

Research Report

Preschoolers' Responses to Social Comparisons Involving Relative Failure

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ABSTRACT—Prior work indicates that preschoolers (ages 4–5) maintain high self-appraisals and behavioral engagement after performing less well than their peers. This study tested the hypothesis that relative failure has more negative consequences for preschoolers when they interpret achievement differences as being tied to membership in social categories (e.g., when members of different categories have different achievement levels), as opposed to variations in individual effort. Preschoolers ($N = 58$) were randomly assigned to receive feedback that a same-gender, other-gender, or gender-unidentified peer performed better than they did on a novel task. Experiences of failure relative to other-gender peers resulted in impaired performance on a subsequent task trial, as well as lack of improvement in self-evaluations after children received more positive feedback. These findings have implications for the origins of social comparisons, category-based reasoning, and the development of gender stereotypes and achievement motivation.

During the preschool years, children rapidly learn a wide range of new skills and inevitably will have experiences in which they do not perform as well as their peers. How do these experiences of relative failure influence children's self-appraisals and behavior? For older children and adults, performing less well than peers often results in lower self-evaluations and poorer subsequent performance (e.g., Mussweiler, 2003; Ruble, Eisenberg, & Higgins, 1994). In contrast, previous research suggests that preschool children show high self-appraisals and continued task engagement after experiences of relative failure (Ruble, 1983). In the present study, we hypothesized that preschoolers' re-

sponses to relative failure critically depend on the social-category identity of the comparison peer, and demonstrate that failure relative to other-gender peers leads to decreased task performance and lower self-evaluations among preschoolers.

Preschoolers (ages 4–5) have been described as immune to the negative effects of relative failure based on findings that they maintain positive self-appraisals and high levels of task-focused effort after they compare their work with that of better-performing peers (i.e., after *upward* social comparisons; Boggiano & Ruble, 1979; Pomerantz, Ruble, Frey, & Greulich, 1995; Ruble, Boggiano, Feldman, & Loebl, 1980; Ruble et al., 1994; Ruble, Feldman, & Boggiano, 1976; Ruble, Parsons, & Ross, 1976). In one exception, Butler (1998) found that preschoolers rated their own work more negatively after they received concrete evidence that they performed worse, as opposed to better, than a same-gender peer. Butler's results impressively demonstrate that preschoolers understand social comparisons and incorporate comparative information into their performance appraisal. However, the implications of these findings for how preschoolers respond to relative failure are limited in two ways. First, because this research compared how children respond to relative success versus relative failure, these data do not address the unique effects of failure (e.g., effects could have been driven by higher appraisals after relative success). Second, it is unclear whether social comparisons influenced children's lasting self-evaluations or future performance. For example, there was no influence of comparison condition (success vs. failure) on children's predictions about how they would do on future tasks, or on their affective states. Thus, these findings do not undermine the conclusion, drawn from a number of other studies, that preschoolers are resilient after upward comparisons.

Ruble (1983) proposed that younger children react neutrally (or even positively) to relative failure because they interpret the meaning of these experiences differently than older children (ages 7–9). According to Ruble, preschoolers are less likely than older children to view achievement discrepancies between

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themselves and their peers as indicative of underlying stable traits. For example, older children may interpret performance differences on a math test as indicative of differences in underlying ability (Dweck, 2002), thus taking their own relative failure as meaning that their math abilities are more limited than those of their peers, leading to lower self-appraisals and less future effort. In contrast, preschoolers are thought to interpret performance discrepancies as resulting from more temporary factors (e.g., effort), such that experiences of relative failure indicate to them only that more effort is necessary to obtain success (Nicholls, 1984; Veroff, 1969). In this manner, upward comparisons provide preschoolers with opportunities to learn from their peers and meet mastery goals (Butler, 1989a, 1989b; Chafel, 1984; Mosatche & Bragonier, 1981; Pomerantz et al., 1995). Thus, the development of social comparisons is thought to be intimately tied to developmental changes in beliefs about the causes of individual behavior.

Building on this analysis, we considered that upward comparisons with members of distinct social categories may have more serious consequences for preschoolers than upward comparisons with individuals from within their own social group. We predicted that, among preschoolers, experiencing failure relative to an out-group member would trigger category-based reasoning about the sources of performance variation. Preschoolers expect category-linked behaviors to be highly stable across time and situation (Gelman, 2003; Gelman & Heyman, 1999; Lawson & Kalish, 2006; see also Cimpian, Arce, Markman, & Dweck, 2007). Thus, if preschoolers interpret achievement discrepancies as resulting from category memberships, rather than from variations in individual effort, they should view such differences as stable, and therefore as meaningful for self-appraisal and future behavior.

Preschoolers have been found to readily infer that individual differences in behavior are tied to social categories, particularly for highly salient categories, such as gender (Rhodes & Gelman, 2008; Shutts, Banaji, & Spelke, 2007). For example, Rhodes and Gelman (2008) found that single examples of gender-differentiated patterns involving novel behaviors (e.g., a boy liked one novel activity and a girl liked another) led preschoolers to view novel behaviors as tied to gender categories and to predict behavioral stability over time. Gender is also highly salient to preschool children in their daily lives, strongly influencing peer preferences (Maccoby, 1988) and activity choices (e.g., Martin, Eisenbud, & Rose, 1995). Thus, we predicted that single experiences of failure relative to other-gender peers would result in stable (i.e., category-based) attributions for achievement differences. In contrast, we predicted that preschoolers would interpret failure relative to same-gender peers as involving only individual variation, which prior work suggests should not negatively influence their self-appraisals or behavior.

To test our hypotheses, we asked children to complete a timed tracing task (i.e., filling in shapes as quickly as possible), and then told them that a same-gender, other-gender, or gender-

unidentified peer performed better than they did (i.e., filled in more shapes). Next, they were asked to complete the task a second time. We expected that, generally, preschoolers would speed up across trials because of practice effects. We hypothesized, however, that experiences of failure relative to other-gender peers would interfere with subsequent performance. Therefore, we predicted that children in the same-gender and gender-unidentified conditions would speed up across trials, whereas children in the other-gender condition would not (an indication of impaired performance).

Self-evaluations of performance were assessed immediately after relative failure and also after the second trial, in which children were led to believe that they improved their performance and surpassed the peer. The initial postfailure evaluation assessed only whether the children could use comparative information in immediate performance appraisal (which prior work suggests they may, regardless of the peer's gender; Butler, 1998); thus, we did not expect the gender of the peer to influence self-evaluations immediately after failure. In contrast, on the postsuccess evaluation (after the second trial), we hypothesized that children in the same-gender and gender-unidentified conditions would show increased self-evaluations, an indication of resilience after initial failure, whereas children in the other-gender condition would not, an indication that upward comparisons with other-gender peers have more lasting consequences on self-appraisal.

METHOD

Participants

Participants included 58 children (mean age = 5 years 2 months; range = 4 years 2 months to 5 years 11 months) recruited from preschools and kindergartens in a Midwestern town. Parents provided written informed consent. Children were randomly assigned to one of three conditions: same-gender (10 male, 10 female), other-gender (10 male, 9 female), or gender-unidentified (11 male, 8 female).

Procedure

Female research assistants tested children individually in quiet areas of their schools. The procedure was modeled after that used by Butler (1998), but with a different tracing task, which involved drawing circles inside rows of empty shapes and was designed to be challenging and novel. To begin, participants were told where to start and to complete shapes in sequential order, and they were given an opportunity to practice. Then, children were told to try to complete as many circles as possible before they heard "Stop!" and were reminded twice to work as quickly as possible. The children were allowed to work until they reached a specified stopping point known only by the experimenters, and their time was recorded. Thus, all children completed the same number of circles (14), and that number was

divided by a child's completion time to calculate his or her speed (reported in shapes per minute).

Next, participants in all conditions were shown the same comparison paper; the explanation that accompanied the paper differed by condition. Children were told "Now I'm going to show you how a [boy, girl, child] your age did. Here is [his, her, the other child's] paper. This [boy, girl, child] was asked to do the same thing that you did and given the same amount of time. This is how far [he, she, the other child] got; this is how far you got. So, this is how far [he, she, the other child] got" (variations in the wording are given in brackets). To check for understanding, the experimenter asked "Did you complete more, less, or the same as this [boy, girl, child]?" If a child responded incorrectly, the comparison demonstration and question were repeated. The fictitious peer had completed 4 more shapes than the child (18 shapes total).

Subsequently, self-evaluations were assessed with the following question, "We wanted to see how many shapes children could fill in. I'd like you to tell me how well you think you did." The experimenter used her thumb and also pointed to cartoon thumbs in various positions: "Thumbs up, excellent; thumbs a little up, good; thumbs to the side, OK; thumbs down, not so good." Responses were scored from 4 (*excellent*) to 1 (*not so good*).

After the self-evaluation question, the comparison paper was removed, and children were asked to complete the task a second time. They were reminded of the instructions and encouraged to work as quickly as possible. During the second trial, children were stopped at a second predetermined point, which allowed them to complete 4 more shapes than the comparison peer had completed (22 shapes total). Completion time was again recorded, and used to calculate speed on the second trial. After the second trial, the original comparison paper was placed next to the participant's paper, and the child completed a second self-evaluation.

Then, all children were asked in counterbalanced order: "How much do [boys, girls] like this game?" The children pro-

vided ratings using 5-point smiley-face scales. Finally, the children were asked to recall whether the child whose paper they had seen was a boy or a girl.

RESULTS

Descriptive statistics are presented in Table 1. Contrasts are reported using Bonferroni-corrected significance levels. Preliminary analyses revealed that girls completed the task more quickly than did boys, but participant gender did not interact with condition; consequently, participant gender is not discussed further. Recall data indicated that all children in the same- and other-gender conditions remembered the comparison peer's gender. In the gender-unidentified condition, 16 of 19 children inferred that the peer was of their own gender.

Performance: Changes in Speed Across Trials

A significant Trial \times Condition interaction, $F(2, 55) = 9.54$, $p < .001$, revealed that children in the same-gender and gender-unidentified conditions increased speed across trials ($ps < .01$, $ds > 0.36$), whereas children in the other-gender condition did not (they showed a nonsignificant decrease in speed). The change in speed across trials was significantly larger in the same-gender and gender-unidentified conditions than in the other-gender condition, $ps < .01$, $ds > 0.90$. Also, the majority of children in the same-gender (90%) and gender-unidentified (79%) conditions sped up across trials, whereas the majority of children in the other-gender condition (63%) slowed down, $\chi^2(2, N = 58) = 14.18$, $p < .001$.

Self-Evaluations

Children's self-evaluations showed a significant Trial \times Condition interaction, $F(2, 55) = 3.27$, $p < .05$. Self-evaluations improved after the second, more successful, trial in the same-gender and gender-unidentified conditions ($ps = .001$, $ds > 0.95$), whereas they did not improve in the other-gender con-

TABLE 1
Mean Speed, Self-Evaluations, and Judgments of Task Liking in the Three Conditions

Variable	Condition		
	Gender-unidentified	Same-gender	Other-gender
Speed (shapes per minute)			
Prefeedback (Trial 1)	40.07 _a (13.38)	39.01 _a (17.31)	43.50 _a (23.48)
Postfeedback (Trial 2)	48.27 _b (17.59)	45.25 _b (17.21)	40.76 _a (19.37)
Self-evaluation			
Postfailure (Trial 1)	2.68 _a (1.11)	2.85 _a (0.88)	2.89 _a (0.81)
Postsucccess (Trial 2)	3.47 _b (0.61)	3.85 _b (0.49)	3.11 _a (0.74)
Task liking			
Same-gender target	3.90 _a (1.29)	4.50 _a (0.76)	3.84 _a (1.37)
Other-gender target	3.73 _a (1.54)	2.70 _b (1.42)	4.37 _a (1.02)

Note. Standard deviations are given in parentheses. For each variable, different subscripts within a column indicate a significant difference between the means, $p < .05$. Self-evaluations were rated on 4-point scales. Liking was rated on a 5-point scale.

dition, $p > .35$. Also, after the second trial only (postsuccess), children in the other-gender condition had lower self-evaluations than did children in the same-gender condition, $p = .001$, $d = 1.14$.

Task Liking

Judgments of task liking showed a significant Target (same-gender; other-gender) \times Condition interaction, $F(1, 55) = 7.92$, $p = .001$. In the gender-unidentified condition, children thought boys and girls would like the task equally, $p > .70$. In the same-gender condition, children thought same-gender children would like the task more than would other-gender children, $p < .001$, $d = 1.58$. In the other-gender condition, this pattern was reversed, but was not significant.

DISCUSSION

How preschoolers respond to social comparisons involving relative failure appears to critically depend on the gender of the comparison peer. After an initial experience of relative failure, children who were told about same-gender, or gender-unidentified, peers improved their performance on a second trial (as indicated by increased speed across trials), whereas children who were told about other-gender peers did not, an indication of impaired performance. Also, children in the same-gender and gender-unidentified conditions increased their self-evaluations after the second (more successful) trial, whereas children in the other-gender condition did not. These findings suggest that preschoolers are resilient after upward comparisons with same-gender peers, consistent with prior work, but also that upward comparisons with other-gender peers have lasting negative consequences.

The gender information presented in these tasks was minimal—children heard about a single child (not boys or girls in general) and were given just one example of a performance discrepancy, and this work involved a novel (non-gender-stereotyped) task. Thus, the finding that gender had important effects on the consequences of upward comparisons is evidence of the powerful nature of gender during the preschool years. Given the mechanisms that we propose account for our effects, it is possible that other social categories that preschoolers find salient and view as predictive of behavior also influence how children respond to relative failure.

We focused on upward comparisons because relative-failure experiences may play an important role in the development of academic self-efficacy and achievement motivation. The implications of the present findings—that children draw conclusions about stable gender-linked differences on the basis of single instances of relative failure—suggest possible processes that may contribute to the early development of children's academic gender stereotypes and achievement behaviors. Because we examined only upward comparisons in this context, future

work should examine whether gender also influences how children respond to other kinds of comparisons, such as when they perform better than or as well as their peers.

These findings provide a window into the development of social comparison processes. In describing the robust adult tendency to engage in social comparisons, Festinger (1954) proposed that the use of comparative information for self-evaluation is part of humans' innate capacity. For several decades, this proposal has appeared to be contradicted by developmental research indicating that use of social comparisons in this manner is a relatively late development (e.g., Ruble, Feldman, & Boggiano, 1976; Veroff, 1969). The present work suggests that the capacity to use social comparisons for self-evaluation and regulation of behavior is indeed an early-emerging dimension of social cognition. Therefore, young children, like adults, may sometimes be vulnerable to experiences of relative failure. It will be important for future work to investigate when children engage in such comparisons in their everyday lives and how comparative dynamics play out in typical classrooms.

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