (Higgins, 2011). Some research suggests, perhaps counterintuitively, that even individuals driven by self-enhancement can benefit from upward comparisons by engaging in assimilation rather than contrast processes – that is, by focusing on similarities rather than the differences between them and the superior comparison target (Pelham & Wachsmuth, 1995; Wheeler, 1966).

Nonetheless, in many competitions – such as those over self-relevant domains or with a close other (Tesser, 1988) – losing can be unpleasant. One common result of upward comparison therefore is the emergence of envy. According to Lange and Crusius (2015), pride and envy are intrinsically intertwined, suggesting that envy will manifest differently depending on how the winner projects pride. They find that when a winning competitor displays authentic pride (pride attributed to internal, unstable, controllable causes), the losing competitor is more likely to experience benign envy, marked by a desire for self-improvement. Conversely, if a winning competitor displays hubristic pride (pride attributed to internal, stable, uncontrollable causes), the losing competitor is more likely to experience malicious envy, marked by a desire to lessen the winner's advantage (see also van de Ven, 2015). This pattern is likely connected to comparison concerns. When an opponent hubristically attributes his victory to ability instead of effort, he implies that the less-successful actor is fundamentally inferior, limiting the explanatory power of situational or contextual factors. As a response, the malicious envy actor seeks to restore his self-evaluation by any means necessary. It is worth noting, however, that recent authors (Cohen-Charash & Larson, 2017) have advocated against distinguishing between benign

and malicious envy, arguing that this distinction confounds types of envy with consequences of envy. Those authors propose, instead, that envy be studied as a unitary construct.

Individuals may also make psychological adjustments to cope with upward social comparisons. As mentioned earlier, one way to improve self-esteem is by shifting attention from superior targets toward inferior ones (Wood, Taylor, & Lichtman, 1985). Tesser's (1988) self-evaluation maintenance (SEM) model predicts additional routes for achieving the same goal. To avoid the self-evaluative sting of upward comparison, this model posits that individuals will perform post-hoc adjustments to dimension relevance, interpersonal closeness, and/or their perception of the opponent's performance. Thus, one might respond to a friend's Chess victory by diminishing the importance she places upon Chess, decreasing closeness with her friend, or distorting her memory of the game (i.e., recalling that it was a "close game" when, in fact, it was not).

Finally, upward comparison following a tough competition need not feel so bad. Research on "the agony of victory and thrill of defeat" (Larsen, McGraw, Mellers, & Cacioppo, 2004) shows that winners can feel muted happiness if they are disappointed in their performance (i.e., "disappointing wins"), and losers can feel muted disappointment if their performance could have been worse ("relieving losses"). And a classic study by Medvec, Madey, and Gilovich (1995) found that Olympic bronze medalists, who could make upward comparisons to the gold and silver medalists, were ironically happier than silver medalists. The salient counterfactual outcome for the bronze medalists was placing fourth and winning not medal at all, whereas the salient counterfactual outcome of the silver medalist was placing first and winning the gold (but c.f. McGraw, Mellers, & Tetlock, 2005).

Competition Re-Entry

After a competition has occurred, and the psychological aftermath of victory or defeat had been dealt with, one may or may not choose to enter a subsequent competition. Surprisingly, no literature to date addresses competition re-entry following a victory. Perhaps actors will generally avoid re-entry in such circumstances, since the potential benefit of winning again may not as enticing as the risk of losing one's title is aversive, as suggested by the extensive research on loss aversion (Kahneman & Tversky, 1979).Indeed, this conjecture regarding a connection between competition victory and re-entry is represents a promising avenue for future research.

At the same time, there are several findings that suggest some conditions for competition re-entry following a loss. Specifically, Johnson (2012) posits that after losing, if individuals perceive a realistic chance of winning a subsequent competition, they will re-enter and even improve performance in that subsequent competition; otherwise, they may cheat or simply withdraw altogether. Similarly, Lockwood and Kunda (1997) found that individuals were inspired and motivated by the achievements of "superstars," such as more senior award-winning colleagues, only when they believed they had the time and capacity to achieve similar success. On the other hand, when one's star status seemed unattainable, as with a junior award-winning colleague, participants experienced "deflation" associated with a missed opportunity. Such a finding is related to Dweck's work on the growth mindset (2006). According to Dweck, those who hold an entity (fixed) self-theory see social comparisons as more fixed and are less likely to experience personal growth than people who hold an incremental (growth) self-theory who focus on improving on the underlying dimension. Thus, following a loss, a person who holds a growth mindset and who perceives an opportunity for success is most likely to enter a subsequent competition.

Conclusion

According to Festinger (1954), social comparison and competition are interconnected, as competitive processes are often a manifestation of the social comparison process. While more than fifty years later literature has helped reveal and conceptualize the individual and situational factors that shape social comparison and competitive behavior (Garcia, Tor, & Schiff, 2013), clarify the role of self-threat in predicting when social comparisons leads to competitive behavior (Johnson, 2012), and identify relational processes that lead to rivalry (Kilduff, Elfenbein, & Staw, 2010), the present chapter offers a new perspective by charting the influence of social comparison at different stages: before, during, and after the competition. In following this framework, we also reveal how several social comparison factors can apply to multiple stages of competition, thereby helping illuminate how the three stages relate to one another and highlight the iterative nature of the social comparison–competition link. This novel three-stage perspective on social comparison and competition also makes clear that, for present purposes, competition is best viewed not a singular event – such as a single game of basketball or chess – but rather a *process* that starts well before tipoff and continues after checkmate.

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