# Contextual neglect, self-evaluation, and the frog-pond effect.

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Zell, E., & Alicke, M. D. (2009). Contextual neglect, self-evaluation, and the frog-pond effect. *Journal of Personality and Social Psychology*, 97(3), 467-482.



## Abstract:

Social comparisons entail not only information about one's standing in a social group (intragroup or local comparison) but also information about the standing of the group in comparison to other groups (intergroup or general comparison). In Studies 1–3, the authors explored the relative impact of intergroup and intragroup comparisons on self-evaluations and affect. While intragroup comparison feedback consistently impacted self-evaluations and affect, intergroup comparison information exerted a significant impact only when intragroup comparison information was unavailable. The authors refer to this general tendency as contextual neglect. Studies 4 and 5 showed that contextual neglect is due primarily to the fact that low-level, local comparison information displaces or supersedes the effect of higher level, general comparison data and that people clearly recognize the superior diagnosticity of higher level comparisons while continuing to rely on small, haphazard sample data to evaluate their ability.

**Keywords:** self-evaluation | social comparison | social identity | social groups | neglect | personality | social psychology

## Article:

Among social psychology's most fundamental insights is the recognition that people construct their identities by comparing their behaviors, emotions, outcomes, status, and characteristics with those of other people and groups. Research on this topic, which operates under the heading of social comparison theory ( Festinger, 1954; Stapel & Blanton, 2007; Suls & Wheeler, 2000), has concentrated either on the antecedents and consequences of thinking about oneself in relation to one or a few other individuals or on comparisons between groups ( Blanton, Crocker, & Miller, 2000; Brewer & Weber, 1994; Major, Schiaccitano, & Crocker, 1993).

This bifurcation of individual and group processes bypasses an essential element of social comparison, in particular, the embedding of individual comparisons within larger groups or social networks. A student who compares his test grade to that of his roommate, for example,

would be well advised to consider his roommate's standing in the class. The student could also consider the standing of his class within other, similar classes, the standing of his university relative to others, and the standing of university students in the population at large. In short, all social comparisons are embedded in contexts that range from immediate comparisons with individuals to larger and more abstract comparisons with increasingly inclusive populations ( Buckingham & Alicke, 2002; Klein, 2003).

Because it is infeasible to study all these levels of the hierarchy concurrently, we distinguish in this article between two particular and fundamental levels: intragroup versus intergroup comparisons. An intragroup comparison for present purposes accords with traditional notions of ingroups ( Tajfel & Turner, 1986), that is, a group of people who share a common set of experiences, beliefs, missions, states, common fate, identifying characteristics, or demographics. Intergroup comparisons refer to outgroups, that is, any relevant group other than the one that the ingroup comprises. To take a concrete example, a student at a university who receives a performance outcome can compare his or her outcome to that of other students at the same university (intragroup comparison) while simultaneously considering the quality of the university relative to others (intergroup comparison).

The importance of this distinction for self-evaluation is that an intragroup comparison's value can be altered by intergroup comparison information. Being the best yodeler in a group of one's friends, for example, is a bigger deal if one's friends are prodigious rather than lackluster yodelers. Similarly, being an exceptional student at a school with high academic standards should lead to more favorable self-evaluations of academic ability than being a crackerjack student at a middling institution, given the same performance level. 1

Although the general intragroup–intergroup issue has received scant attention, one particular facet of this problem, under the guise of the big fish in a little pond or frog-pond effect ( Davis, 1966; Marsh, Kong, & Hau, 2000; Marsh & Parker, 1984), has been extensively studied. The frog-pond effect refers to the paradoxical finding that poor students in higher quality schools tend to have less favorable academic self-concepts than good students in lower quality schools, despite objectively similar (or even better) performance. With regard to the intragroup–intergroup issue, this finding can be construed to indicate that an unfavorable intragroup comparison overrides a favorable intergroup comparison. In other words, although a student has low status within his or her local group (intragroup comparison), the fact that this group has high standing overall (intergroup comparison) should counteract this poor local status. However, the frog-pond effect shows that this counteraction either fails to occur or is inadequate to obviate the relatively negative self-evaluations that characterize poor members of good groups.

Numerous studies conducted in different countries have documented the robustness of the frog-pond effect as applied to academic performance (for reviews, see Marsh, 1987; Marsh, Hau, & Craven, 2004). A large-scale study by Marsh (1987) provides an impressive demonstration. Marsh compared the academic self-concepts (i.e., self-evaluations of overall academic ability

and intelligence) of over one thousand 10th-grade students who attended low- and high-quality schools. Schools were classified as low or high quality based on their students' average performance on standardized ability tests. Results indicated that after equating students in terms of academic ability and socioeconomic status, students at high-quality schools reported more negative academic self-concepts than students at low-quality schools.

The few laboratory studies that have explored the frog-pond effect experimentally have shown that the effect is stronger for people with low versus high collective self-esteem ( McFarland & Buehler, 1995), that it is diminished in collectivist cultures ( Chen, Brockner, & Katz, 1998), and that it is stronger for women than for men in some contexts ( Gardner, Gabriel, & Hochschild, 2002).

Due to the paucity of laboratory investigations on the intragroup versus intergroup comparison issue in general and on the frog-pond effect more specifically, research that explores the basic underpinnings of the frog pond effect is limited. The explanation that Marsh and his colleagues have favored concentrates on the experience of bad members of good groups. According to Marsh's interpretation, bad members of good groups might simultaneously evince both assimilation upward toward the superior group members and contrast from them. The fact that they view themselves less favorably than do good members of bad groups suggests that the contrast effect dominates the assimilation effect ( Marsh et al., 2000). Put another way, the negative self-evaluative effects of contrast outweigh the positive effects of assimilation.

The frog-pond effect refers specifically to the academic self-concepts of students who attend schools of varying quality. In the studies we report below, we pursued a more general interpretation of such effects, one that distinguishes between local and general comparisons. In short, we tested the assumption that people evaluate themselves using the most local comparison information that is available, while neglecting more general, contextual data. In each of the five experiments we present, a local comparison was tantamount to an intragroup comparison—one in which people compare to others who can be conceived as a collection of individuals who share something significant in common. General comparison was defined in terms of the local group's standing in relation to other such groups (Studies 1 and 2), or in terms of how one compares to the general population beyond the local group (Study 4 and 5). Regardless of whether contextual information is defined as the standing of the local group, one's standing in the broader population, or both (Study 3), our prediction is that local comparisons will have a greater impact on self-evaluations than general comparisons.

We assume that the frog-pond effect occurs because students focus on local information indicating how good they are in comparison to their classmates without taking into account more distal contextual information specifying how good their classmates are as a whole. In other words, good students at bad schools overrate their abilities because they focus on the fact that they have high status at their school when evaluating themselves, without sufficiently acknowledging that their school ranks poorly overall. Similarly, bad students at good schools

rate themselves too negatively because they focus on the fact that they have low status at their school when evaluating themselves without sufficiently acknowledging that their school ranks highly overall. An appropriate test of this explanation requires simultaneous manipulations of intragroup and intergroup comparison information, which to our knowledge, have not been effected in previous related research on self-evaluations.

Furthermore, although it is often assumed that the frog-pond effect results from the differential weighting of social comparison standards ( Marsh, 1987; Marsh et al., 2000), the absence of experimentally manipulated social comparison information in this line of research has led some to question whether comparisons are actually involved in the effect ( Dai & Rinn, 2008). The current studies addressed this question by experimentally manipulating local and general comparison standards to assess their influence on self-evaluations.

Although previous research has yet to investigate the joint effects of intragroup and intergroup comparisons on self-evaluations, studies have shown that both intragroup and intergroup comparisons, when presented alone, significantly impact self-evaluations. Intragroup comparison research indicates that individuals with high standing in groups of 4 ( Brickman, 1975) or 10 ( McFarland & Miller, 1994) evaluate themselves more favorably than those with low standing in these groups. Additionally, research on intergroup comparison shows that people compare their ingroups (i.e., schools, teams, family) to relevant outgroups and stake their self-esteem in part on the status of their ingroups ( Tajfel & Turner, 1986). For example, while people bask in the reflected glory of successful ingroups ( Cialdini et al., 1976), being a member of a low-status group may engender feelings of relative deprivation ( Runciman, 1966). Furthermore, people report experiencing positive affect when ingroups succeed and negative affect when ingroups fail ( Hirt, Zillman, Erickson, & Kennedy, 1992; Miller, Turnbull, & McFarland, 1988).

The research that we report below examined the influence of intragroup and intergroup comparison information on self-evaluations when both sources of information are available. The only extant studies that manipulated both comparison types focused on group evaluations rather than self-evaluations. J. J. Seta and Seta (1996) provided students with manipulated feedback indicating that their individual performance on a task was excellent or poor and that a small (6- to 8-member) ingroup to which they were randomly assigned performed poorly or well. Results indicated that students used both group and individual information to rate their group on a series of traits, showing that people can utilize information about both themselves and their group when rendering social judgments. However, because self-evaluations were not measured, it is unclear whether people use both standards when evaluating themselves as opposed to their groups.

Chen et al. (1998) told participants that they performed better or worse than average on a task and that their ingroup (i.e., a few participants who were ostensibly similar to them) as a whole performed above or below average. The primary analyses in this study were conducted on group evaluations, but manipulation checks showed a significant influence of both individual- and

group-level feedback on self-assessments of perceived performance, although the impact of individual feedback was substantially larger.

Finally, C. E. Seta and Seta (1992) provided feedback to students with high and low self-esteem about the performance of an ingroup to which they were randomly assigned. Self-evaluations among participants with high self-esteem were significantly influenced by group performance feedback, yet such feedback did not influence the self-evaluations of students with low self-esteem. It was argued that this finding occurred because individuals with low self-esteem assume that they have low status within groups and therefore do not strongly identify with some ingroups for this reason. In this study, however, participants did not receive specific performance feedback regarding their standing in the ingroup.

The current research, therefore, is the first to examine the relative impact of intergroup and intragroup comparisons on self-evaluations and affect. Our specific hypothesis in these studies was that local (i.e., intragroup) comparison information would supersede or displace the effects of general (i.e., intergroup) comparison information. There are two primary bases for this prediction. First, local or intragroup comparisons may loom large in self-evaluation because they represent the type of comparison information to which people are habitually exposed. People typically learn to evaluate their actions, emotions, and characteristics with reference to their relatives, peers, and group members in their immediate, local environment and only later learn to separate these comparisons into categories and make finer distinctions among the groups to which these comparisons refer. As a result, local comparison information is registered easily and perhaps automatically and comes to dominate self-evaluations.

Consistent with this interpretation, previous work on the primacy of the individual self ( Gaertner & Sedikides, 2005) has shown that individual feedback, such as learning about one's performance relative to a normative reference sample, tends to have a greater emotional impact than feedback about the collective self. For example, participants reported more negative mood when they were told that they performed below the normative sample on a creativity test than when they were told that their school performed below the sample ( Gaertner, Sedikides, & Graetz, 1999, Study 2). Thus, local or intragroup comparisons may play a large role in determining self-evaluations and affect because they signify directly the standing of the individual self.

A second reason for positing the dominance of local over general comparisons is that they require one less inferential step. For example, students can easily locate themselves among other students at their university when given a percentile score. However, factoring the quality of their university into their self-evaluations requires an extra calculation beyond the local, intragroup one.

Regardless of which of these alternatives best fits the data, the upshot is what we refer to as contextual neglect. When people have immediate social comparison information in a local or

intragroup context, even if the comparison is with only one other person ( Buckingham & Alicke, 2002), the local level supersedes the general-level data either because it is a more natural or habitual comparison or because of the inferential work that is required to take the larger contextual information into account. We do not distinguish empirically between these two possibilities in this set of studies (although we provide some relevant evidence in Study 3), but simply refer to the outcome of the process, namely, that local comparison information supersedes the effects of general comparison information.

It is important to highlight that our argument does not entail that general, contextual information is eschewed because it is too abstract or hypothetical to be understood by participants. Instead, our assumption is that local comparison information, because of its habitual importance or inferential ease, dominates or supersedes the effects of general information. This view requires us to show that general comparison information has a strong effect on self-evaluations when local comparison information is absent. However, when local information is introduced, it should overwhelm and negate the influence of general comparison data.

## Study 1

Participants in Study 1 completed a verbal reasoning task and then received false feedback about their performance relative to other students at their school (intragroup comparison), as well as feedback about the performance of their school as a whole (intergroup comparison). Self-performance and group-performance feedback were independently manipulated so that participants thought they had performed better or worse than most other students at their school and that their school performed better or worse than most other schools participating in the study. After receiving the manipulated test feedback, participants responded to self-evaluation and affect items.

We anticipated that intragroup information would have a greater impact on self-evaluations than intergroup information. We predicted, more specifically, that the impact of intergroup social comparison information on self-evaluations and affect would be pronounced in the absence but not in the presence of intragroup comparison information. That is, our assumption that intragroup information supersedes the influence of intergroup data suggests that group-level feedback should produce significant effects on self-evaluations and affect when participants do not know where they ranked within the group. However, when participants are provided with information about their status within the group, intergroup comparison standards are expected to yield nonsignificant effects on self-evaluations and affect.

### Method

#### Participants

Participants were 235 female undergraduates at Ohio University (Athens, OH) who participated for partial course credit in their introductory psychology course. 2

## Design

Prior to arrival, participants were randomly assigned to one of eight conditions. Six of these conditions conformed to a 3 (intragroup comparison: 40th percentile, 80th percentile, none) × 2 (intergroup comparison: 40th percentile, 80th percentile) between-groups design. In addition, there were two control groups that received only intragroup comparison feedback indicating that they ranked at the 40th or 80th percentile relative to all previous Ohio University student participants.

## Materials and Procedure

The experiment was conducted in group sessions ranging from 4 to 6 students per trial. Participants were seated at individual computer terminals. The experimenter told all participants that the study was investigating verbal reasoning abilities and that they would be completing a two-part verbal reasoning assessment. Furthermore, participants were told that the verbal reasoning assessment was currently being administered at schools across the country in an effort to develop a standardized test less culturally biased than those currently being used, such as the SAT and ACT. The first task of the verbal reasoning assessment included 25 synonym-identification items where two options were provided and participants were instructed to choose the alternative that was more closely related in meaning to the target word. Unbeknownst to participants, both options were equally valid. The synonym task has been used in previous research ( Klein, 2003), and the target words and answer options used are sufficiently esoteric to prevent suspicion. Second, participants completed 15 sentence-completion items. After reading a short sentence, they were asked to select from four alternatives which word they thought best completed the sentence. Similar to the synonym task, each question contained two equally correct answers. The verbal reasoning assessment was administered on the computer using Empirisoft's MediaLab software ( Jarvis, 2004). Participants were given a maximum of 5 min to complete each part of the test.

Once participants completed the verbal reasoning assessment, they were provided with bogus feedback about their performance. Participants were told that they correctly answered 28 of 40 items. Based on this score, some participants were told that that they performed better than about 40% or 80% of 200 previous participants at Ohio University (intragroup comparison). Additionally, some participants were told that Ohio University students as a whole performed better than about 40% or 80% of all other schools involved in the study (intergroup comparison).

After taking a few moments to review their feedback, participants responded to two self-evaluation questions. We asked participants to assess their performance on the test ("How well do you think you performed on the Verbal Reasoning Assessment?") and verbal reasoning ability ("How would you rate your verbal reasoning ability?") on 11-point scales (0 = very poor/poorly, 10 = very well/good). Self-assessments of performance and ability were aggregated to create one index of self-evaluation ( $r = .65$, $p < .001$). In addition, we included a performance-related affect

measure ( Buckingham & Alicke, 2002) on which participants indicated the degree to which they were feeling satisfied, proud, sad, disappointed, excited, ashamed, inspired, happy, angry, and stressed about their performance on 11-point scales (0 = not at all, 10 = very much). The negative affect items were reverse scored so that higher numbers corresponded to more positive affect, and all items were included in a composite measure of positive affective reactions to the test (coefficient $\alpha = .87$). We also asked participants to provide evaluations of Ohio University students as a whole on the verbal reasoning assessment. These group evaluations asked participants to rate Ohio University students' test performance ("As a group, how well did Ohio University students perform on the Verbal Reasoning Assessment?") and ability (How would you rate the verbal reasoning ability of Ohio University students as a whole?) on 11-point scales (0 = very poor/poorly, 10 = very well/good). Assessments of the performance and ability of Ohio University students as a whole were aggregated to create one index of group evaluations ( $r = .77$, $p < .001$). Finally, as a feedback manipulation check, participants were asked to recall their percentile rank as well as the percentile rank of Ohio University students as a whole on the test.

## Results and Discussion

Five participants were omitted from the analyses that follow because they failed one or more of the feedback manipulation checks. The intragroup-comparison-only control conditions were not included in the primary analyses that follow; however, means resulting from these conditions are reported in Table 1. Furthermore, the control conditions were used to conduct specific contrasts exploring the locus of the frog-pond effect that are reported below.

### Self-Evaluations

A 3 (intragroup comparison) × 2 (intergroup comparison) analysis of variance (ANOVA) was conducted on self-evaluation ratings of participants in the experimental conditions. Analyses showed that participants evaluated themselves more favorably when they outperformed 80% of the previous participants ( $M = 6.94$) or had no intragroup comparison feedback ( $M = 6.31$) than when they outperformed only 40% of the 200 previous participants at their school ( $M = 4.90$), $F(2, 164) = 29.38$, $p < .001$, $\eta 2 = .26$. Participants also evaluated themselves slightly more favorably when Ohio University students as a whole outperformed 80% ( $M = 6.24$) rather than 40% ( $M = 5.85$) of the other schools involved in the study, $F(1, 164) = 3.30$, $p = .07$, $\eta 2 = .02$. The main effects were qualified by a significant Intragroup × Intergroup Comparison interaction, $F(2, 164) = 5.69$, $p < .01$, $\eta 2 = .07$.

Follow-up contrasts were performed to assess further our assumption that intragroup comparison information displaces or supersedes the influence of intergroup information. Intergroup comparison feedback indicating that Ohio University as a whole performed better than about 40% or 80% of the other schools did not significantly influence the self-evaluations of participants who were provided with intragroup comparison information ( $p > .60$). However, for participants who received only intergroup comparison information, the performance of Ohio

University compared to other schools significantly influenced their self-evaluations, $t(164) = 3.71$, $p < .001$, $d = 1.00$. Thus, the status of Ohio University compared to other schools influenced self-evaluations only when participants lacked knowledge of the quality of their own performance compared to other Ohio University students.

We next tested whether the frog-pond effect was evident in our study. As expected, participants who ranked at the 80th percentile in a 40th-percentile group evaluated themselves more favorably than those who ranked at the 40th percentile in an 80th-percentile group, $t(222) = 5.93$, $p < .001$, $d = 1.65$, thus replicating the usual frog-pond effect. Then, we tested whether this effect could be attributed to a general neglect of intergroup comparison in the presence of intragroup comparison information. Consistent with predictions, the self-evaluations of participants who ranked at the 80th percentile in the local group did not significantly differ as a function of whether the group ranked at the 40th percentile or the 80th percentile, or when no group information was provided ( $ps > .05$). Similarly, the self-evaluations of participants who ranked at the 40th percentile in the local group did not significantly differ as a function of whether the group ranked at the 40th percentile, 80th percentile, or when no group information was provided ( $ps > .65$). Thus, with regard to the conditions we created in this study, it seems reasonable to conclude that both high-status members of poor groups and low-status members of good groups evinced a clear tendency to base their self-evaluations on their performance within their groups and to neglect the standing of their group relative to others.

Performance-Related Affect

A 3 (intragroup comparison) × 2 (intergroup comparison) ANOVA was conducted on the affective reactions of participants in the experimental conditions. Participants reported greater positive affect when Ohio University as a whole outperformed 80% ( $M = 6.45$) rather than 40% ( $M = 6.03$) of the other schools involved in the study, $F(1, 164) = 4.07$, $p < .05$, $\eta 2 = .02$. Similarly, greater positive affect was reported when participants outperformed 80% of the previous participants ( $M = 6.78$) or had no intragroup comparison feedback ( $M = 6.66$) than when they outperformed only 40% of the previous 200 participants at their school ( $M = 5.30$), $F(2, 164) = 19.25$, $p < .001$, $\eta 2 = .19$. The main effects were qualified by a significant Intergroup × Intragroup Comparison two-way interaction, $F(2, 164) = 5.13$, $p < .01$, $\eta 2 = .06$.

Specific comparisons revealed that intergroup comparison feedback did not significantly impact the affective reactions of participants who were provided with the intragroup comparison information ( $p > .85$). Conversely, participants who received only intergroup comparison information demonstrated significantly more positive affect when Ohio University students as a whole outperformed 80% rather than 40% of the other schools involved in the study, $t(164) = 3.64$, $p < .001$, $d = 1.16$.

We also assessed whether good members of bad groups felt better about their performance than bad members of good groups. Participants who ranked at the 80th percentile in a 40th-percentile

group felt better about their performance than those who ranked at the 40th percentile in an 80th-percentile group, $t(222) = 3.99$, $p < .001$, $d = 1.05$. Then, we tested whether this effect could be attributed to a general neglect of intergroup comparison in the context of intragroup comparison information. Consistent with predictions, affective reactions of participants who ranked at the 80th percentile in the local group did not differ significantly as a function of whether the group ranked at the 40th percentile or the 80th percentile, or when no group information was provided ( ps > .10). Similarly, affective reactions among participants who ranked at the 40th percentile in the local group did not differ significantly as a function of whether the group ranked at the 40th percentile or the 80th percentile, or when no group information was provided ( ps > .70).

Group Evaluations

A 3 (intragroup comparison) × 2 (intergroup comparison) ANOVA was conducted on group-evaluation ratings of participants in the experimental conditions. This analysis yielded a significant main effect of intergroup comparison such that participants evaluated Ohio University as a whole more favorably when it ranked better than 80% ( M = 8.01) rather than 40% ( M = 5.66) of the other schools involved in the study, $F(1, 164) = 123.84$, $p < .001$, $\eta 2 = .43$. No other effects in this analysis attained statistical significance.

Study 1 shows, therefore, that the self-evaluative and affective impact of intragroup social comparison supersedes the impact of intergroup comparison information that signifies the overall quality of the group. When participants received feedback about their performance level in comparison to other students at their school (i.e., intragroup comparison) and the overall performance of the school as a whole (i.e., intergroup comparison), only the intragroup comparison feedback influenced their self-evaluations. Group-level information exhibited significant self-evaluative effects when participants were unaware of their status within the group. However, when participants had knowledge of their standing within the group, this information negated information concerning the group's overall quality.

Study 1 also suggests that at least one plausible explanation for the frog-pond effect is that people focus on their standing within a relevant group when evaluating themselves, while simultaneously disregarding the overall quality of the group. That is, good members of bad groups may have overly favorable self-perceptions because they fail to account for their group's comparatively poor performance level when evaluating themselves. Similarly, bad members of good groups may have overly critical self-perceptions because they fail to account for their group's comparatively high standing. In other words, the frog-pond effect, as represented in this study, is not caused solely by good members of bad groups or bad members of good groups but rather by a general neglect of intergroup comparison information when intragroup comparison standards are available.

Finally, group-evaluation ratings provide evidence against the notion that some participants simply ignored intergroup comparison information. While intergroup comparisons did not

influence self-evaluations when intragroup information was available, they did influence participants' evaluations of the overall performance and ability of their school as a whole. This suggests that intergroup comparison information was processed but deemed irrelevant for self-evaluation when intragroup information was also presented.

## Study 2

The primary assumption in these studies is that self-evaluations rely on the most local-level comparison information that is available. In Study 1, what we call intragroup comparison was defined by participants' percentile standing at their university on a verbal reasoning task. More typical, however, are social comparisons that occur in small groups, especially between people who share a common fate, such as family members, peers, and classmates. In Study 2, therefore, we created a smaller and more intimate intragroup context, one in which participants learned about their own performance outcomes as well as the outcomes of four other students who took the test at the same time as them. In addition to extending the findings of Study 1, this new context provided the opportunity to assess whether frog-pond-type effects extend to a small group context.

The use of smaller groups also allowed us to address a possible alternative explanation for Study 1's findings, namely, that participants placed more emphasis on intragroup than intergroup comparisons because in large groups, one's own performance contributes little to the overall group performance. In smaller groups, however, one's own outcome has a much greater impact on the group's performance. Therefore, Study 2 addressed the important question of whether intergroup comparison information continues to be neglected when the participant's contribution to the group outcome is more substantial.

Students in Study 2 were told that they performed best or worst in a small group of five students on the same verbal reasoning assessment that was used in Study 1. In addition, we varied whether participants believed that the group of five students performed better than 30% or 90% of all previous five-person groups. To complete the study, we once again asked participants to indicate their perceived performance and ability on the test as well their affective reactions to the performance feedback. In line with the results of Study 1, we predicted that the impact of intergroup comparison standards on self-evaluations and performance-related affect would be displaced by intragroup comparison feedback.

### Method

#### Participants and Design

Participants were 124 (55 male, 69 female) undergraduates at Ohio University who participated individually for credit in their introductory psychology course. Prior to arrival, we randomly assigned participants to one of six conditions in a 3 (intragroup comparison: best in group of five, worst in group of five, none) × 2 (intergroup comparison: 30th percentile, 90th percentile)

between-groups design. In addition, there were two control groups that received only intragroup comparison feedback indicating that they ranked best or worst relative to four other students simultaneously taking part in the study.

## Procedure

The experiment was conducted in individual sessions. Participants were greeted and brought to a small laboratory room with a computer. After providing consent, they were informed that four other students were simultaneously taking part in the study in other rooms on the first and second floors of the building. Then, similar to Study 1, participants completed a two-part verbal reasoning assessment. Upon completion, participants were asked to answer a 20-item demographic questionnaire while the tests were being scored. About 2 min after participants completed the demographics questionnaire, they were told that the tests of all five students had been graded, and they were then provided with performance feedback. All participants were told that they correctly identified 28 out of 40 test items. Furthermore, some participants were told that based on this score, they ranked best or worst among the five students currently taking part in the study. In addition, some participants were told that as a group, the five students currently involved in the study performed better than 30% or 90% of 112 five-person groups that had previously participated at Ohio University. Participants then completed the same self-evaluation ( $r = .69$, $p < .001$) and performance-related affect measures (coefficient $\alpha = .90$) as in Study 1. Next, participants evaluated the performance ("How well did your group perform on the Verbal Reasoning Assessment?") and ability ("How would you rate the verbal reasoning ability of your group?") of their five-person group, which was aggregated to create one index of group evaluations ( $r = .89$, $p < .001$). Finally, as a feedback manipulation check, participants were asked to recall how well they performed relative to the other students currently taking part in the experiment as well as the performance level of the five current participants as a group relative to all previous five-person groups.

## Results and Discussion

We removed the data of 3 participants because they failed one or more of the feedback manipulation checks. There were no gender effects in any of the analyses for this or the subsequent studies; thus, it is not discussed further. The intragroup-comparison-only control conditions were not included in the primary analyses that follow; however, means resulting from these conditions are reported in Table 2. Additionally, the control conditions were used to conduct specific contrasts exploring the locus of the frog-pond effect.

### Self-Evaluations

A 3 (intragroup comparison) × 2 (intergroup comparison) ANOVA was conducted on self-evaluation ratings of participants in the experimental conditions. Analyses showed a main effect of intragroup comparison, $F(2, 84) = 15.98$, $p < .001$, $\eta 2 = .28$, such that participants evaluated themselves significantly more favorably when they ranked best in the group of five individuals (

M = 7.58) or had no intragroup comparison feedback ( M = 7.10) than when they ranked worst in the group of five individuals ( M = 5.32). Participants also evaluated themselves somewhat more favorably when their group outperformed 90% ( M = 6.97) rather than 30% ( M = 6.37) of the previous five-person groups although this effect was not statistically significant, $F(1, 84) = 3.03$, $p = .09$, $\eta 2 = .04$. These effects were qualified by a Intergroup × Intragroup Comparison two-way interaction, $F(2, 84) = 3.28$, $p < .05$, $\eta 2 = .07$.

Follow-up contrasts indicated that intergroup comparison feedback did not significantly impact the self-evaluations of participants who were provided with intragroup comparison information ( $p > .90$). Conversely, among participants who were not provided with intragroup comparison information, the self-evaluative impact of intergroup comparison was significant, $t(84) = 3.01$, $p < .005$, $d = 1.21$. Thus, the self-evaluative impact of intergroup comparison information indicating the quality of the five-person group as a whole was significant only when participants did not have knowledge of their standing within the group.

We also tested whether the frog-pond effect was evident in our study. As expected, participants who ranked best in the 30th-percentile group evaluated themselves more favorably than those who ranked worst in the 90th-percentile group, $t(113) = 3.97$, $p < .001$, $d = 1.54$. Then, we tested whether this effect could be attributed to a neglect of intergroup comparison information in the context of intragroup comparison information. Consistent with Study 1, self-evaluations among participants who ranked best in the small group did not significantly differ as a function of whether the group ranked at the 30th percentile or the 90th percentile, or when no group information was provided ( ps > .15). Similarly, self-evaluations among participants who ranked worst in the local group did not differ significantly as a function of whether the group ranked at the 30th percentile or the 90th percentile, or when no group information was provided ( ps > .35).

Performance-Related Affect

Parallel findings were obtained on ratings of performance-related affect. A 3 (intragroup comparison) × 2 (intergroup comparison) ANOVA was conducted on affective reactions of participants in the experimental conditions. Analyses showed that participants felt better about their performance when they ranked best in the group of five individuals ( M = 6.82) or had no intragroup comparison feedback ( M = 5.82) than when they ranked worst in the group of five individuals ( M = 4.50), $F(2, 84) = 18.08$, $p < .001$, $\eta 2 = .30$. The main effect of intergroup comparison on performance-related affect was nonsignificant ( $p = .13$). However, the Intergroup × Intragroup Comparison two-way interaction was significant, $F(2, 84) = 4.39$, $p < .025$, $\eta 2 = .10$.

Specific contrasts revealed that intergroup comparison did not significantly influence the affective reactions of participants who were provided with intragroup comparison information ( $p > .70$). That is, participants who were told that they ranked best or worst in the small group did not report significantly different performance-related affect when their group outperformed 90%

versus 30% of the previous groups. However, the affective impact of intergroup comparison was significant when intragroup comparison information was unavailable, $t(84) = 3.19$, $p < .001$, $d = 1.21$.

We again assessed whether good members of bad groups felt better about their performance than did bad members of good groups. As expected, participants who ranked best in the 30th-percentile group felt better about their performance than those who ranked worst in the 90th-percentile group, $t(113) = 4.70$, $p < .001$, $d = 1.72$. Then, we tested whether this effect could be attributed to a neglect of intergroup comparison information in the context of intragroup comparison information. Consistent with our predictions, affective reactions among participants who ranked best in the local group did not significantly differ as a function of whether the group ranked at the 30th percentile or the 90th percentile, or when no group information was provided ( ps > .10). Similarly, affective reactions among participants who ranked worst in the local group did not significantly differ as a function of whether the group ranked at the 30th percentile or the 90th percentile, or when no group information was provided ( ps > .35).

## Group Evaluations

A 3 (intragroup comparison) × 2 (intergroup comparison) ANOVA was conducted on group-evaluation ratings of participants in the experimental conditions. As expected, this analysis yielded a significant main effect of intergroup comparison such that participants evaluated the five-person group much more favorably when it ranked better than 90% ( M = 8.93) rather than better than 30% ( M = 4.47) of the other small groups, $F(1, 84) = 264.00$, $p < .001$, $\eta 2 = .76$. No other effects from this analysis were significant.

Study 2 examined the interplay between intragroup comparison information indicating one's standing within a small group of peers and intergroup comparison information conveying the overall quality of the group. When intragroup comparison standards were unavailable, self-evaluations and affect were significantly impacted by the overall performance of the five-person group. However, the pattern of results was different among participants who were provided with intragroup comparison feedback indicating their rank within the five-person group. In these conditions, strong self-evaluative and affective effects of intragroup comparison were observed, while intergroup comparison information yielded nonsignificant effects.

Study 2 provides further support for the contention that the frog-pond effect is due, at least in part, to a basic tendency for intragroup comparison information to be weighted more heavily in self-assessment than intergroup comparison information. High-ranking students in a bad group had more favorable self-evaluations than low-ranking students in a good group. This pattern of results occurred because students overemphasized their standing within the group at the expense of considering the general standing of their group among comparable groups.

Consistent with Study 1, intergroup comparison significantly influenced evaluations of the overall performance and ability of the group as a whole. This finding once again suggests that intergroup comparison information was neglected for self-evaluation not because participants failed to adequately process this information but because it was deemed less relevant for self-evaluation than intragroup comparison information.

## Study 3

In Study 1, intragroup information entailed a participant's percentile score at his or her university, whereas intergroup information comprised the percentile score of the university versus other universities. In Study 2, we changed the intragroup comparison to one in which students learned whether they were the best or worst in a group of five others who had just taken the same test, whereas the intergroup comparison referred to where that group ranked relative to other such groups at the university. We sought to make a stronger case for our contextual neglect explanation in Study 3 by including three levels of feedback: intragroup information, as in Study 2, in which participants learned how they fared relative to four other people; higher level intragroup information in which they learned, as in Study 1, how they fared relative to other students at the university; and intergroup information in which they learned, as in Study 1, how their university ranked relative to other universities.

Using three feedback levels allowed us to construct a stronger test of our contextual neglect argument. More specifically, we sought to show that the same item of information is used or neglected depending on whether it requires a lower level or higher level inference. When all three types of information are available, only the lowest level intragroup information should influence self-evaluations and affect ratings. On the other hand, when only higher level intragroup and intergroup information is available, the higher level intragroup data, which may have no effect when all three types of information are available, should now influence self-evaluations and affect, again at the expense of intergroup information. When all three information sources are presented in isolation, they should each have a comparable effect on such judgments.

### Method

#### Participants and Design

One hundred fifty-four introductory psychology students at Ohio University (64 male, 90 female) participated in the study in exchange for course credit. Participants were assigned to one of 18 feedback conditions (see Table 3). Because we had three specific tests we wanted to make and a complete factorial design would, therefore, have included unnecessary conditions, we used a block randomization procedure to assign participants to conditions. Ninety participants were assigned to one of six conditions where they received only low-level intragroup, high-level intragroup, or intergroup comparison information (Conditions 1–6). Thirty-two participants were assigned to one of four conditions where they received high-level intragroup and intergroup

comparison information (Conditions 7–10). Thirty-two participants were assigned to one of eight conditions where they received low-level intragroup, high-level intragroup, and intergroup comparison information (Conditions 11–18).

### Materials and Procedure

The Study 3 procedure was largely similar to that used in Studies 1 and 2. Participants completed a verbal reasoning assessment in small groups of 4 to 6 individuals and then received manipulated feedback about their performance on the test. Participants were told that they correctly answered 28 of 40 items. Based on this score, some participants were told that that they performed best or worst in comparison to the other students taking the test at the same time (i.e., low-level intragroup comparison). Additionally, some participants were told that their performance ranked better than 84% or 32% of about 1,500 previous participants at Ohio University (i.e., high-level intragroup comparison). Finally, some participants were told that Ohio University students as a whole performed better than 91% or 25% of the other schools involved in the study (i.e., intergroup comparison). The order of presentation of the feedback levels was counterbalanced. After taking a few moments to review the performance feedback, participants indicated their perceived test performance and verbal reasoning ability ( $r = .74$, $p < .001$) as well as their performance-related affect (coefficient $\alpha = .90$) on the same measures used in Studies 1 and 2. Last of all, feedback manipulation checks asked participants to recall each piece of social comparison information that they had received.

### Results and Discussion

Six participants were excluded from the analyses that follow for incorrectly recalling one or more of the feedback types that they had received. Because we had specific predictions about how participants would evaluate and feel about themselves when they had received one comparison type, two pieces of comparison information (high-level intragroup, intergroup), or all three comparisons (low-level intragroup, high-level intragroup, intergroup), we conducted separate analyses for each of these unique situations.

#### One-Source Comparisons

We first conducted a series of planned comparisons to examine the effect of each feedback type in isolation from the others. In this study, intergroup comparison represented the highest level, or most inclusive type of social comparison information. The effect of this information was assessed via contrasts in which we compared the self-evaluations and affect of participants in Condition 1 (school ranked at the 91st percentile; weighted 1) to participants in Condition 2 (school ranked at the 25th percentile; weighted −1). This analysis showed that intergroup comparison information, when presented alone, significantly impacted self-evaluations, $t(130) = 2.36$, $p < .025$, $d = 1.10$, such that participants evaluated themselves more favorably when they knew only that their school outperformed 91% ( $M = 6.57$) rather than 25% ( $M = 5.07$) of the other schools involved in the study. Additionally, intergroup comparison significantly influenced

performance-related affect, $t(130) = 2.32$, $p < .025$, $d = 1.11$, such that participants felt better about their performance when they knew only that their school outperformed 91% ( $M = 6.63$) rather than 25% ( $M = 5.18$) of the other schools involved in the study.

The second set of planned comparisons examined the impact of high-level intragroup comparison among participants who received only this feedback type. This involved contrasts in which we compared the self-evaluations and affect of participants in Condition 3 (student ranked at the 84th percentile; weighted 1) to participants in Condition 4 (student ranked at the 32nd percentile; weighted −1). This analysis showed that high-level intragroup comparison significantly impacted self-evaluations, $t(130) = 2.41$, $p < .025$, $d = 1.23$, such that participants evaluated themselves more favorably when they knew only that they outperformed 84% ( $M = 7.36$) rather than 32% ( $M = 5.82$) of the other students at their school. Additionally, high-level intragroup comparison significantly impacted performance-related affect, $t(130) = 2.46$, $p < .025$, $d = 1.37$, such that participants felt better about their performance when they knew only that they outperformed 84% ( $M = 7.90$) rather than 32% ( $M = 6.36$) of the other students at their school.

The third comparison examined the impact of low-level intragroup information among participants who received only this feedback type. This involved contrasts in which we compared the self-evaluations and affect of participants in Condition 5 (student ranked best in the small group; weighted 1) to participants in Condition 6 (student ranked worst in the small group; weighted −1). Low-level intragroup comparison significantly impacted self-evaluations, $t(130) = 2.80$, $p < .01$, $d = 1.02$, such that participants evaluated themselves more favorably when they knew only that they ranked best ( $M = 6.29$) rather than worst ( $M = 4.50$) in the small group. Additionally, low-level intragroup comparison significantly impacted performance-related affect, $t(130) = 4.21$, $p < .001$, $d = 1.44$, such that participants felt better about their performance when they knew only that they ranked best ( $M = 6.99$) rather than worst ( $M = 4.36$) in the small group. As expected, each comparison type significantly impacted self-evaluations and affect when other forms of comparison information were unavailable.

One possible reason why intragroup information about a cohort of five is so influential might be that in manipulating this variable, we told participants that they were either the highest or lowest scoring individual in the group. In terms of percentile rank, therefore, the high-scoring member received a higher percentile rank and the low-scoring member received a lower percentile rank than in the high-level intragroup or intergroup comparison conditions. We therefore conducted independent correlation tests to assess whether the magnitude of the effects of these social comparison sources differed in their influence on self-evaluations and affect. Self-evaluations were significantly predicted by low-level intragroup comparison ( $r = .45$, $p < .025$), high-level intragroup comparison ( $r = .52$, $p < .005$), and intergroup comparison ( $r = .48$, $p < .01$) when participants received only one comparison source; however, none of these correlation coefficients significantly differed from each other ( $ps > .70$). Similarly, performance-related affect was significantly predicted by low-level intragroup comparison ( $r = .58$, $p = .001$), high-level intragroup comparison ( $r = .56$, $p < .005$), and intergroup comparison ( $r = .48$, $p < .01$)

when participants received only one comparison source, yet none of the correlation coefficients significantly differed from each other ( ps > .60). These analyses show that the effects of the three comparison sources were comparable, thus minimizing the possibility that the low-level intragroup information was especially influential due to the wider spread between the high- and low-scoring conditions.

### Two-Source Comparisons

Next, we conducted a series of planned contrasts to examine the impact of high-level intragroup and intergroup comparison among participants who received both of these feedback types. We initially tested whether intergroup comparison significantly impacted self-evaluations and affect among participants who received high-level intragroup and intergroup comparison standards. This required comparing the self-evaluations and affect of participants in Conditions 7 and 9 (school ranked at the 91st percentile; weighted 2) to participants in Conditions 8 and 10 (school ranked at the 25th percentile; weighted −2). Intergroup comparison did not significantly impact self-evaluations or performance-related affect in these conditions ( ps > .20).

We then tested whether high-level intragroup comparison significantly impacted self-evaluations and affect among participants who received intergroup and high-level intragroup comparison standards. This entailed contrasts where we compared the self-evaluations and affect of participants in Conditions 7 and 8 (student ranked at the 84th percentile; weighted 2) to participants in Conditions 9 and 10 (student ranked at the 32nd percentile; weighted −2). In these conditions, high-level intragroup comparison significantly impacted self-evaluations, $t(130) = 2.38$, $p < .005$, $d = 1.13$, such that participants evaluated themselves more favorably when they outperformed 84% ( M = 7.34) rather than 32% ( M = 5.25) of the other students at their school. Additionally, high-level intragroup comparison significantly impacted performance-related affect, $t(130) = 2.74$, $p < .01$, $d = 0.81$, such that participants felt better about their performance when they outperformed 84% ( M = 7.78) rather than 32% ( M = 6.18) of the other students at their school. Consistent with predictions, when participants received high-level intragroup and intergroup comparison information, only the intragroup comparison exerted a significant self-evaluative and affective impact.

### Three-Source Comparisons

Finally, we conducted a series of planned contrasts to examine the impact of low-level intragroup, high-level intragroup, and intergroup comparison among participants who received all three feedback types. We initially tested whether intergroup comparisons significantly impacted self-evaluations and affect among participants who received all three feedback types. This necessitated contrasts in which we compared the self-evaluations and affect of participants in Conditions 11, 13, 15, and 17 (school ranked at the 91st percentile; weighted 4) to participants in Conditions 12, 14, 16, and 18 (school ranked at the 25th percentile; weighted −4). Intergroup comparison did not significantly impact self-evaluations or performance-related affect in these

conditions ( ps > .50). We then tested whether high-level intragroup comparison significantly impacted self-evaluations and affect among participants who received all three feedback types. This involved a contrast in which we compared the self-evaluations and affect of participants in Conditions 11, 12, 15, and 16 (student ranked at the 84th percentile; weighted 4) to participants in Conditions 13, 14, 17, and 18 (student ranked at the 32nd percentile; weighted −4). High-level intragroup comparison did not significantly impact self-evaluations or performance-related affect in these conditions ( ps > .10).

The last set of comparisons tested whether low-level intragroup comparison significantly impacted self-evaluations and affect among participants who received all three feedback types. This involved a contrast in which we compared the self-evaluations and affect of participants in Conditions 11, 12, 13, and 14 (student ranked best in the small group; weighted 4) to participants in Conditions 15, 16, 17, and 18 (student ranked worst in the small group; weighted −4). In these conditions, low-level intragroup comparison significantly impacted self-evaluations, $t(130) = 3.25$, $p = .001$, $d = 1.11$, such that participants evaluated themselves more favorably when they ranked best ( M = 7.13) rather than worst ( M = 5.19) in the small group. Additionally, low-level intragroup comparison significantly impacted performance-related affect, $t(130) = 3.66$, $p < .001$, $d = 1.41$, such that participants felt better about their performance when they ranked best ( M = 7.79) rather than worst ( M = 5.65) in the small group. As expected, only the low-level intragroup comparison significantly impacted self-evaluations and affect when participants received all three comparison types.

In summary, Study 3 suggests that people first use low-level intragroup comparison information to evaluate themselves. If this information is unavailable, they turn to higher level intragroup comparison data. Intergroup comparison information is consulted during self-assessment only when other feedback types are unavailable.

## Study 4

In each of the studies so far, local comparison information referred to feedback about an individual participant, whereas general comparison information referred to the performance of a group. In Study 1, participants received their percentile ranking at their university and the university's ranking among other universities. In Study 2, individual information pertained to the participant's ranking in a small group of 5, whereas group-level information conveyed how that group performed relative to others that had participated in the experiment. In Study 3, we provided information about the participant's performance in a small group of 4–6, or about the participant's percentile ranking at the university, or about the university's ranking among other universities. Because each of these comparisons pit individual-level feedback against group-level feedback, our manipulations could not unambiguously disentangle the effects of individual- versus group-level feedback from those that we have posited between local and general information.

Although we have argued that local comparison information displaces more distal or general information, our results might possibly be confined to the individual–group distinction. If so, these findings could be explained by other mechanisms. One possibility is that intragroup comparisons have greater impact than intergroup comparisons because they are directed toward the individual as opposed to the collective self. Previous work has demonstrated a motivational primacy of the individual self ( Gaertner & Sedikides, 2005; Gaertner et al., 1999), such that performance feedback has a stronger impact when it is oriented toward the individual self (i.e., intragroup comparison) than the collective self (i.e., intergroup comparison). A second possibility involves the degree to which personal and collective selves are responsive to self-relevant feedback. According to this explanation, intragroup information may more readily activate the individual self than intergroup information activates the collective self.

We argue that contextual neglect occurs because people focus primarily on their standing in small local groups and underemphasize their standing within larger populations when evaluating themselves ( Buckingham & Alicke, 2002). To isolate the local–general effect from the individual–collective distinction, we effected a manipulation in Study 4 in which participants learned that they had performed either best or worst in a small group and that their performance placed them at either the 32nd or 84th percentile of about 1,500 other students at their university who had taken the same test. Both of these feedback conditions pertain to the individual self; however, they differ in that the former entails a local comparison whereas the latter conveys more general information. This contrast does not confound the local–general distinction with the individual–collective one as in the previous studies. We anticipated that being the best or worst person in the small group would have a greater impact on participants' self-evaluations than being better or worse than over 1,000 of their peers.

Additionally, we expected that participants who ranked best in the small group and at the 32nd percentile overall would evaluate themselves more favorably than participants who ranked worst in the small group and at the 84th percentile overall. Although participants who ranked best in the small group and at the 32nd percentile overall would have much lower standing in the broader population than participants who ranked worst and at the 84th percentile overall, we anticipated that the former would evaluate themselves more favorably than the latter because of a disproportionate focus on local comparison information. Thus, even when participants knew where they stood among about 1,500 of their peers, their status as the best or worst person in a small local group was expected to override more general information.

We also included no-local-comparison and no-general-comparison control conditions in Study 4 to test specific hypotheses about the differential impact of local and general comparisons in self-evaluation. We have argued that local comparison information displaces or supersedes the effect of general comparison information. This assumption can be tested by examining the effect of general comparison information when local comparison information is available versus unavailable. Our prediction was that the general comparison effect would be greatly reduced when local comparison information was available, in other words, that local comparison data

would supersede larger sample data. By contrast, the effect of local comparison information should be relatively independent of whether or not general comparison information was available.

The conditions in which no general comparison information was available allowed us to assess possible asymmetries in the tendency to deemphasize general comparison data in the presence of local comparison information. In particular, we assessed whether the tendency to neglect general comparison information was greater when the general comparison data had unfavorable implications for the self. Previous research has shown that while people readily accept favorable base-rate information about themselves or their potential futures, they tend to scrutinize and ultimately reject base rates when they are threatening ( Ditto & Lopez, 1992). In the context of the present design, we anticipated that students who outperformed 84% of the students at their school would evaluate themselves more favorably than both participants who outperformed 32% of their peers and control participants who did not receive general comparison feedback. However, participants who outperformed only 32% of the previous participants at their school were not expected to evaluate themselves significantly less favorably than control participants who did not receive general comparison feedback.

Finally, Study 4 assessed whether the dominance of local over general comparison information requires that participants perform the task and receive performance feedback in the physical presence of the local group. It is possible that local comparisons have a greater impact than general comparisons only when people are in the physical presence of the other group members. If so, this might suggest that the small group's enhanced perceptual salience can account for the dominance of small group comparison data over more general comparison information. However, our contextual neglect findings would have wider applicability if we could show that the dominance of local over general comparison information occurs even when the local group is not physically present. This would indicate that simply being associated with a small group of others by dint of performing the same task suffices to make comparisons with those people more significant than comparisons with a larger population.

## Method

### Participants

Participants were 309 (203 female, 106 male) undergraduates at Ohio University who participated in exchange for course credit.

### Design and Procedure

Participants were randomly assigned to the cells of a 3 (local comparison: best in group, worst in group, none) × 2 (general comparison: 84th percentile, 32nd percentile) × 2 (presence, absence) between-subjects factorial design. Additionally, four control groups were told only that their performance on the test ranked best or worst among the individuals currently taking part in the

study who were either present or absent. Half of the participants were assigned to presence conditions where they completed the study in the same laboratory room as the other group members. In these conditions, the experiment was conducted in small groups of 4 to 6 participants per trial. Participants completed the study at their own computer station in a relatively large laboratory room with six computer terminals.

Alternatively, other participants were assigned to conditions where they completed the study in the absence of the other group members. These conditions were identical to those in Study 2, where participants completed the study alone but were told that four other students were simultaneously taking part in the study in other rooms on the first and second floors of the same building.

After completing the verbal reasoning test, all participants were told that they correctly answered 28 out of 40 items. Based on this score, some participants were told that their performance was better than 84% or 32% of about 1,500 previous Ohio University student participants. In a previous study ( $N = 120$), we found that students on average estimated that their verbal reasoning test performance ranked better than 57.63% of about 1,500 previous participants at their school. The positive and negative general comparison feedback levels we selected were therefore intentionally set to be about equidistant from participants' baseline expectations. Additionally, some participants were told that that their performance ranked best or worst among the small group of students currently taking part in the study.

After taking a few moments to review their performance feedback, participants assessed their perceived test performance and ability ( $r = .82$, $p < .001$) as well as performance-related affect (coefficient $\alpha = .91$) using the same measures as in our previous studies. Finally, as a feedback manipulation check, participants were asked to indicate the percentage of Ohio University students they outperformed as well as whether they ranked best or worst within the group of students currently taking part in the study.

## Results and Discussion

Data from 8 participants were excluded because they incorrectly recalled the performance feedback that they received. No significant main effects or interactions resulted from the presence–absence factor; therefore, we collapsed across this variable in the analyses that follow. The local-comparison-only control conditions were not included in the primary analyses that follow; however, means resulting from these conditions are reported in Table 4. Additionally, the control conditions were used to conduct specific contrasts exploring the nature of the local and general comparison effects that are reported below.

psp-97-3-467-tbl4a.gifMean (SD) Self-Evaluations and Performance-Related Affect as a Function of Local and General Comparison (Study 4)

## Self-Evaluations

A 3 (local comparison) × 2 (general comparison) ANOVA was conducted on self-evaluation ratings. This analysis showed that participants evaluated themselves more favorably when they outperformed 84% ( M = 6.78) rather than 32% ( M = 5.22) of about 1,500 previous participants at their university, $F(1, 217) = 37.76$, $p < .001$, $\eta 2 = .15$. Participants also evaluated themselves more favorably when they ranked best in the small group ( M = 6.94) than when they ranked worst in the group ( M = 4.90) or were not provided with local comparison information ( M = 6.13), $F(2, 217) = 22.07$, $p < .001$, $\eta 2 = .17$. The main effects of local and general comparison were qualified by a Local Comparison × General Comparison interaction, $F(2, 217) = 3.54$, $p < .05$, $\eta 2 = .03$. Follow-up contrasts exploring the nature of this interaction are reported below.

## Superseding of local over general comparison information

Planned contrasts were conducted to assess our assumption that local comparison information displaces or supersedes the influence of general comparison information. General comparison feedback indicating that participants performed better than 32% or 84% of the other students at their school significantly influenced the self-evaluations of participants who received local comparison information, $t(293) = 3.61$, $p < .001$, $d = 0.52$, as well as participants who did not receive local comparison information, $t(293) = 5.67$, $p < .001$, $d = 1.55$. However, general comparison information had a significantly greater impact on the self-evaluations of participants who did not receive local comparison information than on those of participants who received both local and general comparison standards, $t(293) = 2.53$, $p < .025$, $d = 0.36$.

Planned contrasts were also conducted to test our assumption that the impact of local comparison information would be relatively independent of whether or not general comparison information was available. Local comparison feedback indicating that participants performed best or worst in the small group significantly impacted the self-evaluations of participants who received general comparison information, $t(293) = 6.69$, $p < .001$, $d = 1.01$, as well as those of participants who did not receive general comparison information, $t(293) = 5.34$, $p < .001$, $d = 1.26$. As expected, the self-evaluative impact of local comparison was not more pronounced among participants who had only this information than among participants who had both local and general comparison standards ( $p > .70$). Thus, while local comparison superseded general comparison, the availability of general comparison information had little influence on the magnitude of the local comparison effect.

## Relative impact of local and general comparisons

We then tested whether local comparison information had a greater impact on self-evaluations than general comparison information. Participants evaluated themselves more favorably when they ranked best in the small group and at the 32nd percentile overall ( M = 6.53) than when they ranked worst in the small group and at the 84th percentile overall ( M = 5.60), $t(293) = 2.15$, $p < .05$, $d = 0.46$. The fact that good versus bad performance in a small group overrode the standing

of the participant in the much larger population suggests that the impact of local comparison on self-evaluations is more pronounced than general comparison.

### Self-enhancement evidence

Next, we conducted a series of planned contrasts to test the prediction that general comparison would impact self-evaluations only when it had favorable implications for the self-concept. Participants told that they outperformed 84% of about 1,500 students at their university ( M = 6.78) evaluated themselves significantly more favorably than those told that they outperformed only 32% of the other students at their school ( M = 5.22), t(298) = 5.70, p < .001, d = 0.77, and those who were not provided with general comparison information ( M = 5.29), 3t(298) = 4.92, p < .001, d = 0.72. However, participants told that they outperformed 32% of 1,500 students at their school did not evaluate themselves less favorably than participants who were not provided with general comparison information ( p > .75). These findings suggest that participants selectively highlighted general comparison standards when they were favorable but ignored them when they were unfavorable.

Whereas general comparisons exhibited an asymmetric effect on self-evaluations, local comparison effects were symmetric. That is, participants who were told that they ranked best in the small group ( M = 6.75) evaluated themselves significantly more favorably than participants who were told that they ranked worst in the group ( M = 4.65), t(298) = 8.05, p < .001, d = 1.07, and control participants who were not provided with local comparison information ( M = 6.13), 4t(298) = 2.13, p < .05, d = 0.34. Participants told that they ranked worst in the local group evaluated themselves significantly less favorably than control participants who were not provided with local comparison information, t(298) = 5.06, p < .001, d = 0.72. These symmetric effects, especially the finding that participants who were worst in the local group evaluated themselves less favorably than control participants, suggest that local comparison effects are sufficiently powerful to override self-enhancement concerns.

### Performance-Related Affect

Analyses performed on performance-related affect revealed parallel findings. A 3 (local comparison) × 2 (general comparison) ANOVA was conducted on performance-related affect ratings. Participants felt better about their performance when they ranked better than 84% ( M = 6.86) rather than 32% ( M = 5.82) of the 1,500 previous participants, F(1, 217) = 18.92, p < .001, η 2 = .08. Similarly, participants felt better about their performance when they ranked best in the small group ( M = 7.32) than when they ranked worst in the group ( M = 5.03) or had no local comparison information ( M = 6.63), F(2, 217) = 35.18, p < .001, η 2 = .25. The Local Comparison × General Comparison two-way interaction was significant, F(2, 217) = 3.23, p < .05, η 2 = .03. This interaction was again decomposed into specific contrasts, which are reported below.

### Superseding of local over general comparison information

Planned contrasts were conducted to assess our assumption that local comparison information supersedes general comparison information. General comparison feedback indicating that participants performed better than 32% or 84% of the other students at their school significantly influenced the performance-related affect ratings of participants who received local comparison information, $t(293) = 2.33$, $p < .05$, $d = 0.34$, as well as of participants who did not receive local comparison information, $t(293) = 4.49$, $p < .001$, $d = 1.06$. However, general comparison had a significantly greater impact on the performance-related affect ratings of participants who did not receive local comparison information than participants who had both local and general comparison standards, $t(293) = 2.31$, $p < .025$, $d = 0.33$.

Planned contrasts were also conducted to assess our prediction that the impact of local comparison on affect would be uninfluenced by the availability of general comparison information. Local comparison feedback indicating that participants performed best or worst in the small group significantly impacted the performance-related affect ratings of participants who received general comparison information, $t(293) = 8.48$, $p < .001$, $d = 1.33$, as well as of participants who did not receive general comparison information, $t(293) = 5.98$, $p < .001$, $d = 1.52$. Consistent with predictions, the influence of local comparison on performance-related affect did not significantly differ as a function of the availability of general comparison information ( $p > .85$).

Relative impact of local and general comparisons

We then tested our prediction that local comparison information would have a greater impact on performance-related affect than general comparison information. Participants felt better about their performance when they ranked best in the small group and at the 32nd percentile overall ( $M = 6.84$) than when they ranked worst in the small group and at the 84th percentile overall ( $M = 5.18$), $t(293) = 4.29$, $p < .001$, $d = 0.96$, which suggests that the impact of local comparison on performance-related affect is more pronounced than general comparison.

Self-enhancement evidence

Next, we tested the prediction that general comparison would have an asymmetric effect, by impacting affective reactions only when it had favorable implications for the self-concept. Participants told that they outperformed 84% of 1,500 students at their university ( $M = 6.86$) felt significantly better about their performance than those told that they outperformed only 32% of the students at their school ( $M = 5.82$), $t(298) = 4.05$, $p < .001$, $d = 0.54$, and those who were not provided with general comparison information ( $M = 5.80$), $5t(298) = 3.75$, $p < .001$, $d = 0.55$. However, participants told that they outperformed 32% of 1,500 students at their school did not feel worse about their performance than participants who were not provided with general comparison information ( $p > .90$).

On the other hand, the effect of local comparison on affect was symmetric. Specifically, participants told that they ranked best in the small group ( $M = 7.18$) felt significantly better

about their performance than participants told that they ranked worst in the group ( M = 4.91), t(298) = 10.01, p < .001, d = 1.37, and participants who were not provided with local comparison information ( M = 6.63), 6t(298) = 2.18, p < .05, d = 0.32. Participants told that they ranked worst in the small group felt significantly worse about their performance than participants who were not provided with local comparison information, t(298) = 6.76, p < .001, d = 0.99. These findings suggest that local comparison effects are sufficiently powerful to override self-enhancement concerns.

The findings of Study 4, therefore, resolve an ambiguity inherent in the previous studies by showing that the dominance of local over general social comparison information perseveres even when both sources of information pertain to the individual self. This study further supported our assumption that local information supersedes the influence of general social comparison data in that general comparison information indicating participants' standing among 1,500 fellow students had a pronounced impact in the absence of local comparison information. However, when participants were aware of their standing within a group of about five peers, the impact of general comparison information on self-evaluation and affect was dramatically reduced.

Study 4 also shows that the perceived value of general comparison information increases somewhat when it has positive implications for the self. General comparison information impacted self-evaluations and affect when it suggested that participants were better than most of their peers but not when it indicated that participants were worse than most of their peers. Thus, people may selectively discount general comparison standards when they threaten their self-image.

Finally, the impact of local and general comparisons was unaffected by the presence of the local group. This finding shows that local comparisons dominate general information regardless of whether the local comparison targets are physically present.

Study 5

We conducted a small follow-up study to see whether participants, despite their reliance on local comparison information, recognized that general information was more diagnostic for self-evaluation. In this study, 73 participants (43 female, 30 male) completed a verbal reasoning task in small groups of 4 to 6 participants. While their tests were being graded, participants were asked to fill out a few short response measures. The first question asked them to choose whether they would rather receive information regarding how well they performed in comparison to the other people in the room (i.e., local comparison) or information detailing how well they performed in comparison to 1,500 previous participants at Ohio University (i.e., general comparison).

Next, participants rated how useful information regarding how well they had performed in comparison to the other people in the room would be for evaluating test performance and ability on an 11-point scale (0 = not at all useful, 10 = very useful). Participants then rated how useful

information detailing how well they performed in comparison to 1,500 previous participants at Ohio University would be for evaluating test performance and ability on the same scale. Participants in the follow-up study were not given false feedback about their test performance; rather, once they finished the response measures, they were debriefed and dismissed.

Results showed that participants were far more likely to choose general comparison information (79%) than local comparison information (21%; $p < .001$). In addition, participants evaluated the general comparison information ( $M = 8.33$) as substantially more useful than the local comparison information ( $M = 4.33$), $t(72) = 10.55$, $p < .001$, $d = 1.23$. This study demonstrates, somewhat ironically, that general comparisons are perceived to be far more informative for the purpose of self-evaluation than local comparisons. Thus, the tendency for participants to base their self-evaluations on local comparisons at the expense of more informative sample data is clearly not due to a failure to appreciate that such data are useful for self-evaluation.

## General Discussion

Social comparison information is contextual. Although the most frequent and habitual comparisons occur between members of small groups such as friends, families, classmates, and coworkers, these comparisons can almost always be referred to a larger context. The guiding hypothesis in Studies 1–4 presented in this article was that people would evaluate themselves using the lowest level of social comparison information that was available while failing to make use of higher level, contextual information. This hypothesis was confirmed in each of the four studies.

The tendency to rely on the most immediate social comparison that is available at the expense of other diagnostic information has important implications. On the practical side, people who have the good fortune to fare well among their immediate peers ostensibly reap many self-evaluative benefits. Conversely, an especially talented or admirable cohort can have the opposite effects. Although people are often aware that their cohort is unrepresentative of the larger population, their self-evaluations and affective states are still dominated by the local comparison information. Thus, haphazard comparison cohorts can have significant influences on the way people think and feel about themselves. Also, people often seek environments that are likely to provide self-concept boosts, even if these boosts are objectively spurious (such as a bigger and older child comparing his or her athletic prowess with that of younger children).

Throughout its history, social comparison theory has focused far more on comparisons with specific individuals or groups than on abstract comparisons that entail larger populations. In a sense, the results of our studies vindicate the traditional approach. On the face of it, the failure to manipulate distributional information would seem to be a significant oversight in social comparison research. Surely, one would suppose that it is important for individuals to know not only where they stand relative to their immediate peers but also where those peers reside in the larger population. As we suggested at the outset, it is better, at least in theory, to be the highest

functioning member of a crackerjack outfit than the king or queen of the dregs. Yet the data we have collected so far suggest that, to a large extent, people ignore this contextual information and rely instead on the kinds of information that social comparison theorists have always emphasized, that is, on comparisons with peers and ingroup members.

A natural application of our findings is to the intriguing problem that has come to be known as the frog-pond effect. Research on the frog-pond effect (i.e., Marsh & Parker, 1984) has shown that students at low-quality schools tend to have more favorable academic self-concepts than students at high-quality schools, controlling for academic ability. This finding is a staple of educational psychology as it has been replicated on numerous occasions in various countries ( Marsh & Hau, 2003). To date, the favored explanation for the frog-pond effect is that the assimilative effect of upward comparison is overwhelmed by the contrastive effect of downward comparison ( Marsh et al., 2000). Thus, good members of bad groups tend to devalue their assets.

Our findings are generally consistent with those of Marsh and his colleagues ( Marsh et al., 2000), but our interpretation is more general. We found evidence of contextual neglect both in good members of bad groups and in bad members of good groups. We argue that this effect occurs because local comparison information is accessed much more prevalently in self-definition and comes to overwhelm larger scale, contextual data. However, because we studied the effect in a laboratory context, we cannot make sweeping generalizations to the academic self-concept that Marsh and his colleagues have explored in large field studies. Most importantly, whereas Marsh and his colleagues used statistical controls to ensure that the performance levels of good students in bad groups and bad students in good groups were roughly equal, we could not do this in our randomized designs without greatly increasing the sample size. Thus, the meaning of our findings for the traditional frog-pond issue is suggestive rather than definitive.

In terms of the general problem of contextual neglect, however, of which the frog-pond effect is a significant manifestation, our explanation seems to have wide applicability. Our data suggest that contextual neglect characterizes the self-evaluations of both good members of bad groups and bad members of good groups. This type of distinction is precluded in field research because it is impossible to create the appropriate controls, that is, conditions in which students have no idea about the quality of their groups (i.e., schools in frog-pond research).

An important part of our contextual neglect argument is that such contextual information is used liberally when lower level information is absent. We described this contingency in terms of lower level social comparison information superseding higher level information or, in the context of the present studies, as intragroup information overriding intergroup information. This superseding effect shows that contextual neglect is not simply a matter of people failing to understand the meaning of higher level social comparison information or ignoring it due to its abstractness or complexity. In fact, participants in Study 5 overwhelmingly acknowledged the

superiority of higher level contextual data to local comparison information, which adds to the irony of the local comparison's dominance.

Furthermore, the findings of Study 4 show that the dominance of local over general comparison information perseveres even when each comparison type pertains to the individual self. In each of the previous studies, the local comparison information indicated where the participant stood in relation to a small group of others, whereas the general comparison referred to where the participant's group stood in relation to other groups. In a sense, therefore, these manipulations confounded the local–general distinction with one between the individual and collective selves. In Study 4, however, we showed the same dominance of local comparison information when both the local and general information referred to the individual self.

Nevertheless, we believe that it is quite reasonable to assume that the local–general distinction is maximized when it corresponds to the distinction between the individual and collective selves. In other words, the tendency for information about a local group to overwhelm higher level comparison data could be strongest when the local information is directly informative of an individual's standing in a small group whereas the higher level comparison data refers to the collective self, that is, information about the standing of one's group among other such groups. More generally, future research must determine whether any lower level type of social comparison information supersedes higher level information. Study 3 shows that the same information (i.e., feedback indicating one's percentile ranking relative to other students at one's university) that was superseded by lower level social comparison information (i.e., information about one's position in a cohort of five) is itself capable of superseding higher level social comparison information (i.e., information about one's university relative to others). Furthermore, even the highest level social comparison information about the standing of one's university versus others influenced self-evaluations when it was presented by itself. In fact, each different type of social comparison data was about equally effective when presented in isolation from the others. Thus, intragroup information does not seem to be especially privileged. Instead, most lower level types of information are capable of supplanting higher level information due to the difficulty of conceptualizing the combined meaning of the lower and higher level information.

We have not yet found a way to eradicate contextual neglect. Future research might proceed by assessing the importance of the intergroup comparison to the participant: Information indicating the status of a membership group may have a greater self-evaluative and affective impact when the group is one that people strongly identify with and value highly ( McFarland & Buehler, 1995). Furthermore, one might expect contextual neglect to be diminished in collectivist cultures where people are more concerned with the outcomes of their groups than are people from individualist cultures ( Chen et al., 1998). Finally, the impact of intergroup comparison information may be elevated in situations where group identity is salient, such as when one is a member of a minority group ( Brewer & Weber, 1994).

## Conclusion

Self-assessment is a complex task, and in various circumstances, people's perceptions of themselves may be somewhat askew. On occasion, this occurs because people do not have all of the information needed to assess themselves accurately ( Kruger & Dunning, 1999). In the present work, we have demonstrated a different source of inaccuracy in self-assessment. Specifically, self-evaluations may occasionally be less than accurate because people place too much emphasis on their standing in relatively small local groups without considering their overall standing in the population at large.

## Footnotes

1 Although intergroup comparison information is generally useful for the purpose of self-evaluation, there may be situations where this is not the case. For example, if a person knows how athletic he or she is in comparison to same-age peers, it may not be useful for this person to further consider how athletic his or her age group is in comparison to those who are much older or much younger. In this case, the other age groups are not relevant for the purpose of self-evaluation, and so, neglect of this information seems justified.

2 We used only female participants in Study 1 because previous research that manipulated within-school and between-school standing found somewhat stronger frog-pond effects with females than with males ( Gardner et al., 2002). However, in our subsequent studies, we used participants of both genders to expand the generality of our findings.

3 The mean self-evaluation rating for participants in the no-general-comparison condition was 5.29. This was calculated by averaging the self-evaluations of participants who were told only that they ranked best in the small group ( M = 6.40) with those of participants who were told only that they ranked worst in the small group ( M = 4.19). These means are presented in Table 4.

4 The mean self-evaluation rating for participants in the no-local-comparison condition was 6.13. This was calculated by averaging the self-evaluations of participants who were told only that they ranked better than 84% of the other students at their school ( M = 7.28) with those of participants who were told only that they ranked better than 32% of the other students at their school ( M = 4.89). These means are presented in Table 4.

5 The mean performance-related affect rating for participants who did not receive general comparison information was 5.80. This was calculated by averaging the performance-related affect of participants who were told only that they ranked best in the small group ( M = 6.91) with that of participants who were told only that they ranked worst in the small group ( M = 4.69). These means are presented in Table 4.

6 The mean performance-related affect rating for participants who did not receive local comparison information was 6.63. This was calculated by averaging the performance-related affect of participants who were told only that they ranked better than 84% of the other students at

their school ( M = 7.45) with that of participants who were told only that they ranked better than 32% of the other students at their school ( M = 5.75). These means are presented in Table 4.

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