

## The Local Dominance Effect in Self-Evaluation: Evidence and Explanations

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### **Abstract:**

The local dominance effect is the tendency for comparisons with a few, discrete individuals to have a greater influence on self-assessments than comparisons with larger aggregates. This review presents a series of recent studies that demonstrate the local dominance effect. The authors offer two primary explanations for the effect and consider alternatives including social categorization and the abstract versus concrete nature of local versus general comparisons. They then discuss moderators of the effect including physical proximity and self-enhancement. Finally, the theoretical and practical implications of the effect are discussed and potential future directions in this research line are proposed.

### **Article:**

Personal identity is forged from many sources including autobiographical memory, performance outcomes, social feedback, fantasy and imagination, and group affiliations. Certain aspects of identity can be analyzed exclusively with reference to objective data. For example, people who wish to know how fast they can run, what kind of math problems they can solve, or whether they can follow a difficult cooking recipe have simply to perform the task and observe the consequences. However, this type of identity analysis, which we call “instrumental self-analysis,” is mute about the characteristics that underlie these feats such as athleticism, mathematical acumen, and culinary prowess. Assessing personal characteristics requires comparing one’s actions, emotions, states, and outcomes with those of other people—what we call “social self-analysis.”

In psychology, the study of social self-analysis has been almost exclusively the province of social comparison theory (Festinger, 1954). More than 50 years of research under its auspices has shown that explicit social comparisons occur frequently (Wheeler & Miyake, 1992) and that implicit social comparisons—those that people do not consciously register—are probably even more common (Mussweiler, Ruter, & Epstude, 2004). These explicit and implicit comparisons have a profound influence on how people think and feel about themselves (Stapel & Blanton, 2007; Suls & Wheeler, 2000).

### *The Current State of the Art*

Festinger's (1954) seminal article on social comparison theory, which launched this field of investigation, was a hodgepodge of propositions rather than a systematic theory. Research on social comparison has been similarly diffuse, with a few core issues dominating the landscape. Early research supported Festinger's main assumption that people preferred to compare their abilities with those of similar (but slightly superior) others (Goethals & Darley, 1977; C. T. Miller, 1984; Wheeler, 1966). Although early social comparison research focused primarily on comparison target selection, investigators have since recognized that most social comparison opportunities, especially implicit ones, are encountered spontaneously rather than orchestrated in advance (Alicke, 2000; Wood, 1989).

Another modification of Festinger's early perspective applies to the scope of social comparisons. Festinger (1954) contended that people compare themselves to their peers only in the absence of more "objective" information (e.g., test scores, physical standards, and population norms). However, Klein (1997) demonstrated that social comparison feedback conveying one's relative risk for disease (above or below average) exerts pronounced effects on self-evaluations of perceived risk, affect, and health behaviors even when more objective standards, such as one's absolute risk (40% chance of disease), are available. Although findings such as these may be at variance with Festinger's specific assumption about objective information, they confirm his broader assertion about the ubiquity of social comparison processes.

The pervasiveness of social comparison is further exhibited in the discovery of implicit or automatic social comparison processes. Research on this topic has shown that exposing participants subliminally to a social comparison standard alters self-evaluations. For example, research participants subliminally primed with Albert Einstein later rated their intelligence less favorably than those primed with a clown (Stapel & Blanton, 2004). Furthermore, because automatic processes are relatively uncontrollable, people cannot refrain from engaging in social comparison even when it is logically inappropriate. For example, participants in one study continued to compare their task performance to another student's even when they knew that this student had an obvious advantage or disadvantage (Gilbert, Giesler, & Morris, 1995).

### *Social Comparison in Context*

The current state of social comparison, therefore, is in the somewhat ironic position of having confirmed and extended Festinger's faith in the importance and pervasiveness of social comparison by disconfirming some of his basic assumptions. The theoretical perspective and supportive research that we present in this article are in the same boat: We argue that Festinger ignored an essential component of social comparison but turned out to be essentially correct in his inadvertence.

Following Festinger's lead, social comparison research has predominantly focused on the impact of individual comparisons on self-assessment, such as how people respond when they compare themselves to their best friends (Mussweiler & Ruter, 2003), to the average person (Alicke & Govorun, 2005; Klein, 2003), or to another group (Major, Sciacchitano, & Crocker, 1993). An exclusive focus on individual comparisons, however, bypasses one of the most fundamental aspects of social comparison and social self-analysis, namely, the fact that most comparisons entail multiple information sources. For example, when students receive standardized test scores,

they can compare their scores to those of their best friend (one person), a small group of friends (a few people), their classmates (several people), their schoolmates (hundreds or thousands of people), and all test takers (millions of people). Likewise, employees can compare their salaries to those of their coworkers, others in the same company, everyone in the same profession, or everyone in the country.

We order these comparisons on a hierarchy extending from relatively general to relatively local. Local comparison refers to discrete feedback types at the top of the hierarchy, including comparisons with friends and classmates. General comparison refers to aggregate feedback types at the bottom of the hierarchy, including comparisons with larger collectives such as the average student at one's school or the average test taker in the broader population. It is important to emphasize that these are relative rather than absolute designations. In other words, the local–general distinction occurs along a continuum on which some feedback types are more local (or more general) than others. For example, comparisons with other students in the same class are more local than comparisons with most students in the general population but less local than comparisons with a small group of close friends.

### *Local Dominance in Self-Evaluation*

Our central thesis is that when multiple comparison standards are available for self-evaluation, people rely on the most local comparison information while deemphasizing more general, and typically more diagnostic, forms of comparison feedback. This tendency is referred to as the *local dominance effect* (Alicke, Zell, & Bloom, 2010; Zell & Alicke, 2009). Local information specifies a person's status in relation to one or a few discrete individuals (e.g., friends, family members, classmates), whereas general information includes comparisons with aggregates and larger samples.

According to the local dominance hypothesis, local comparisons have a greater self-evaluative impact than more general comparisons (Alicke et al., 2010; Buckingham & Alicke, 2002; Zell & Alicke, 2009). For example, when students assess their ability on the dimensions captured by a standardized test (e.g., verbal or math ability), they will rely more on comparisons with friends and peers than on comparisons with more diagnostic data sources such as the average test taker. Therefore, local dominance often promotes biased self-evaluations. Students who, by chance, associate with friends or peers who perform terribly on standardized tests may have inflated ability perceptions. Students, on the other hand, who have friends or peers who perform exceptionally well are likely to have deflated ability perceptions. These self-evaluative consequences are important, given the powerful role that self-views have in shaping achievement and career strivings (Marsh & O'Mara, 2008).

Two primary rationales underlie the local dominance prediction. The first reason for expecting local dominance derives from the fact that people evolved in small groups and tend, even in present times, to maintain close associations with a relatively small group of peers and associates (Moreland, 1987). Historically, membership in small groups was essential for self-protection and to procure necessary resources, and this same interdependence characterizes modern social life (Brewer & Caporael, 2006). Because people are hardwired to care about those in their immediate environment, it is understandable that they favor feedback that conveys their standing relative to a few peers over more general comparison information. From an evolutionary perspective,

information about one's general standing is of limited use. To meet the exigencies of survival, people needed to estimate how they would fare in competition with local group members (Buss, 2009).

Furthermore, instant access to general comparison information is a modern innovation. For most of human history, people's knowledge was confined to events that occurred in their local communities. Even now, with access to television and the World Wide Web, people live, work, and associate with local group members on a daily basis. It makes sense, therefore, that people's evaluations and emotions would be more influenced by how they fare in relation to a small group of peers than in comparison to a large aggregate of distant strangers.

Finally, according to optimal distinctiveness theory (Brewer, 1991), people align themselves with social groups that best satisfy two competing needs: the desire for inclusion with others and the desire for independence or uniqueness from others. Membership in local groups simultaneously meets both needs. It provides people with a sense of affiliation and belonging. In addition, because local groups are relatively small, they help distinguish individuals within a group from the broader majority. Membership in larger collectives meets assimilation needs but is less able to satisfy the need for differentiation given the groups' size and broad inclusiveness. For these reasons, people identify more strongly with relatively small local groups than larger aggregates (Mullen, Brown, & Smith, 1992; Simon & Brown, 1987) and may therefore be more attentive to feedback that indicates their status in local groups than larger aggregates.

The second main reason for predicting local dominance derives from habitual exposure to peer comparisons during development. Children generally grow up in small families and interact with a limited group of peers when they attend school. Early in life, therefore, they learn to evaluate themselves with reference to a small group of peers. This tendency to make local comparisons is reinforced in adolescence and adulthood where competition for mates, jobs, and other emotional and material rewards takes place primarily with others in the immediate environment.

Consistent with this argument, human development research shows that early experiences with local groups of peers and siblings have far-reaching and long-lasting consequences. For example, peer group status is related to various important outcomes during childhood including academic performance (Kindermann, 1993), depression (Cole & Dodge, 1988), and aggressive behavior (Parker & Asher, 1987). In addition, some argue that adult language and personality are primarily derived from early experiences with peer groups (Harris, 1995). Finally, children and adolescents pursue specialty areas (e.g., playing the piano) when they perceive that they are better than their siblings in these domains and avoid specialty areas when they perceive that they are worse than their siblings (Tesser, 1988).

## EVIDENCE

Numerous studies utilizing various research techniques and outcome measures support the local dominance hypothesis. The following section reviews these studies, beginning with applied research on how students evaluate themselves in academic contexts. Next, a series of recent experiments that manipulated local and general comparison standards is described. Finally, evidence that potentially contradicts the local dominance hypothesis is presented and ultimately reconciled with the local dominance effect.

### *The Frog-Pond Effect*

Outside of families, schools may be the most persistent source of social comparison opportunities for children, adolescents, and young adults. Schools are a convenient laboratory for studying social comparison effects because students commonly compare their test scores, grade point average, and other educational outcomes with those of their schoolmates. Also, instructors frequently make available the entire distribution of scores for students to use for comparison following examinations.

Consistent with the local dominance hypothesis, research suggests that perceptions of academic competence are largely derived through social comparisons with peers in the local environment (Davis, 1966; Marsh & Parker, 1984). This work suggests that the same objective performance level will lead to relatively positive academic self-concepts when it ranks favorably in the immediate environment (i.e., class, school) and relatively negative academic self-concepts when it ranks unfavorably. In this line of research, therefore, students' local standing is expected to determine their academic self-concept even when more diagnostic data sources, such as standardized test scores, are available.

Substantial evidence supports the dominant role of local comparison information in academic self-evaluations. For example, a robust negative relationship between school quality and academic self-concept is consistently obtained after controlling for student academic ability (Marsh, 1987; Marsh & Parker, 1984). Specifically, average students have more positive academic self-concepts when they attend low-quality schools where they rank favorably in the local environment than high-quality schools where they rank unfavorably. This tendency, coined the "big fish in a little pond effect" or "frog-pond effect," paradoxically leads good students at bad schools to have more favorable academic self-concepts, despite being objectively similar (or even worse) than bad students at good schools.

The frog-pond effect is reliable and pervasive (Marsh & Hau, 2003). The magnitude of the effect is comparable among low- and high-ability students, rich and poor students, and Black and White American students (Marsh, 1987). Cross-cultural studies demonstrate that the frog-pond effect obtains in more than 35 diverse countries around the world including Brazil, Russia, Japan, and Sweden (Marsh & Hau, 2003) and therefore appears to be universal (Seaton, Marsh, & Craven, 2009).

Several studies provide evidence that local comparisons with classmates directly contribute to the frog-pond effect. For example, the effect is especially pronounced among students who care more about their status within local groups than the status of their groups in comparison to other groups (McFarland & Buehler, 1995). Similarly, the frog-pond effect has sometimes been found to be greater among women than men, presumably because women are more attuned to their status within groups than the overall status of the group in relation to others (Gardner, Gabriel, & Hochschild, 2002).

Other work distinguishes the influence of local comparisons from other, more general forms of self-relevant information. For example, the frog-pond effect has been conceptualized as the net result of two opposing comparisons: the contrastive effect of within-school (i.e., local)

comparisons with schoolmates and the assimilative effect of between-school (i.e., general) comparisons that indicate overall school quality (Marsh, Kong, & Hau, 2000). As a general rule, attending low-quality schools presumably deflates students' self-concepts, whereas high-quality schools boost their self-concepts. However, these general tendencies are countered by the fact that students at high-quality schools habitually compare themselves to superior classmates, which may deflate their academic self-concepts, whereas students at low-quality schools tend to be exposed to inferior classmates, which may boost their academic self-concepts. Although these assimilative (i.e., school quality) and contrastive (i.e., peer comparison) effects are statistically significant and independent, the contrast effect is considerably larger (Marsh et al., 2000). Thus, the positive effect of attending a top school is insufficient to counteract the negative effect of having low status in the local environment. On the other hand, the negative effect of attending a weak school is insufficient to counteract the positive effect of having high status in the local environment. These findings provide compelling support for the argument that academic self-concepts are derived more from comparisons with peers in the local environment than comparisons with students at other schools.

Finally, recent evidence directly implicates the mediating role of local comparisons with classmates in producing the frog-pond effect (Huguet et al., 2009). Consistent with the frog-pond effect, class average ability was shown to be negatively related to academic self-concept ratings after controlling for student academic ability. That is, students with the same academic ability level evaluated themselves more positively when they were in low- than in high-ability classes. Students were also asked to compare their academic abilities to those of their classmates. Students with the same objective performance level evaluated themselves more favorably when they perceived that their academic ability ranked better as opposed to worse than most students in their class. Furthermore, the frog-pond effect was reduced to non-significance after controlling for students' perceived standing in their class. This finding shows convincingly that the frog-pond effect is in part driven by social comparisons with peers in the local environment.

Altogether, research on the frog-pond effect suggests that local comparisons with peers in the immediate environment play a vital role in self-assessment (Huguet et al., 2009; Marsh et al., 2000). However, the correlational nature of most of this research leaves important questions about the more general local dominance phenomenon unanswered. Most importantly, these studies cannot provide direct contrasts between the relative impact of local comparison standards versus more diagnostic data sources such as aggregate or distributional comparisons. Furthermore, essential control conditions, such as the cases in which only local or general comparison information are available for self-evaluation, cannot be included.

### *Individual Versus Aggregate Comparison*

As we noted at the outset, social comparison theory and research have traditionally focused on comparisons between the self and one other salient person. This is a sensible approach given that people frequently compare themselves to individual targets such as their best friend, office mate, neighbor, or romantic partner (Smith & Leach, 2004; Wheeler & Miyake, 1992). However, exclusive concentration on this paradigm neglects the common situation in which local comparison information can be viewed in the context of broader realities. The poorest member of a family of billionaires may still occupy an enviable economic stratum in relation to others in her or his social class, is fabulously wealthy in comparison to others in her or his country, and is

wealthier still when the whole world is sampled. But as a number of research lines suggest, such as the aforementioned frog-pond effect and studies on relative deprivation (Crosby, 1976; Runciman, 1966), local social comparisons tend to dominate these more abstract realities. Despite the intuitive appeal of the local dominance hypothesis, however, experimental research that pits local against more general comparisons is largely absent from the literature.

According to the local dominance perspective, people will rely more on comparisons with individuated targets such as fellow students than with aggregate targets such as the average score in a class for self-evaluation. In the first set of studies that explored these predictions (Buckingham & Alicke, 2002), students completed a bogus lie detection test and then received manipulated feedback about their performance. The feedback specified that participants performed better or worse than another, same gender, student taking the test at the same time (who was actually a confederate). In addition, the feedback indicated that participants performed better or worse than the average student at their school, based on results from more than 500 previous participants. After taking a few moments to review the performance feedback, participants evaluated their perceived lie detection ability. Consistent with the local dominance hypothesis, individual comparison with the co-actor, but not aggregate comparison with the average student, influenced self-evaluations of lie detection ability. These studies suggest that local comparison with one person in the immediate environment influences ability assessments more than exposure to more valid information about average performance.

This research, however, is limited by the fact that the general or aggregate comparison was nonspecific, informing participants only that they were better or worse than average. Participants may have relied on the local comparison standard simply because the aggregate comparison was ambiguous and did not indicate precisely where they ranked in the broader distribution (e.g., 84th percentile). Although these studies support the local dominance hypothesis, the use of a nonspecific, general comparison limits their scope.

### *Intergroup Versus Intragroup Comparison*

A recent series of experiments testing the relative impact of intergroup versus intragroup social comparison also supports the local dominance hypothesis (Zell & Alicke, 2009). In one of these studies (Zell & Alicke, 2009, Study 1), participants completed a bogus verbal reasoning task and then received manipulated feedback about their performance. This feedback indicated that participants performed better or worse than most students at their university (i.e., intragroup or local comparison) and that their university performed better or worse than most schools involved in the study (i.e., intergroup or general comparison). Consistent with applied research on the frog-pond effect, students with high status at a low-quality school evaluated themselves more favorably than students with low status at a high-quality school. In addition, intragroup comparison feedback specifying participants' standing at their school consistently influenced self-evaluations and mood. On the other hand, intergroup comparison information detailing the standing of the participant's school in relation to other schools influenced self-evaluations and mood only when intragroup comparison information was unavailable. These findings counter the possibility that participants simply do not care about intergroup comparison information because when they were provided only with feedback about the quality of their school, this information had a pronounced effect on their self-evaluations. What these findings show, therefore, is that local comparison information *supersedes* or dominates general comparison information.

A follow-up study (Zell & Alicke, 2009, Study 2), replicated these findings and extended them to the context of small social groups. Participants completed the same verbal reasoning task, this time in groups of five, and were then told that their performance ranked best or worst in the local group (i.e., intragroup or local comparison) and that the performance of their group ranked better than 90% or 30% of several hundred similar groups at their university (i.e., intergroup or general comparison). Consistent with the local dominance hypothesis, students who ranked best in a low-quality group evaluated themselves more favorably than students who ranked worst in a high-quality group. Furthermore, although intragroup comparison feedback specifying participants' standing in their group influenced self-evaluations and mood, intergroup comparison information detailing the standing of the participants' group in relation to other groups influenced these judgments only when intragroup comparison information was unavailable.

### *Three Feedback Sources*

Prior experiments on the local dominance issue have pitted two feedback sources, one local and one general, against each other (Buckingham & Alicke, 2002; Zell & Alicke, 2009). However, people sometimes have more than two standards that can be used for self-evaluation. For example, athletes may know how talented they are in relation to their teammates (most local) and in relation to most of their peers (intermediate) and how good their peers are in relation to other groups (most general). According to the local dominance hypothesis, people in these situations use the most local comparison information to evaluate themselves while simultaneously neglecting other, more general feedback types.

Supportive evidence for this prediction has recently been obtained (Zell & Alicke, 2009, Study 3). Participants completed a verbal reasoning task and received manipulated feedback about their performance. Three feedback sources were provided in different combinations, ranging from most local to most general: whether participants ranked best or worst in a local group (most local), how well they performed in relation to nearly 1,500 previous test takers at their school (intermediate), and how well their school as a whole performed in relation to other schools (most general). Some participants received all three types of feedback, some received two, and some received only one. Consistent with the local dominance hypothesis, participants in each condition used the most local comparison information available for self-evaluation. For example, participants who received all three feedback sources used only the local comparison information indicating their status in the small group, while neglecting intermediate or general information indicating their status in relation to a large sample or the status of their school versus other schools. Participants who received two feedback sources also used the more local information. Finally, the three feedback types each exerted comparable effects when provided alone. These findings suggest that people base their self-evaluations on the most local information that is available to them. Because information regarding one or a few comparison targets always has this advantage, it dominates self-evaluations when it is available.

### *Comparing Objectively Defined Performance Levels*

Applied research shows that reliance on local comparisons with classmates ultimately leads good students at average schools to evaluate themselves more favorably than bad students at prestigious schools, after controlling for student academic ability (Huguet et al., 2009; Marsh et al., 2000). Despite these statistical controls, it is possible that in some samples, good students at

average schools are actually more capable, and therefore should evaluate themselves more positively, than bad students at prestigious schools. Excellent students are occasionally drawn to mediocre schools (e.g., to stay close to home), whereas top schools often have some weak students (e.g., those who are unmotivated or were accepted because of a legacy).

A recent experiment tested whether high-ranking members of low-quality groups evaluate themselves more favorably than low-ranking members of high-quality groups, even when the former have a lower objective performance level (Alicke et al., 2010). Ten participants were brought to the laboratory and subdivided into two minimal groups of five. Next, participants completed a lie detection test and received manipulated feedback about their performance. Students were told that among the ten current participants, their performance ranked fifth or sixth overall. In addition, some participants were told that they ranked fifth overall but worst in their five-person group, whereas the final group was told that they ranked sixth overall but best in their five-person group.

Consistent with the local dominance hypothesis, participants evaluated their test performance and overall lie detection ability more favorably when they ranked best in their five-person group but sixth overall than worst in their five-person group but fifth overall. In these conditions, therefore, participants' overreliance on local comparison information led them to evaluate themselves more favorably when they ranked sixth than fifth. These findings indicate that the local dominance effect arises even when good members of bad groups have a lower objective rank than bad members of good groups.

Furthermore, comparisons with the control conditions (being first or last in a local group versus being fifth or sixth overall) show that the exact same performance level has very different self-evaluative consequences depending on whether it is linked to a local group or a larger collective. This finding provides a very simple and compelling demonstration of how association with even a minimal local group overrides the influence of the individual's position in the larger group. In this case, as opposed to other studies we have conducted, the comparison was between a local group of five and a general group of ten; thus, the local dominance effect does not require a large difference between the size of the local and general groups, and it is not confined to circumstances in which the general group is extremely large and abstract.

### *Potentially Conflicting Evidence*

A few studies have reported findings that ostensibly conflict with the local dominance hypothesis. For example, one study tested the impact of individual (i.e., single other) and aggregate (i.e., average other) social comparisons on self-evaluations, affect, and helping behavior (Klein, 2003, Study 2). Participants completed a bogus verbal ability task and were then told that they performed better or worse than a confederate or better or worse than the average student who had taken the same test. Participants evaluated their performance more favorably, reported greater positive affect, and were more helpful toward another participant after receiving positive than negative feedback. However, the magnitude of these effects was larger in the aggregate than in the individual social comparison conditions.

Similar findings were reported in a recent set of applied social comparison studies (Locke, 2007, Studies 2 and 3). Participants thought about social comparisons that had occurred recently in

their daily lives, indicated whether these comparisons were with an individual target (personalized comparison) or with most people in general (generalized comparison), and then reported how strongly these comparisons influenced their overall mood when they occurred. Results indicated that comparisons with generalized targets were reported to have a greater impact on overall mood than comparisons with individual targets, particularly when these comparisons were with better-off peers.

Altogether, recent work indicates that general comparisons may have a somewhat stronger effect on various outcomes than local comparisons when these standards are considered alone (Klein, 2003; Locke, 2007). These findings are important in assessing the independent effects of local and general comparisons. In addition, the conflicting findings provide one potential boundary condition for local dominance. Although local comparisons dominate general comparisons when people are simultaneously presented with both feedback types (Buckingham & Alicke, 2002; Zell & Alicke, 2009), this outcome may not occur when people receive the feedback types separately.

However, these conflicting findings are also broadly consistent with the local dominance perspective because they show that local dominance is not the result of people simply dismissing or failing to comprehend large sample statistics (see the Perceived Usefulness section below for more on this point). When people receive local and general comparisons in isolation, general comparisons have larger effects (Klein, 2003; Locke, 2007) or effects that are equivalent in magnitude (Zell & Alicke, 2009) to local comparison effects. This helps rule out the possibility that local dominance occurs simply because people fail to appreciate the diagnosticity of data from large samples.

To our knowledge, there is only one study in which participants received both local and general comparison standards that ostensibly conflicts with the local dominance hypothesis (Muller & Butera, 2007, Study 4). Some participants in this study were told that their performance on a visual attention task was worse than that of one coactor but “really good” in comparison to a larger sample. Alternatively, other participants learned only that their task performance was worse than that of one coactor. Participants told that they performed worse than the coactor, but well in relation to a larger sample, evaluated their task performance more favorably than those who were told only that they did worse than the coactor. Although these findings suggest that favorable aggregate comparisons can soften the blow of painful local comparison experiences, they are not directly concerned with the relative impact of local and general comparisons on self-evaluations.

#### POTENTIAL ALTERNATIVE EXPLANATIONS

We believe that the local dominance effect derives largely from the habitual experience of making social comparisons in small groups such as those that occur early in development among family members, schoolmates, and friends. These comparisons are salient and emotionally impactful. Anecdotally, at least, it seems that family- and peer-based comparisons continue to exert a disproportionate influence on self-evaluations long after people have had the opportunity to make more diagnostic comparisons in larger groups. The common experience of being in someone else’s “shadow,” such as a child or sibling who is constantly evaluated in light of a more successful family member, exemplifies this phenomenon.

However, there are obvious and not so obvious alternatives to this explanation. Actually, these alternatives would not necessarily contradict the assumption that early local comparison opportunities (extending even to our evolutionary heritage) affect the later tendency to rely on them; they could be considered potential moderators that identify boundary conditions for the effect. We divide the following discussion into potential alternative explanations and moderators based on the distinction that some of the factors have not been shown to influence local dominance (alternative explanations), whereas some support has been identified for others (moderators).

### *Collective and Individual Selves*

In many of the studies we have conducted on the local–general comparison issue (Zell & Alicke, 2009), local comparison feedback pertains to the individual self (standing of the self within a group), whereas general comparison feedback pertains to the collective self (standing of an in-group in relation to other groups). Past work suggests that feedback directed toward the individual self is more influential than feedback directed toward the collective self (Gaertner, Sedikides, & Graetz, 1999). Thus, the findings of some of these studies could plausibly reflect the motivational primacy of the individual over the collective self rather than local dominance per se.

An experiment conducted to test this alternative explanation defined both local and general comparison standards with reference to the individual self (Zell & Alicke, 2009, Study 4). In this study, participants completed the same verbal reasoning task but this time were told that they ranked best or worst in a small group of five other participants in the current experimental session (i.e., local comparison) and that they ranked better or worse than more than 1,000 students at their school who had previously participated in the experiment (i.e., general comparison). In this case, both the local and general comparison targets were from the same population, specifically, other students at the participant's university. Consistent with the local dominance hypothesis, ranking best or worst in the local group had a greater impact on self-assessments and mood than ranking better or worse than more than 1,000 previous participants. Furthermore, although the general comparison feedback had a substantial impact on self-evaluations and mood when participants were provided solely with this information, the influence of general comparison information plummeted when it was provided simultaneously with local comparison information. Finally, a focused contrast showed that participants, somewhat ironically, evaluated themselves more favorably, and reported greater positive affect, when they ranked best in the local group but at the 32nd percentile as opposed to worst in the local group but at the 84th percentile.

This study shows that the local dominance effect obtains even when both local and general comparison standards implicate the performance of the individual self. These findings suggest that the dominance of local over general comparisons is not confined to circumstances in which the local comparison is directed toward the individual self and the general comparison toward the collective self. In addition, these findings extend past work (Buckingham & Alicke, 2002) by showing that local comparisons with a few peers dominate and displace the influence of comparisons with numerous peers even when general comparison data provide a more precise basis for self-evaluation.

### *Perceived Usefulness*

A simple and straightforward explanation for the local dominance effect is that people fail to recognize the superior diagnostic value of general comparisons. According to this argument, people rely mainly on local comparisons for self-assessment because they believe, erroneously, that local comparisons are more useful, diagnostic, and informative than information from larger samples. A recent study tested this possibility (Zell & Alicke, 2009, Study 5). Participants completed a verbal task in small groups of five and were then asked whether they would prefer local comparison feedback indicating how well they performed in relation to their group or general comparison feedback indicating how well they performed in relation to 1,500 previous participants. Participants also rated the usefulness of each of these feedback sources for evaluating their overall performance and ability. About 80% of the participants preferred general comparison feedback, and general comparisons were rated as substantially more useful than local comparisons for self-evaluation. Thus, participants clearly recognize the superior diagnostic value of large-sample statistics, but they nevertheless rely on local comparison information for self-evaluation when it is available.

### *Information Abstractness or Concreteness*

The standards that people use for self-evaluation and social judgment can vary in terms of their concreteness versus abstractness. Although local comparisons with one or a few specific peers are concrete, comparisons with generalized targets such as the average person are more abstract. Past work indicates that abstract information tends to be neglected in social judgment in favor of less diagnostic but more concrete information (Borgida & Nisbett, 1977; Kahneman & Tversky, 1973). For example, research on “base-rate neglect” demonstrates that when people judge others, whether it be the likelihood that they have a disease or are guilty of a crime, they tend to neglect population base rates in favor of concrete case information about the target (for a review, see Barbey & Sloman, 2007).

Accordingly, one could argue that local dominance arises from this tendency to rely on concrete comparisons at the expense of more diagnostic, but also more abstract, comparisons with larger samples. In support of this position, research suggests that when large sample data sources are presented more concretely by accompanying them with vivid images, their influence increases dramatically (Dunn & Ashton-James, 2008). Thus, it is possible that the local dominance effect could be reduced or even eliminated when general comparisons are presented in a more concrete format, such as when people view an entire distribution of scores rather than pallid statistical information about the average score.

However, a recent experiment challenges this explanation (Zell & Alicke, 2008a). Participants in this study completed a verbal reasoning task and were told that they performed better or worse than 8 out of 10 student participants that day (local comparison) and better than 19% or 91% of about 500 previous participants (general comparison). A third factor manipulated the concreteness of the general comparison standard. Some participants received pallid summary statistics indicating only that they performed better than 19% or 91% of their peers, whereas others received the general comparison feedback in a more concrete format. For these students, a printout of all test scores accompanied the summary statistics. On one side of the handout were the 10 scores of students who completed the test that day. Participants’ own scores, which fell at

the top or bottom of this distribution, were highlighted. On the other side of the handout were several hundred scores of all students who had completed the test up to that point. Again, participants' own scores, which fell near the top or bottom of this large distribution, were highlighted.

Surprisingly, information concreteness had no influence on the local dominance effect. Consistent with the local dominance hypothesis, participants evaluated themselves more favorably when they ranked high in the local group and low in the broader distribution than when they ranked low in the local group and high in the broader distribution. This effect obtained when general comparison data were presented both abstractly and concretely. In fact, the local dominance effect was slightly, but not significantly, stronger when general comparison information was presented in a concrete rather than an abstract format. The local dominance effect, therefore, does not seem limited to circumstances in which local comparisons are more concrete and vivid than general comparisons.

### *Social Categorization*

Research on social identity theory (Tajfel & Turner, 1986) has shown that people discriminate in favor of their in-groups by providing them with more resources than relevant out-groups (Tajfel, Billig, Bundy, & Flament, 1971). This "in-group bias" occurs even when group assignment is arbitrary (Diehl, 1990). Just as people favor in-groups over out-groups for resource allocation, they may also favor comparisons with in-group over out-group members for self-assessment. For example, when people receive social comparison feedback indicating that they are better or worse than another individual, this feedback tends to elicit more pronounced effects on self-evaluations and self-esteem when the comparison individual is an in-group as opposed to an out-group member (Major et al., 1993; D. T. Miller, Turnbull, & McFarland, 1988). Thus, one could argue that the local dominance effect arises from this tendency to place more weight on comparisons with in-group members.

A recent study, however, suggests that the local dominance effect is not constrained by social categorization (Zell & Alicke, 2008b). Students completed a verbal reasoning task and then received manipulated feedback indicating that they performed better or worse than 8 out of 10 previous participants at another school (Iowa State University) and better than 19% or 91% of about 500 previous participants at their own school (Ohio University). As in our other studies, local comparison feedback indicating participants' status relative to students at another school had a greater impact on self-assessments and mood than general comparison information indicating their status among several hundred students at their own school. These findings argue against the social categorization account of local dominance in that they show that the effect is not confined to situations in which local information pertains to an in-group and general information to an out-group.

## MODERATORS OF LOCAL DOMINANCE

### *Self-Enhancement and Self-Protection*

Despite the ubiquitous tendency for people to exaggerate their positive characteristics and minimize their negative ones (Alicke & Sedikides, 2009, in press; Taylor & Brown, 1988), negative feedback is sometimes unavoidable: Students receive low test scores, employees receive unfavorable evaluations, and romantic advances are spurned. Many studies have examined how

people cope with negative feedback and how they maintain positive self-views in light of it. Negative self-relevant information can be discounted (Ditto & Lopez, 1992), interpreted in a self-serving way (Alicke, LoSchiavo, Zerbst, & Zhang, 1997), or selectively forgotten (Green, Sedikides, & Gregg, 2008), among other defensive strategies.

Some research suggests that the strength of the local dominance effect can be influenced by self-protection concerns. First, research shows that the tendency to favor individual over aggregate comparisons is exacerbated when aggregate comparisons threaten the global self-concept (Buckingham & Alicke, 2002). In these studies, individual comparison with a coactor influenced self-assessments regardless of whether it had positive or negative implications for the self. This finding suggests that individual (i.e., local) comparisons are sufficiently powerful to override self-enhancement concerns. However, aggregate comparison information influenced self-assessment only when it reflected favorably on the self: When participants learned that they were below average, they ignored this information when evaluating their ability.

Second, research on the relative impact of local and general comparisons provides parallel evidence for the role of self-protection processes in local dominance (Zell & Alicke, 2009, Study 4). Local comparison with a few peers significantly influenced self-evaluations and mood when it had both positive and negative implications for the self, providing further evidence that local comparisons override self-enhancement or self-protection concerns. Conversely, general comparison information influenced self-evaluations and mood only when it had favorable implications for the self. When participants were told that they ranked below average, this information was again neglected. Furthermore, the general comparison feedback levels in this study (32nd percentile, 84th percentile) were intentionally set to be equidistant from participants' baseline performance expectations (58th percentile), thus eliminating the possibility that general comparisons were downplayed simply because they conflicted with expectations.

Together, these investigations provide evidence that aggregate statistical information is especially likely to lose its appeal when it has negative self-implications. Local comparison information, on the other hand, seems to override self-enhancement and self-protection concerns: It influences self-evaluation regardless of whether it is flattering or unappealing.

### *Proximity*

Another way in which local comparisons differ from general comparisons is that local comparisons are typically more proximal or immediate. Although people are frequently in the physical presence of the local group members with whom they are making comparisons, such is rarely true with large-sample comparisons. Research regarding the influence of physical proximity on local dominance is mixed. In one set of studies (Buckingham & Alicke, 2002), participants completed a lie detection test concurrently with another student who was either physically present (i.e., in the same room) or absent (i.e., in another room). The local dominance effect was more pronounced when participants completed the test in the live presence of another student than when they completed the test alone. Specifically, although the impact of local comparison with one person was uninfluenced by physical proximity, general comparison with the average student had a greater self-evaluative impact when participants were alone than when they were in the physical presence of another person. These studies suggest that the physical

proximity of local comparison targets can lead people to pay less attention to abstract statistical data.

A more recent study, however, obtained local dominance effects regardless of physical proximity (Zell & Alicke, 2009, Study 4). Participants in this experiment completed a verbal reasoning task either in the presence of a small group of about five individuals or alone. As usual, local comparison information had a greater influence on self-evaluations and mood than general comparison information. In this instance, the magnitude of the local dominance effect was uninfluenced by the physical presence of the local group. In summary, although some evidence suggests that the impact of general comparisons with statistical aggregates may be deflated when people are in the presence of others (Buckingham & Alicke, 2002), the local dominance effect more broadly does not seem to be affected by the presence or absence of the local group.

Another way in which local comparisons differ from comparisons with larger samples is that local comparisons typically entail greater psychological proximity. Local comparisons tend to occur among friends, family members, coworkers, or competitors, whereas larger samples, which comprise general comparison data, often mostly consist of strangers. Previous social comparison theory and research indicate that comparisons with psychologically proximal targets such as friends and relationship partners exert a greater influence on affect and self-esteem than comparisons with psychologically distal targets such as complete strangers (Tesser, 1988).

However, local dominance does not seem to be limited to contexts in which the local group consists of individuals who are psychologically significant. Research indicates that local dominance arises even when the local group consists of complete strangers who by chance happen to be taking part in the study at the same time as the participant (Alicke et al., 2010; Buckingham & Alicke, 2002; Zell & Alicke, 2009). Nevertheless, it is possible that local dominance effects might be even larger when the local group consists of individuals who are psychologically proximal rather than distal.

Finally, local comparisons are often higher in temporal proximity than general comparisons. Although local comparisons are typically contemporaneous, in that they involve a comparison between the self and other people who are completing a task at the same time, general comparison data can span weeks, months, or even years. One possibility, then, is it that comparisons with individuals who complete a task at the same time as the self might be more salient than those who completed the task at some distant time in the past. Furthermore, people might consider contemporaneous performers to be more relevant because they completed the task under similar conditions. Thus, the local dominance effect might be maximized when the local group is temporally proximal rather than temporally distal.

### *Entitativity*

Groups vary in their cohesiveness, and factors such as proximity, similarity, and common fate all contribute to perceptions of how “group like” a collection of individuals or objects appears to be (Campbell, 1958). According to these criteria, small local groups are generally more entitative (i.e., cohesive) than are the groups that are represented by large sample data. As mentioned above, local groups are typically higher in physical, temporal, and psychological proximity than are large samples. Furthermore, local group members are often similar to one another in that they

might live or work in the same place and share common goals or values. However, larger aggregates are highly variable and might consist of individuals who share little in common.

Recent research indicates that social comparisons occur more readily, and have a greater judgmental impact, when they involve a comparison between entitative as opposed to non-entitative group members (Pickett, 2001). That is, comparison contrast effects occur with greater magnitude when they involve individuals who belong to a highly cohesive group (i.e., the same fraternity or sorority) than when they involve individuals who belong to a group that is low in cohesiveness (i.e., people born in the same month; Pickett, 2001). Comparison effects occur with greater regularity and magnitude among individuals in high-entitativity than in low-entitativity groups because it is simply easier to compare individuals who belong to cohesive groups than noncohesive groups. In other words, it is easier to compare “apples to apples” than “apples to oranges.” Consistent with this logic, a recent study demonstrated that comparative judgments of two individuals occur with greater speed when they involve members of entitative (i.e., members of a sports team) than nonentitative groups (i.e., people in line at a bank; Pickett & Perrott, 2004). Therefore, the tendency for local groups to be more entitative than groups that reflect large sample data may be another factor that contributes to the magnitude of the local dominance effect.

## IMPLICATIONS

The local dominance effect has implications for many research areas in psychology. In the next section, we discuss four important phenomena that are likely to be influenced by local dominance: biased self-assessment, health risk assessment, pay satisfaction, and the relationship between stigma and self-esteem.

### *Biased Self-Assessment*

Perception is not reality, and in the case of self-perception, reality is often far afield (Dunning, Heath, & Suls, 2004). People tend to evaluate their attributes and skills more favorably than objective circumstances warrant (Alicke & Govorun, 2005), but they can also be unduly negative (Kruger & Dunning, 1999). One prominent explanation for self-assessment inaccuracy is that people lack the information they need to do better (Ehrlinger, Johnson, Banner, & Dunning, 2008). Although many types of information and misinformation can produce inaccuracy, the local dominance effect suggests that one crucial piece of information that people often lack is knowledge of where they stand in larger populations.

This failure to locate oneself in larger groups makes it difficult to assess abstract, general characteristics. Many personal goals require knowing, for example, whether one is as intelligent, athletic, or ambitious as one's peers. Accurate calibration of these self-components requires comparisons with the population of people with whom one might compete for scarce positions. To become a fiction writer, dancer, or musician, for example, requires comparison with the people who are likely to compete for the available positions in these occupations. The outcome of this social self-analysis defines characteristics such as writing, dancing, and musical ability.

Likewise, interpersonal goals give rise to broad-based social characteristics such as friendliness, kindness, and cooperativeness, whereas personal goals might lead people to wonder whether they are good people or are leading a life of honesty and integrity. Again, social self-analysis of such

general characteristics would benefit from sampling the social behaviors of large groups. However, as a preponderance of the evidence that we have discussed suggests, people are likely to eschew large samples in favor of haphazard comparisons with whatever social comparison targets are most readily accessible. This propensity to focus disproportionately on local samples is likely to lead people either to overestimate or underestimate their abilities and characteristics. Overestimation entails pitfalls such as overconfidence, or the selection of situations, interaction partners, and careers for which one is ill suited (Camerer & Lovallo, 1999; Moore & Cain, 2007). Underestimation, on the other hand, can lead to lack of self-confidence and missed opportunities (Klayman, Soll, Gonzalez-Vallejo, & Barlas, 1999; Stankov & Crawford, 1997).

We want to emphasize, however, that local dominance is less of a problem for instrumental self-analysis (as opposed to social self-analysis). As noted at the outset, instrumental self-analysis entails assessing one's ability to attain circumscribed goals or to surmount specific environmental obstacles. When it comes to such ordinary goals as making a Little League team, advancing in a company, or succeeding in courtship, local comparisons are the coin of the realm. In fact, the pervasiveness of such goals in ordinary life is perhaps a primary reason why local comparison information is so dominant in self-evaluation. Because people habitually seek to solve instrumental self-analysis problems, which primarily require local comparisons, they come to rely on this method of analysis and neglect more general comparisons when social self-analysis problems arise.

### *Health Risk Judgments*

Many converging lines of evidence suggest that people have a difficult time making accurate health-risk assessments. The process of assessing one's risk for disease and other health problems is debilitated by a host of biasing influences (for a review, see Klein & Stefanek, 2007). These research findings are troubling because risk assessments predict many health-related behaviors (e.g., Gerrard, Gibbons, & Bushman, 1996). An important goal of research on health risk assessment, therefore, is to pinpoint why people's risk assessments are poorly calibrated and to develop interventions to facilitate more accurate perceptions.

One potential biasing influence on risk estimations is the overreliance on local comparisons. Accurate evaluations of risk require attending to general statistical data about the demographic categories one occupies such as race, gender, age, and ethnicity. In evaluating their susceptibility to disease, however, the local dominance effect suggests that people predominately consider how healthy they are in relation to a salient local group (i.e., family, friends, and peers). When they are healthier than most in their local group but less healthy than most in the general population, people may underestimate the likelihood that they will have future medical problems. On the other hand, when people are less healthy than most in their local group but healthy in relation to the general population, they may be overly pessimistic regarding future medical problems. Future research is needed to specifically examine the ways in which local dominance effects extend to health self-perceptions and preventative health behaviors.

Although direct evidence for local dominance in health risk perception is scarce, two research programs point to the potential for local dominance. First, a perplexing finding in the optimistic bias literature is that elderly individuals are overly optimistic about their future health prospects (Weinstein, 1987). Although it makes sense that healthy young adults exhibit a façade of

invincibility, older adults experience symptoms of their mortality frequently, whether it be visual cues of aging that reveal themselves in the mirror or physical pains and limitations that accompany vigorous activity. Thus, it comes with some surprise that researchers have found robust unrealistic optimism effects among the elderly. However, local dominance might provide one solution to this paradox. Elderly individuals might report overly optimistic health perceptions because they frequently compare themselves downward to sick or infirm local peers. These downward local comparisons might be particularly salient and emotionally consequential. Thus, the uplifting effect of local comparisons with others who are worse off than oneself might counteract the objective reality that one's future is not as rosy as one might wish.

Second, research on the comparison experiences of breast cancer patients also points to the potential for local dominance in the health realm (Taylor, Wood, & Lichtman, 1983). Breast cancer patients report that they more often compare themselves downward to patients whose conditions are worse than their own than upward to patients who are faring better. Again, these downward local comparisons may have a bolstering effect, as they lead to the sense that things "could have been worse." For these reasons, local comparisons among breast cancer patients might play a larger role in the recovery process than more inclusive comparisons with larger populations.

### *Satisfaction With Pay*

Personal income derived from job performance is an overt marker of social and economic status. When people are satisfied with their compensation, they tend to be more content with their job, attend work more often, and be less interested in pursuing jobs elsewhere than when they are dissatisfied (Lawler, 1971). Relative deprivation theorists argue that pay satisfaction is influenced not only by how much money people actually earn but also by whether they earn more or less money than relevant peers (Crosby, 1976; Runciman, 1966). Indeed, several studies show that people actively compare their compensation to the compensation that others receive (Berkowitz, Fraser, Treasure, & Cochran, 1997; Major & Forcey, 1985) and that these comparisons directly affect pay satisfaction (Griffeth, Vecchio, & Logan, 1989; Sweeney & McFarlin, 2005).

Furthermore, research demonstrates that people often compare their pay to multiple referents, including that of friends and family members, colleagues inside and outside of their organization, and people in similar and dissimilar professions (Goodman, 1974). For example, employees typically know whether they make more or less money than coworkers and peers, in addition to whether they make more or less money than most people in general. According to the local dominance hypothesis, pay comparisons with peers in the local environment should have a greater impact on pay satisfaction and overall job satisfaction than pay comparisons with most people in general. Although the relative impact of local versus general pay comparisons has not been assessed, research indicates that wage comparisons with local group members are more influential than wage comparisons with other targets. Specifically, wage comparisons with colleagues in the same organization have a greater impact on pay satisfaction than wage comparisons with people in other organizations (Law & Wong, 1998). In addition, satisfaction with life (i.e., happiness) is better predicted by income comparisons with parents, colleagues, and former schoolmates than by one's perceived status in society (Senik, 2009).

The potential for local dominance in wage comparison might be of particular concern to managers who wish to keep their employees satisfied and to prevent them from seeking work elsewhere. Research suggests that when people perceive that they earn less than their local peers, they are not only more dissatisfied with their job than others but also more likely to quit (Aquino, Griffeth, Allen, & Hom, 1997). Dissatisfaction with pay can also result in deviant behaviors including theft and industrial sabotage (Martin, 1981). Thus, employee attitudes and behaviors can be powerfully shaped by the local environment in which they find themselves, and our findings suggest that dissatisfaction at the local level is unlikely to be assuaged by relatively good outcomes in a broader context.

### *Stigma and Self-Esteem*

Self-esteem refers to global self-evaluation and feelings of self-worth (Rosenberg, 1979). The self-esteem construct is of considerable importance and interest to psychologists because it has been linked to mental health (Harter, 1999; Pyszczynski, Greenberg, Solomon, Arndt, & Schimel, 2004) and happiness (Lucas, Diener, & Suh, 1996), among other outcomes. Numerous studies have examined whether members of stigmatized groups have lower self-esteem than other members of society. Prominent theorists in decades past such as Gordon Allport (1954) and Eric Erikson (1956) argued that people in stigmatized groups should experience low levels of pride and self-esteem because of their disadvantaged status in society. In direct conflict with this view, research indicates that members of stigmatized groups such as people suffering from facial disfigurements, obesity, learning disabilities, mental retardation, and physical handicaps do not experience low levels of self-esteem (see Crocker & Major, 1989). Furthermore, recent meta-analyses across hundreds of studies and thousands of participants indicate that Black Americans, a group historically subject to stigma and discrimination, on average have somewhat higher self-esteem than White Americans (Gray-Little & Hafdahl, 2000; Twenge & Crocker, 2002). In sum, members of stigmatized groups often have similar or even somewhat higher self-esteem than members of nonstigmatized groups.

One potential explanation for the minimal impact of social stigma on self-esteem involves the dominant role of local comparison information in self-evaluation. Members of oppressed social groups are more likely to compare themselves locally to fellow group members who are similarly stigmatized than generally to members of nonstigmatized majority groups (Crocker & Major, 1989). This occurs because local group members are higher in similarity to the self and are therefore more likely to be used as comparison referents (Festinger, 1954; Goethals & Darley, 1977). In addition, comparisons with members of high-status groups might be painful, and so one could argue that stigmatized individuals should favor comparisons with those of similar status to themselves to prevent these unpleasant emotional experiences.

Thus, relying on local comparisons might serve an esteem-buffering function among stigmatized individuals. The default tendency to evaluate oneself in terms of one's standing in the immediate local environment, rather than one's standing in society in general, protects stigmatized individuals from the unpleasant reality that their general standing is low. This suggests that global feelings of self-worth might be anchored on the local standing of the self, much as self-evaluations of performance and ability are anchored locally (e.g., Buckingham & Alicke, 2002; Zell & Alicke, 2009).

## FUTURE DIRECTIONS

The local dominance effect is pervasive and robust. In fact, as the state of the literature currently stands, neither we nor anybody else has uncovered contextual or individual difference factors that eliminate the tendency to favor local over general comparisons. Before ending, however, we briefly consider a few potential moderating factors that are worthy of pursuing in future research.

### *Contextual Moderators*

One such factor is the instrumental value of the comparison for satisfying personal goals. A high school athlete who wishes to play basketball at a major college program and a graduate student who hopes to land a research position in a university would be wise to avoid exclusively relying on local comparisons to assess their prospects. Whether such people actually display such wisdom and cast their social comparison net more broadly, or continue to rely on comparisons with their immediate peers, is a question that awaits further research.

A second factor worthy of future investigation is the importance of the self-evaluation dimension to participants. We and others have used tasks such as lie detection and verbal ability and have described these tasks as important to participants, and it is reasonable to assume that such abilities are at least moderately important to college students. Nevertheless, it is possible that people will make greater use of diagnostic, large-sample data in relation to local comparisons for characteristics that are ideographically vital to their goals and prospects.

Although we have provided some evidence that social categorization alone cannot account for the local dominance effect, future studies are needed to further explore the role group categorization processes might play in local dominance. In a potential study, students could learn about their status in multiple in-groups, which vary in terms of their “localness.” For example, students could receive feedback indicating their skill level in relation to classmates, others at their school, and even other students across their state or country. Each of these levels involves an in-group of sorts, whether it be one’s class, school, state, or country. Local dominance predicts that the most local in-group, detailing the student’s status relative to classmates, would yield the greatest self-evaluative impact. Such a finding would suggest that group “localness” rather than group identification produces the local dominance effect.

Additional research is also needed to test the assumption, grounded in evolutionary theory, that local dominance arises out of a desire to obtain status and acceptance in immediate local groups. To test this idea, research could observe the influence of social satiation (Baumeister & Leary, 1995), or the degree to which individuals feel socially connected, on local dominance. According to research on the need to belong (Carvalho & Pelham, 2006; Jiang, Hoegg, Dahl, & Chattopadhyay, 2010), social satiation reduces belongingness motivation, whereas a lack of social satiation increases the desire to be accepted and included in social groups. Therefore, one might assume that local dominance would be minimized among participants whose need for acceptance and belonging has been temporarily satisfied.

Finally, another potential moderator involves the ease with which local and general comparison standards are processed. People have limited attentional and cognitive resources in their daily lives. According to the “motivated tactician” perspective, people use these scarce resources strategically by cutting corners and using shortcuts when possible (Fiske & Taylor, 1991). This

strategy can lead people to utilize more clear-cut, easy to process standards when making evaluations rather than more complex, difficult to process standards, despite the fact that it may produce decisions that are at times erroneous (Gilovich, Griffin, & Kahneman, 2002; Tversky & Kahneman, 1974). Therefore, people may primarily focus on comparison standards that are easy to process such as local comparisons, whereas more difficult to process general comparisons are neglected despite their superior diagnosticity. Future studies could test this possibility by examining whether resource depletion (e.g., cognitive load) exacerbates local dominance effects.

### *Individual Difference Moderators*

Relatively few individual difference variables have been studied in the context of local and general comparisons. The frog-pond effect, a close relative to local dominance, has been shown to be largely unaffected by various individual differences including culture, socioeconomic status, and self-efficacy (Seaton et al., 2009). On the other hand, some evidence suggests that individual differences in collective self-esteem might moderate local dominance (McFarland & Buehler, 1995). People who are highly concerned about the status of their membership groups might be more attentive to intergroup or general comparison feedback than are most people in general.

Other individual difference factors may affect the degree to which people exert cognitive resources when processing local and general comparisons. People who score high on conscientiousness tend to be hardworking, organized, thoughtful, and goal directed (John & Srivastava, 1999). People who score high on the need for cognition enjoy complex thinking and solving difficult problems (Cacioppo & Petty, 1982). Last, individuals who score high on the personality factor known as “need for closure” tend to make decisions quickly with little deliberation and seize on accessible and easy to process information during this process (Webster & Kruglanski, 1994). People with high conscientiousness, high need for cognition, or low need for closure should be less prone to local dominance because they may devote careful attention to general comparisons when other people neglect this information to spare cognitive resources.

Finally, individual differences in self-assessment motivation may affect local dominance. Self-assessment motivation is reflected by a desire to have an accurate self-image and underlies information seeking and processing that facilitate this goal (Wood, 1989). Local dominance effects might be reduced when self-assessment motives are strong. Self-assessment concerns might lead individuals to process general comparison standards more carefully, or they might override self-enhancement concerns that can bias the processing of unfavorable general comparisons (Buckingham & Alicke, 2002; Zell & Alicke, 2009).

### *Other Outcomes*

The local dominance effect has primarily been assessed using subjective outcome indices (i.e., Likert-type scale responses). It remains to be seen whether local dominance obtains on objective outcome measures including task performance and decision making. Several studies have linked self-evaluations to subsequent performance, decision making, and behavior (see Swann et al., 2007), yet research is needed to specifically show that the local dominance effect extends to objective outcomes.

We should also note that although we have concentrated on the connection between local dominance and self-evaluation, local dominance is an important factor in other traditional areas of psychology, especially social influence. Classic research on conformity (Asch, 1955; Sherif, 1936) can be viewed as a type of local dominance problem: In the Asch (1955) paradigm, participants' responses are swayed by conflicting, but obviously erroneous, testimony from their peers. Would the effect of this local comparison information be negated if participants had access to large sample data that confirmed their own responses? Would participants in the Sherif (1936) paradigm calibrate their movement estimates with reference to their local peers or to general statistical information? Our research suggests that local dominance would be important in these circumstances, but extending the local dominance effect to areas outside of self-evaluation awaits future research programs.

## CONCLUSION

The early history of research on social comparison processes was enormously influenced by Festinger's (1954) seminal treatise on the topic. Because Festinger's interest in social comparison grew out of a concern with communication among individuals in small groups, he naturally emphasized comparisons among a few individuals. Clearly, however, comparisons can occur at many different levels of inclusiveness ranging from comparisons with a single individual to locating one's standing in a large population. Accordingly, social comparison theory has expanded to incorporate not only local comparisons with peers and in-group members but also comparisons with generalized targets such as the average person (Buckingham & Alicke, 2002; Klein, 1997).

The research reported in this review highlights the importance of the distinction between comparisons that are local from those that are more general in understanding social comparison consequences. When people have multiple feedback sources, as they often do in their daily lives, the influence of local comparisons dominates and supersedes the influence of general comparisons. A more nuanced approach to social comparison that considers how people respond to multiple comparison sources will be essential for future researchers interested in measuring social comparison reactions as they occur in everyday experience.

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## REFERENCES

Alicke, M. D. (2000). Evaluating social comparison targets. In J. Suls & L. Wheeler (Eds.), *Handbook of social comparison: Theory and research* (pp. 271-293). New York, NY: Plenum.

- Alicke, M. D., & Govorun, O. (2005). The better-than-average effect. In M. D. Alicke, D. A. Dunning, & J. I. Krueger (Eds.), *The self in social judgment* (pp. 85-106). New York, NY: Psychology Press.
- Alicke, M. D., LoSchiavo, F. M., Zerbst, J. I., & Zhang, S. (1997). The person who outperforms me is a genius: Esteem maintenance in upward social comparison. *Journal of Personality and Social Psychology*, *73*, 781-789.
- Alicke, M. D., & Sedikides, C. (2009). Self-enhancement and self-protection: What they are and what they do. *European Review of Social Psychology*, *20*, 1-48.
- Alicke, M. D., & Sedikides, C. (in press). *The handbook of self-enhancement and self-protection*. New York, NY: Guilford.
- Alicke, M. D., Zell, E., & Bloom, D. L. (2010). Mere categorization and the frog-pond effect. *Psychological Science*, *21*, 174-177.
- Allport, G. (1954). *The nature of prejudice*. New York, NY: Doubleday/Anchor.
- Aquino, K., Griffeth, R. W., Allen, D. G., & Hom, P. W. (1997). Integrating justice constructs into the turnover process: A test of a referent cognitions model. *Academy of Management Journal*, *40*, 1208-1227.
- Asch, S. E. (1955). Opinions and social pressure. *Scientific American*, *193*, 31-35.
- Barbey, A. K., & Sloman, S. A. (2007). Base-rate respect: From ecological rationality to dual processes. *Behavioral and Brain Sciences*, *30*, 241-297.
- Baumeister, R. F., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin*, *117*, 497-529.
- Berkowitz, L., Fraser, C., Treasure, F. P., & Cochran, S. (1987). Pay equity, job gratifications, and comparisons in pay satisfaction. *Journal of Applied Psychology*, *72*, 544-551.
- Borgida, E., & Nisbett, R. E. (1977). The differential impact of abstract vs. concrete information on decisions. *Journal of Applied Social Psychology*, *7*, 258-271.
- Brewer, M. B. (1991). The social self: On being the same and different at the same time. *Personality and Social Psychology Bulletin*, *17*, 475-482.
- Brewer, M. B., & Caporael, L. (2006). An evolutionary perspective on social identity: Revisiting groups. In M. Schaller, J. Simpson, & D. Kenrick (Eds.), *Evolution and social psychology* (pp. 143-161). New York, NY: Psychology Press.

- Buckingham, J. T., & Alicke, M. D. (2002). The influence of individual versus aggregate social comparison and the presence of others on self-evaluations. *Journal of Personality and Social Psychology*, 83, 1117-1130.
- Buss, D. M. (2009). The great struggles of life: Darwin and the emergence of evolutionary psychology. *American Psychologist*, 64, 140-148.
- Cacioppo, J. T., & Petty, R. E. (1982). The need for cognition. *Journal of Personality and Social Psychology*, 42, 116-131.
- Camerer, C. F., & Lovallo, D. (1999). Overconfidence and excess entry: An experimental approach. *American Economic Review*, 89, 306-318.
- Campbell, D. T. (1958). Common fate, similarity, and other indices of the status of aggregates of persons as social entities. *Behavioral Science*, 3, 14-25.
- Carvallo, M., & Pelham, B. W. (2006). When fiends become friends: The need to belong and perceptions of personal and group discrimination. *Journal of Personality and Social Psychology*, 90, 94-108.
- Cole, J., & Dodge, K. A. (1988). Multiple sources of data on social behavior and social status. *Child Development*, 59, 815-829.
- Crocker, J., & Major, B. M. (1989). Social stigma and self-esteem: The self-protective properties of stigma. *Psychological Review*, 96, 608-630.
- Crosby, F. (1976). A model of egoistical relative deprivation. *Psychological Review*, 83, 85-113.
- Davis, J. A. (1966). The campus as a frog pond: An application of theory of relative deprivation to career decisions for college men. *American Journal of Sociology*, 72, 17-31.
- Diehl, M. (1990). The minimal group paradigm: Theoretical explanations and empirical findings. *European Review of Social Psychology*, 1, 263-292.
- Ditto, P. H., & Lopez, D. F. (1992). Motivated skepticism: The use of differential decision criteria for preferred and nonpreferred conclusions. *Journal of Personality and Social Psychology*, 63, 568-584.
- Dunn, E. W., & Ashton-James, C. (2008). On emotional innumeracy: Predicted and actual affective responses to grand-scale tragedies. *Journal of Experimental Social Psychology*, 44, 692-698.
- Dunning, D., Heath, C., & Suls, J. M. (2004). Flawed self-assessment: Implications for health, education, and the workplace. *Psychological Science in the Public Interest*, 5, 69-106.

- Ehrlinger, J., Johnson, K., Banner, M., & Dunning, D. (2008). Why the unskilled are unaware: Further explorations of (absent) self-insight among the incompetent. *Organizational Behavior and Human Decision Processes*, *105*, 98-121.
- Erikson, E. (1956). The problem of ego-identity. *Journal of the American Psychoanalytic Association*, *4*, 56-121.
- Festinger, L. (1954). A theory of social comparison processes. *Human Relations*, *7*, 117-140.
- Fiske, S. T., & Taylor, S. E. (1991). *Social cognition*. New York, NY: McGraw-Hill.
- Gaertner, L., Sedikides, C., & Graetz, K. (1999). In search of self-definition: Motivational primacy of the individual self, motivational primacy of the collective self, or contextual primacy? *Journal of Personality and Social Psychology*, *76*, 5-18.
- 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*, 239-251.
- Gerrard, M., Gibbons, F. X., & Bushman, B. J. (1996). Relation between perceived vulnerability to HIV and precautionary sexual behavior. *Psychological Bulletin*, *119*, 390-409.
- Gilbert, D. T., Giesler, R. B., & Morris, K. A. (1995). When comparisons arise. *Journal of Personality and Social Psychology*, *69*, 227-236.
- Gilovich, T., Griffin, D., & Kahneman, D. (Eds.). (2002). *Heuristics and biases: The psychology of intuitive judgment*. Cambridge, England: Cambridge University Press.
- 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.
- Goodman, P. S. (1974). An examination of referents used in the evaluation of pay. *Organizational Behavior and Human Performance*, *13*, 170-195.
- Gray-Little, B., & Hafdahl, A. R. (2000). Factors influencing racial comparisons of self-esteem: A quantitative review. *Psychological Bulletin*, *126*, 26-54.
- Green, J. D., Sedikides, C., & Gregg, A. P. (2008). Forgotten but not gone: The recall and recognition of self-threatening memories. *Journal of Experimental Social Psychology*, *44*, 547-561.
- Griffeth, R. W., Vecchio, R. P., & Logan, J. W. (1989). Equity theory and interpersonal attraction. *Journal of Applied Psychology*, *74*, 394-401.

- Harris, J. R. (1995). Where is the child's environment? A group socialization theory of development. *Psychological Review*, *102*, 458-489.
- Harter, S. (1999). *The construction of the self: A developmental perspective*. New York, NY: Guilford.
- Huguet, P., Dumas, F., Marsh, H., Regner, I., Wheeler, L., Suls, J., . . . Nezlek, J. B. (2009). Clarifying the relationships between the big-fish-little-pond effect (BFLPE) and social comparison: An integrative study. *Journal of Personality and Social Psychology*, *97*, 156-170.
- Jiang, L., Hoegg, J., Dahl, D. W., & Chattopadhyay, A. (2010). The persuasive role of incidental similarity on attitudes and purchase intentions in a sales context. *Journal of Consumer Research*, *36*, 778-791.
- John, O. P., & Srivastava, S. (1999). The Big Five trait taxonomy: History, measurement, and theoretical perspectives. In L. A. Pervin & O. P. John (Eds.), *Handbook of personality: Theory and research* (2nd ed., pp. 102-138). New York, NY: Guilford.
- Kahneman, D., & Tversky, A. (1973). On the psychology of prediction. *Psychological Review*, *80*, 237-251.
- Kindermann, T. A. (1993). Natural peer groups as contexts for individual development: The case of children's motivation in school. *Developmental Psychology*, *29*, 970-977.
- Klayman, J., Soll, J. B., Gonzalez-Vallejo, C., & Barlas, S. (1999). Overconfidence: It depends on how, what, and whom you ask. *Organizational Behavior and Human Decision Processes*, *79*, 216-247.
- Klein, W. M. (1997). Objective standards are not enough: Affective, self-evaluative, and behavioral responses to social comparison information. *Journal of Personality and Social Psychology*, *72*, 763-774.
- Klein, W. M. P. (2003). Effects of objective feedback and "single other" or "average other" social comparison feedback on performance judgments and helping behavior. *Personality and Social Psychology Bulletin*, *29*, 418-429.
- Klein, W. M. P., & Stefanek, M. E. (2007). Cancer risk elicitation and communication: Lessons from the psychology of risk perception. *CA: A Cancer Journal for Clinicians*, *57*, 147-167.
- Kruger, J., & Dunning, D. (1999). Unskilled and unaware of it: How difficulties in recognizing one's own incompetence leads to inflated self-assessments. *Journal of Personality and Social Psychology*, *77*, 1121-34.

- Law, K. S., & Wong, C. (1998). Relative importance of referents on pay satisfaction: A review and test of a new policy-capturing approach. *Journal of Occupational and Organizational Psychology, 71*, 47-60.
- Lawler, E. E., III. (1971). *Pay and organizational effectiveness: A psychological view*. New York, NY: McGraw-Hill.
- Locke, K. D. (2007). Personalized and generalized comparisons: Causes and consequences of variations in the focus of social comparisons. *Personality and Social Psychology Bulletin, 33*, 213-225.
- Lucas, R. E., Diener, E., & Suh, E. (1996). Discriminant validity of well-being measures. *Journal of Personality and Social Psychology, 71*, 616-628.
- Major, B., & Forcey, B. (1985). Social comparisons and pay evaluations: Preferences for same-sex and same-job comparisons. *Journal of Experimental Social Psychology, 21*, 393-405.
- Major, B., Sciacchitano, A., & Crocker, J. (1993). In-group versus out-group comparisons and self-esteem. *Personality and Social Psychology Bulletin, 19*, 711-721.
- Marsh, H. W. (1987). The big-fish-little-pond effect on academic self-concept. *Journal of Educational Psychology, 79*, 280-295.
- 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*, 364-376.
- Marsh, H. W., Kong, C., & Hau, K. (2000). Longitudinal multilevel models of the big-fish-little-pond effect on academic self-concept: Counterbalancing contrast and reflected-glory effects in Hong Kong schools. *Journal of Personality and Social Psychology, 78*, 337-349.
- Marsh, H. W., & O'Mara, A. (2008). Reciprocal effects between academic self-concept, self-esteem, achievement, and attainment over seven adolescent years: Unidimensional and multidimensional perspectives of self-concept. *Personality and Social Psychology Bulletin, 34*, 542-552.
- Marsh, H. W., & Parker, J. (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.
- Martin, J. (1981). Relative deprivation: A theory of distributive injustice or an era of shrinking resources. In L. L. Cummings & B. M. Staw (Eds.), *Research in organizational behavior* (Vol. 3, pp. 53-107). Greenwich, CT: JAI.

- McFarland, C., & Buehler, R. (1995). Collective self-esteem as a moderator of the frog-pond effect in reactions to performance feedback. *Journal of Personality and Social Psychology*, 68, 1055-1070.
- Miller, C. T. (1984). Self-schemas, gender, and social comparison: A clarification of the related attributes hypothesis. *Journal of Personality and Social Psychology*, 46, 1222-1228.
- Miller, D. T., Turnbull, W., & McFarland, C. (1988). Particularistic and universalistic evaluation in the social comparison process. *Journal of Personality and Social Psychology*, 55, 908-917.
- Moore, D. A., & Cain, D. M. (2007). Overconfidence and under-confidence: When and why people underestimate (and overestimate) the competition. *Organizational Behavior and Human Decision Processes*, 103, 197-213.
- Moreland, R. L. (1987). The formation of small groups. In C. Hendrick (Ed.), *Group processes: Review of personality and social psychology* (Vol. 8, pp. 80-110). Newbury Park, CA: Sage.
- Mullen, B., Brown, R., & Smith, C. (1992). Ingroup bias as a function of salience, relevance, and status: An integration. *European Journal of Social Psychology*, 22, 103-122.
- Muller, D., & Butera, F. (2007). The focusing effect of self-evaluation threat in coalition and social comparison. *Journal of Personality and Social Psychology*, 93, 194-211.
- Mussweiler, T., & Ruter, 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., Ruter, K., & Epstude, K. (2004). The man who wasn't there: Subliminal social comparison standards influence self-evaluation. *Journal of Experimental Social Psychology*, 40, 689-696.
- Parker, J. G., & Asher, S. R. (1993). Friendship and friendship quality in middle childhood: Links with peer group acceptance and feelings of loneliness and social dissatisfaction. *Developmental Psychology*, 29, 611-621.
- Pickett, C. L. (2001). The effects of entitativity beliefs on implicit comparisons between group members. *Personality and Social Psychology Bulletin*, 27, 515-525.
- Pickett, C. L., & Perrott, D. A. (2004). Shall I compare thee? Perceived entitativity and ease of comparison. *Journal of Experimental Social Psychology*, 40, 283-289.
- Pyszczynski, T., Greenberg, J., Solomon, S., Arndt, J., & Schimel, J. (2004). Why do people need self-esteem? A theoretical and empirical review. *Psychological Bulletin*, 130, 435-468.

- Rosenberg, M. (1979). *Conceiving the Self*. New York: Basic Books.
- Runciman, W. G. (1966). *Relative deprivation and social justice: A study of attitudes to social inequality in twentieth-century England*. Berkeley: University of California Press.
- Seaton, M., Marsh, H., & Craven, R. G. (2009). Earning its place as a pan-human theory: Universality of the big-fish-little-pond effect (BFLPE) across 41 culturally and economically diverse countries. *Journal of Educational Psychology, 101*, 403-441.
- Senik, C. (2009). Direct evidence of income comparisons and their welfare effects. *Journal of Economic Behavior and Organization, 72*, 408-424.
- Sherif, M. (1936). *The psychology of social norms*. New York, NY: HarperCollins.
- Simon, B., & Brown, R. (1987). Perceived intragroup homogeneity in minority-majority contexts. *Journal of Personality and Social Psychology, 53*, 703-711.
- Smith, H. J., & Leach, W. (2004). Group membership and everyday social comparison experiences. *European Journal of Social Psychology, 34*, 297-308.
- Stankov, L., & Crawford, J. D. (1997). Self-confidence and performance on tests of cognitive abilities. *Intelligence, 25*, 93-109.
- 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., & Blanton, H. (Eds.). (2007). *Social comparison theories*. New York, NY: Psychology Press.
- Suls, J., & Wheeler, L. (Eds.). (2000). *Handbook of social comparison*. New York, NY: Plenum/Kluwer.
- Swann, W. B., Chang-Schneider, C., & McClarty, K. L. (2007). Do people's self views matter? Self-concept and self-esteem in everyday life. *American Psychologist, 62*, 84-91.
- Sweeney, P. D., & McFarlin, D. B. (2005). Wage comparisons with similar and dissimilar others. *Journal of Occupational and Organizational Psychology, 78*, 113-131.
- Tajfel, H., Billig, M., Bundy, R. P., & Flament, C. (1971). Social categorization and intergroup behavior. *European Journal of Social Psychology, 1*, 149-177.
- Tajfel, H., & Turner, J. C. (1986). The social identity theory of intergroup behavior. In S. Worchel & W. G. Austin (Eds.), *Psychology of intergroup relations* (pp. 7-24). Chicago, IL: Nelson-Hall.

- Taylor, S. E., & Brown, J. D. (1988). Illusion and well-being: A social psychological perspective on mental health. *Psychological Bulletin*, *103*, 193-210.
- 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.
- 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). New York, NY: Academic Press.
- Tversky, A., & Kahneman, D. (1974). Judgment under uncertainty: Heuristics and biases. *Science*, *185*, 1124-1131.
- Twenge, J. M., & Crocker, J. (2002). Race, ethnicity, and self-esteem: Meta-analyses comparing Whites, Blacks, Hispanics, Asians, and Native Americans, including a commentary on Gray-Little and Hafdahl (2000). *Psychological Bulletin*, *128*, 371-408.
- Webster, D., & Kruglanski, A. (1994). Individual differences in need for cognitive closure. *Journal of Personality and Social Psychology*, *67*, 1049-1062.
- Weinstein, N. D. (1987). Unrealistic optimism about susceptibility to health problems: Conclusions from a community-wide sample. *Journal of Behavioral Medicine*, *10*, 481-500.
- Wheeler, L. (1966). Motivation as a determinant of upward comparison. *Journal of Experimental Social Psychology*, *2*, 27-31.
- Wheeler, L., & Miyake, K. (1992). Social comparison in everyday life. *Journal of Personality and Social Psychology*, *62*, 760-773.
- Wood, J. V. (1989). Theory and research concerning social comparisons of personal attributes. *Psychological Bulletin*, *106*, 231-248.
- Zell, E., & Alicke, M. D. (2008a). [Information concreteness and the local dominance effect]. Unpublished raw data.
- Zell, E., & Alicke, M. D. (2008b). [Social categorization and the local dominance effect]. Unpublished raw data.
- Zell, E., & Alicke, M. D. (2009). Contextual neglect, self-evaluation, and the frog-pond effect. *Journal of Personality and Social Psychology*, *97*, 467-482.