

Coping with Achievement-Related Failure An Examination of Conversations between Friends

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Prior research has identified ways in which parents and teachers contribute to learned helpless responses to failure, but little is known about the role that interactions with peers might play. In this study, the conversations of fourth- through sixth- grade children and their friends were observed after children experienced an achievement-related failure. Changes in children's responses to failure from postfailure to postdiscussion were predicted from the features of these conversations. Children who received frequent help from friends reported fewer maladaptive responses to failure. In contrast, learned helpless responses were predicted when friends engaged in off-task talk, when children discounted their failures, and when children or friends evaluated the task negatively. Sequential analyses were used to better understand these effects and those moderated by gender and relative performance. Using observational methods, this study contributes to our understanding of the processes by which achievement-related beliefs are influenced by peer interactions.

Academic difficulties are an important facet of children's experience. In fact, children report that receiving poor grades and encountering problems with homework are among the most common distressing events in their daily lives (Compas, Malcarne, & Fondacaro, 1988; Greene, 1988; Lewis, Siegel, & Lewis, 1984; Mantzicopoulos, 1997; Schulenberg, Asp, & Petersen, 1984).

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This research was supported by National Science Foundation Grant BCS-0236678. Portions of this manuscript were presented at the 2008 meeting of the American Educational Research Association in New York, New York. We are grateful to Allison Ryan, Eva Pomerantz, and Gwen Kenney-Benson for their helpful feedback on drafts of this manuscript.

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Merrill-Palmer Quarterly, October 2009, Vol. 55, No. 4, pp. 454–487. Copyright © 2009 by Wayne State University Press, Detroit, MI 48201.

Children differ in their responses to these academic difficulties. As early as preschool—and increasingly as children move through elementary school—some children begin to develop maladaptive learned helpless responses to failure (Burhans & Dweck, 1995). When challenged, these children tend to evaluate themselves negatively, blame their failures on a lack of ability, report diminished expectations for future success, and show decreased persistence. In contrast, children exhibiting mastery-oriented approaches to challenge tend to attribute their failures to factors within their control (e.g., insufficient effort), maintain positive expectations for future success, and persist in the face of failure (Diener & Dweck, 1978; Dweck, 1986; Dweck, 2002; Kamins & Dweck, 1999; Ziegert, Kistner, Castro, & Robertson, 2001).

Considerable research has sought to examine the precursors of learned helpless responses to failure. Much of this work has focused on examining how children's interactions with adults influence children's coping styles (Wigfield, Eccles, Schiefele, Roeser, & Davis-Kean, 2006). This work indicates that the types of praise and criticism children receive from adults following failure predict children's responses to academic challenge (e.g., Kamins & Dweck, 1999). The effects of other types of social interactions—including the provision of help and emotional support—have been less well studied. In one notable exception, Hokoda and Fincham (1995) used sequential analysis techniques to study the ways in which mothers of learned helpless third-grade children responded as their children worked on a series of difficult experimental tasks. Compared with mothers of more mastery-oriented children, mothers of learned helpless children were less likely to offer assistance when their children requested it but more likely to respond to self-critical statements (e.g., "I can't do it") by suggesting that their children discontinue the activity.

Given that children spend a substantial amount of time with friends (Larson & Richards, 1991; Medrich, Rosen, Rubin, & Buckley, 1982) and report seeking the advice and support of friends during times of stress (Band & Weisz, 1988; Causey & Dubow, 1992; Patterson & McCubbin, 1987), it seems likely that children's responses to academic failure might also be predicted by the interactions in which they and their friends engage. Surprisingly, however, very little attention has been paid to the nature of children's interactions with friends following achievement-related failure or the role that these interactions might play in predicting changes in children's responses to failure.

The purpose of the present study was to begin to fill this gap in the literature. Fourth- through sixth-grade children's conversations with friends were observed immediately after children experienced an achievement-related failure. Statements made by both focal children and their friends

(e.g., instances of off-task talk, negative self-evaluations, help seeking, and help giving) were used to predict changes in children's responses to failure from postfailure to postdiscussion. The gender of the friendship dyad and the relative performance of children's friends were examined as potentially important moderating variables.

The Development of Achievement Motivation in Peer Contexts

The current study contributes to a still small, but growing, literature indicating that interactions with friends play an important role in the development of children's school-related attitudes and outcomes (for reviews, see Altermatt & Kenney-Benson, 2006; Berndt, 1999; Wigfield et al., 2006). Children who select friends who do well in school, who are actively involved in classroom activities, and who hold positive achievement-related beliefs tend to adopt similar characteristics over time (Altermatt & Pomerantz, 2003; Berndt & Keefe, 1995; Ide, Parkerson, Haertel, & Walberg, 1981; Kindermann, 1993; Ryan, 2001). Moreover, children who are involved in relationships characterized by high levels of positive friendship qualities (e.g., intimacy and social support) experience stronger classroom engagement and academic performance (Berndt & Keefe, 1995; Cauce, 1986; Kurdek & Sinclair, 1988) than children who are involved in lower quality relationships.

The processes by which children's achievement attitudes and outcomes are shaped by interactions with friends are less well understood. Although researchers have identified a number of potentially important mechanisms (e.g., reinforcement, social comparison, and help giving), rarely have these processes been directly observed in achievement settings or empirically linked to changes in children's achievement-related behaviors and beliefs over time (for reviews, see Berndt, 1999; Ryan, 2000; Wentzel, 1999). Berndt and his colleagues (Berndt, Laychak, & Park, 1990) have conducted one of the few studies to examine the mechanisms of friends' influence in the achievement domain directly, using quasi-experimental observational methods. In that study, eighth-grade students were presented with hypothetical dilemmas in which they had to make a decision that reflected either a high level of achievement motivation (e.g., studying for an examination) or a low level of achievement motivation (e.g., going to a rock concert instead). Children made their decisions both before and after talking with a friend. Consistent with the notion that reinforcement is an important mechanism of influence, adolescents were most likely to shift toward high-motivation alternatives when friends supported these alternatives in their conversations.

The present study extends the work of Berndt and his colleagues by directly observing children's conversations with friends immediately after children experience an achievement-related failure to examine the nature of

these interactions and their relation to changes in children's responses to failure from postfailure to postdiscussion. Directly observing children's interactions with friends in the context of achievement-related failure is important in at least three respects. First, children's responses to failure have been broadly implicated in a variety of models of achievement motivation (for a review, see Wigfield et al., 2006) and are thought to play a key role in predicting children's long-term educational and occupational choices (Dweck, 1986). Second, although positive and negative feedback from adults has been clearly linked to the development and maintenance of learned helpless responses to failure, the degree to which other features of children's social interactions—particularly their social interactions with equal-status peers—are related to learned helpless responses to failure are not well understood (Nolen-Hoeksema, Wolfson, Mumme, & Guskin, 1995; Wigfield et al., 2006). Finally, peer influence has most often been assessed indirectly, using survey methodologies (Berndt et al., 1990). By examining children's interactions with friends in the context of achievement-related failure, we are able to directly observe a number of mechanisms of peer influence (e.g., help giving, social comparison) that have been identified in several recent reviews of the literature as potentially important contributors to the development of children's achievement-related behaviors and beliefs (for reviews, see Berndt, 1999; Ryan, 2000; Wentzel, 1999).

Gender and Relative Performance as Moderating Variables

Evidence for gender difference in learned helpless responses is mixed, with some studies reporting gender differences (e.g., Dweck & Bush, 1976; Dweck, Goetz, & Strauss, 1980; Dweck & Repucci, 1973; Nicholls, 1975) and others reporting no gender differences (e.g., Kamins & Dweck, 1999; Ziegert et al., 2001). When studies do find gender differences, the usual pattern is that girls are more likely than boys to exhibit maladaptive learned helpless responses to failure (Ziegert et al., 2001; Wigfield et al., 2006). These gender differences have been linked in part to students' interactions with important adult figures in their lives. For example, Dweck, Davidson, Nelson, and Enna (1978) found that boys and girls receive different types of feedback in the classroom setting and that the types of feedback received by girls (e.g., criticism focused on intellectual inadequacies) predicts the negative attribution style (i.e., blaming failure on ability) characteristic of learned helplessness.

The current study extends this work by examining the degree to which boys' and girls' conversations with friends differ and the degree to which these conversations might contribute to gender differences in learned helplessness. Prior research suggests that girls' interactions with friends are more

likely than boys' interactions to be characterized by high levels of help, validation, and caring (e.g., Berndt, Hawkins, & Hoyle, 1986; Berndt & Keefe, 1995; Brendgen, Markiewicz, Doyle, & Bukowski, 2001; Parker & Asher, 1993; for a review, see Rose and Rudolph, 2006). Much of this research is based on children's self-reports, however, and it remains unclear to what degree these gender differences will be apparent in observations of actual conversations between friends, especially in the context of an achievement-related failure. Assuming that gender differences do emerge, it still remains unclear what the consequences might be for children's responses to failure. For example, some research indicates that the social support-seeking characteristic of girls' interactions during times of stress may heighten rather than reduce anxiety (Altermatt, 2007; Costanza, Derlega, & Winstead, 1988; Harlow & Cantor, 1994; Rose, 2002; Rose, Carlson, and Waller, 2007).

The current study also examines the ways in which relative performance may influence the nature and consequences of children's conversations with friends following failure. There is clear evidence that children use social comparison information to evaluate their competencies and to guide their behavior (Ruble, Boggiano, Feldman, & Loebel, 1980). As a result, we expect children and friends to communicate differently when both children experience failure than when one child experiences failure and the other succeeds. For example, we expect children to seek more help when friends succeed than when friends fail, as children are more likely to expect help seeking to be effective when a friend has successfully completed the task (see Ryan, Pintrich, & Midgley, 2001). It remains unclear whether the consequences of help seeking (or other features of children's conversations) will vary according to friends' performance. On the one hand, one might expect help seeking to lead to better outcomes (i.e., fewer learned helpless responses) when friends succeed than when friends fail, as successful friends can indeed provide more effective help and model positive achievement beliefs (e.g., high expectations for future success). On the other hand, one might expect help seeking to predict fewer learned helpless responses when a friend also experiences challenge, as friends can work together to find a solution without the negative self-evaluative consequences that upward social comparison might bring. Indeed, prior research indicates that a key reason for the avoidance of help seeking is the fear that others will view one as incompetent (Ryan et al., 2001).

Overview

The overall purpose of present study is, then, to examine the role that fourth- through sixth-grade children's interactions with friends play in predicting maladaptive learned helpless responses to failure in an achievement

setting. The specific goals of this study are threefold. First, the research provides novel information regarding the nature of children's conversations with friends as children cope with a specific achievement-related challenge. Second, the research examines both focal child and friend statements as potentially important predictors of changes in children's responses to failure from postfailure to postdiscussion. Third, the research examines whether the nature of friends' discourse or its relation to changes in children's responses to failure varies by the gender of the dyad or by relative performance of its members.

In coding children's conversations, we focused our attention on two general categories of statements. First, we coded the frequency with which children and their friends made off-task statements, that is, statements that were not task relevant (e.g., "What are you wearing to school tomorrow?"). We expected that when off-task talk was prevalent in friends' conversations, children would report increasingly more learned helpless responses to failure. This finding would be consistent with evidence from the coping literature that suggests that problem-focused, engaged coping strategies (including help seeking) generally predict better adjustment than emotion-focused, disengaged coping strategies (including cognitive avoidance) (Compas et al., 2001). It would also be consistent with Hokoda and Fincham's (1995) finding that mothers who continued to engage their children in a difficult task by, for example, reassuring them of their high ability and making teaching statements were less likely to raise children identified as learned helpless. Second, we coded a range of on-task statements. These included statements in which children were simply exchanging task-relevant information (i.e., "My blocks were green and white") and those statements that were either directly or indirectly evaluative (e.g., negative task statements such as "I only got one done" or help-seeking statements). These on-task evaluative statements were coded into categories similar to those used in prior research examining children's discourse in the classroom setting (see Altermatt et al., 2002; Frey & Ruble, 1985, 1987). We again expected statements that reflected problem-focused or engaged coping (e.g., help-seeking statements or help-giving statements) to predict positive responses to failure. In contrast, statements that reflected emotion-focused or disengaged coping—for example, discounting statements (e.g., "I don't care") and negative task statements (e.g., "I hate these kinds of puzzles")—were expected to predict negative responses to failure (see Compas et al., 2001).

Importantly, the present study examines statements made by children and their friends. Although many prior studies have examined the behaviors of only one interaction partner, some recent research examining adult-child interactions (e.g., Hokoda and Fincham, 1995) and peer interactions (e.g., Altermatt, Pomerantz, Ruble, Frey, & Greulich, 2002; Sage and Kindermann,

1999) suggest that both types of statements can be important predictors of changes in children's achievement-related beliefs. Moreover, these studies suggest that examining statements in the natural sequence in which they occur (e.g., to determine what happens after a child asks for help from a peer) can be helpful in explaining why and in what contexts particular statement types are predictive of changes in achievement-related beliefs over time. For example, Altermatt et al. (2002) found that elementary school students who frequently sought help from peers in the classroom setting reported positive changes in their competence perceptions over the academic year; however, this effect held only for girls. Sequential analyses provided some insights into this finding, revealing that girls were significantly more likely than boys to receive the help they requested. In contrast, boys were significantly more likely than girls to have peers respond by evaluating themselves negatively (e.g., "I'm really bad at math"). Context is expected to be similarly important in the present study, and sequential analyses are, again, used to provide at least initial insight into when and why particular types of statements might be associated with changes in children's learned helpless responses from post-failure to postdiscussion. For instance, although negative performance statements (e.g., "I didn't get *any* of them right!") are expected to be associated with maladaptive learned helpless responses to failure in the present study because they are emotion focused rather than problem focused, we expect that this is more likely to be the case in dyads where friends respond by evaluating their own performance positively (e.g., "Really? I got them all!"). This finding would be consistent with research indicating that elementary school children use social-comparative information to judge their capabilities (e.g., Butler, 1989; Ruble, Boggiano, Feldman, & Loebel, 1980; Ruble, Feldman, & Boggiano, 1976).

Methods

Participants

Participants were 232 students representing 116 same-gender friendship dyads (40 male, 76 female) in the fourth, fifth, and sixth grades (mean age = 10.38 years).¹ Participants were recruited through letters sent home with school students, flyers posted in public locations, and letters distributed to

¹ Participants were drawn from two school districts with different grade-level structures. One school district employed a Grades K–4 (elementary), Grades 5–6 (elementary), Grades 7–8 (middle), and Grades 9–12 (high school) structure. The second school district employed a Grades K–5 (elementary), Grades 6–8 (middle), and Grades 9–12 (high school) structure. The majority of participants (89%) were in elementary school at the time of the study.

children attending YMCA summer camps. Friendship dyads were self-selected; that is, children were asked to volunteer for the study with a friend. The majority of participants were Caucasian (70%). However, 14% of participants identified as African American, 7% as Latino/Hispanic, 3% as American Indian or Alaskan Native, and 3% as Asian or Pacific Islander. The remaining 5% of participants marked their ethnicity as "other." The majority of children had parents who were married (72%) and fairly highly educated: 63% of mothers and 64% of fathers had completed at least a bachelor's degree. The majority of children (84%) were in the same grade in school as their friend. The average length of children's friendships was 3.07 years ($SD = 2.03$ years, range = 6 months to 11 years).

Procedure

The members of each friendship dyad participated in a one-hour laboratory session. At the beginning of the session, children were escorted by two female researchers to a room equipped with a table, two chairs, and a video camera. After engaging in some small talk with the researchers and a videotaped ice-breaker discussion with one another, children were escorted to separate classrooms, where they were asked to complete an experimental puzzle task. The procedure was similar to that used in previous research aimed at assessing children's responses to achievement-related failure (Dweck & Gilliard, 1975; Lobel & Bempechat, 1992). Specifically, children were presented with two sets of four puzzles representing geometric shapes and were allotted a total of four minutes to solve the four puzzles in each set. Children were not aware that some of the puzzles were unsolvable. A randomly selected focal child from each dyad was selected to receive failure feedback. That is, he or she received three unsolvable puzzles and one solvable puzzle in the first set and four unsolvable puzzles in the second set. The performance of the focal child's friend was manipulated. Specifically, the friend was randomly assigned either to the failure condition (i.e., he or she received the same puzzles as the focal child) or to the success condition (i.e., he or she received four solvable puzzles in both sets). This procedure resulted in 58 focal children being assigned to the friend-success condition and 58 focal children being assigned to the friend-failure condition.

After completion of the puzzle task, the focal child and his or her friend were reunited and were encouraged to discuss the task. Specifically, children were told that they could discuss the puzzle task in whatever way they wished: for example, they could talk about their performance, their feelings, or the strategies they used to work on the puzzles. Children were also told that they could choose not to discuss the task. This session, with the

consent and knowledge of the participants, was videotaped for later coding of children's conversations. The video camera was placed in plain view. After seven minutes of discussion, children were again escorted to separate rooms, where they completed another set of puzzle tasks. All children were able to complete this set of puzzles and received success feedback. Children were thoroughly debriefed at this time.

Questionnaires assessing focal children's responses to failure were administered immediately following failure (postfailure) and following discussion of the failure with a friend (postdiscussion), with a total elapsed time between administrations of less than 15 minutes. Similar questionnaires were administered to friends. Given the focus of this paper on responses to failure, the questionnaire responses of friends were not analyzed in the present study.

Measures

Discourse. Children's discourse was transcribed and later coded by three research assistants. The unit of analysis was a thought unit defined as a sentence, phrase, or fragment that conveys a single, complete idea (Bakeman and Gottman, 1997). Each statement was coded according to the person who made the statement (i.e., focal child or friend) and the content of the statement made. A broad off-task category was used to code all statements that were non-task relevant (e.g., "Did you go to the basketball game?"). A broad on-task, nonevaluative category was used to code all statements in which participants were exchanging information that was task relevant but nonevaluative (e.g., "The puzzle looked like a star"). The remainder of children's statements represented on-task, evaluative discourse and were coded into 19 statement types similar to those used by Altermatt et al. (2002) and Frey and Ruble (1985, 1987) in earlier studies of children's classroom discourse. Among these statement types were discounting statements (e.g., "I don't care"), help-seeking statements (e.g., "How did you do it?"), negative performance statements (e.g., "I didn't get any of them"), and negative task statements (e.g., "I hate these kinds of puzzles").

Checks on observers' reliability in categorizing children's discourse were conducted by having all three coders code 20% of the transcripts. Reliability coefficients were estimated following Cohen (1960). Averaging across statement types and observers, percentage agreement in coding statements was 94% (Cohen's kappa = .90). Mean kappas between each pair of observers ranged from .86 to .96. All statement types are listed, with examples and individual kappas, in Table 1.

Table 1. Statement Types and Examples

Statement Type	Kappa	Examples
<i>On-task evaluative statements</i>		
Discounting	.86	"It doesn't matter."
Direct comparison statements (failure)	.71	"We both did really bad."
Direct comparison statements (positive)	.80	"That's because I'm better at puzzles (than you)."
Direct comparison statements (negative)	.86	"(Your) one is a lot better than (my) zero."
Expectancy statements (positive)	.61	"I was like, I'm going to do this."
Expectancy statements (negative)	.91	"So, I was like, I'm going to get it wrong anyways."
Help seeking	.81	"How do you do the diamond?"
Help giving	.86	"What you were supposed to do is go back . . ."
Performance checks	.97	"How many puzzles did you solve?"
Performance statements (positive)	.93	"I got all of them."
Performance statements (negative)	.93	"I got zero out of four."
Other-evaluative statements (positive)	.84	"I thought you would get them all."
Other-evaluative statements (negative)	.78	"You don't know how to do the diamond?!"
Self-evaluative statements (positive)	.76	"I'm good at puzzles."
Self-evaluative statements (negative)	.82	"I'm really bad at solving puzzles."
Task statements (easy)	.99	"The diamond was the easiest one."
Task statements (difficult)	.95	"The puzzles are too hard."
Task statements (positive)	.93	"Actually, I kind of liked it."
Task statements (negative)	.86	"I hate these kind of puzzles."
<i>On-task nonevaluative statements</i>		
	.90	"There was one minute for each puzzle right?"
<i>Off-task statements</i>		
	.95	"I'm still trying to think what I should get for your birthday."

Responses to failure. Focal children's responses to failure were assessed at two time points: (1) postfailure (i.e., immediately after the focal child failed to solve the puzzles but before he or she discussed the puzzles with a friend) and (2) postdiscussion (i.e., immediately after the focal child had the opportunity to discuss the failure with a friend). Children were asked to complete 11 Likert-scale items (range = 1 to 5) that were similar to those used in other research designed to assess children's learned helpless responses to failure (e.g., Kamins & Dweck, 1999; Ziegert et al., 2001). Specifically, children were asked to report on their self-perceptions of competence (e.g., "I am good at solving puzzles"; 3 items), ability attributions for failure (e.g., "I did poorly on the puzzles because I'm not smart"; 2 items), expectations for future success (e.g., "I am confident that I will do well on the next set of puzzles"; 3 items), and persistence (e.g., "I want to do more puzzles"; 3 items). All items were scored so that higher numbers reflected more maladaptive learned helpless responses to failure (i.e., negative self-evaluations, attributions for failure to ability, low expectations for future success, and a desire not to persist). Because these items were highly correlated, participants' responses were averaged to form a single scale ranging from 1 (maladaptive) to 5 (adaptive). These items yielded reliable scales at both postfailure ($\alpha = .86$) and postdiscussion ($\alpha = .86$).

Results

Four broad sets of analyses were carried out. First, a set of preliminary analyses was conducted to examine the efficacy of the success/failure manipulation and to investigate potential gender and/or relative performance (i.e., friend failure vs. friend success) differences in children's responses to failure. Second, descriptive statistics were calculated to examine the content of focal children's discourse with friends, and analyses were conducted to test the degree to which children's discourse varied by gender or relative performance. Third, a series of regression analyses was conducted to examine relations between children's discourse with friends and changes in their responses to failure from postfailure to postdiscussion. Fourth, sequential analyses were conducted to examine the context in which focal child and friend statements were made (e.g., What typically happens after children evaluate the task negatively? How often do friends mirror the negative evaluation? How often do they provide help?). By understanding the context in which these statements are made, we hoped to gain at least initial insight into why and in what contexts particular statements predict maladaptive responses to failure. One might expect, for example, that negative task statements (e.g., "I hate these kinds of puzzles")

would be more likely to predict learned helpless responses to failure if they are frequently repeated by friends (e.g., “Yeah. They’re dumb.”) than if friends frequently offer assistance.

Preliminary Analyses

Manipulation check. Performance on the puzzles was successfully manipulated. In all dyads, the randomly selected focal child received one solvable puzzle out of eight puzzles. The average number of puzzles solved by the focal child was .53 ($SD = .50$; range = 0 to 1). The friend received either one (failure condition) or eight (success condition) solvable puzzles. The average number of puzzles solved by the friend was .48 ($SD = .50$; range = 0 to 1) in the failure condition and 7.67 ($SD = .38$; range = 5 to 8) in the success condition. Males and females did not differ in their performance on the puzzles ($ts < 1$, *ns*).

Responses to failure. Focal children showed a variety of responses to failure, ranging from very adaptive to very maladaptive (ranges = 1.45 to 4.64 at postfailure and 1.27 to 4.91 at postdiscussion). Focal children’s responses to failure were examined with a mixed-model analysis of variance. Gender (male, female) and relative performance (friend failure, friend success) were the between-subjects variables. Time (postfailure, postdiscussion) was the within-subjects variable. Between-subjects analyses revealed a gender main effect ($F[1, 112] = 6.45$, $p = .01$) such that females ($M = 3.37$, $SE = .08$) reported more learned helpless responses to failure than did males ($M = 3.01$, $SE = .11$) across time and condition (Figure 1). Within-subjects analyses revealed a time main effect ($F[1, 112] = 5.73$, $p < .05$) such that children reported more learned helpless responses to failure immediately after they experienced failure on the puzzles ($M = 3.24$, $SE = .07$) than after they had an opportunity to discuss the failure with a friend ($M = 3.13$, $SE = .08$). No other main or interaction effects emerged.

Children’s Discourse

The content of children’s discourse was examined by calculating two sets of statistics: (a) the raw frequency with which each type of statement was made and (b) means and standard deviations representing the percentage of children’s statements that, on average, fell into each category. Percentages for off-task statements were calculated by dividing the number of off-task statements each child made by the total number of statements made by that child. Percentages for each of the on-task statement types were calculated by dividing the total number of statements made by the child in each category

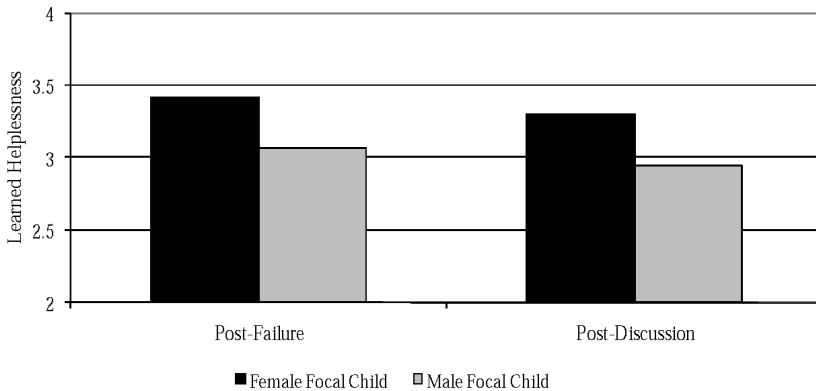


Figure 1. Focal Children's Learned Helplessness by Gender and Time.

(e.g., help seeking) by the total number of on-task statements made by that child. Raw frequencies, means, and standard deviations are presented, separately for focal children and friends, in Table 2. To control for individual differences in the total number of statements made and received, we based all analyses on percentages rather than raw frequencies. For these analyses, percentages were arcsine transformed to better approximate the normal distribution. For ease of interpretation, the nontransformed percentages are reported in Table 2 and in the text.

To assess whether children's discourse varied by the gender of the participants or the performance of friends, we computed a series of gender (male, female) \times relative performance (friend success, friend failure) ANOVAs for focal child and friend statements. To avoid making conclusions about statement types that occurred very infrequently, we included in the analyses only statements with a mean frequency greater than 1%. To further control for Type 1 errors, we used the Benjamini-Hochberg (1995) correction. This correction is similar to the Bonferroni correction but has been favored by statisticians (e.g., Williams, Jones, & Tukey, 1999) because its power remains stable as the number of comparisons becomes large. Only comparisons that remained significant after the Benjamini-Hochberg correction was employed are presented here.

Off-task statements. The percentage of children's statements that were off-task did not differ by gender or by relative performance for either focal children or friends (all $ps > .05$).

On-task statements. Analyses for focal child statements revealed a gender main effect for performance checks. Specifically, male focal children

($M = 5.68$, $SD = 7.92$) were more likely than female focal children ($M = 2.89$, $SD = 3.81$) to ask friends about their performance ($F[1,112] = 6.88$, $p = .01$). Relative performance main effects emerged for help-seeking, negative performance, and negative task statements ($F_s[1,112] > 6.80$, $p_s < .01$). Specifically, focal children were more likely to seek help from their friends ($M_{\text{success}} = 2.85$, $SD = 4.82$; $M_{\text{failure}} = 0.41$, $SD = 1.03$), state that they had performed poorly ($M_{\text{success}} = 6.59$, $SD = 5.85$; $M_{\text{failure}} = 4.44$, $SD = 3.27$), and evaluate the task negatively ($M_{\text{success}} = 2.97$, $SD = 4.41$; $M_{\text{failure}} = 1.19$, $SD = 2.65$) when their friends succeeded than when they failed.

For friend statements, no gender main effects emerged. Relative performance main effects emerged for discounting, help-giving, positive performance, negative performance, negative self-evaluative, task easy, task difficult, and task positive statements ($F_s[1,112] > 7.04$, $p_s < .01$). These analyses showed that friends were more likely to offer help to the focal child ($M_{\text{success}} = 6.16$, $SD = 10.11$; $M_{\text{failure}} = 1.21$, $SD = 3.39$), state that they had performed well ($M_{\text{success}} = 4.74$, $SD = 3.95$; $M_{\text{failure}} = .17$, $SD = 0.75$), comment that the task was easy ($M_{\text{success}} = 2.95$, $SD = 4.52$; $M_{\text{failure}} = .81$, $SD = 1.98$), and evaluate the task positively ($M_{\text{success}} = 1.75$, $SD = 3.00$; $M_{\text{failure}} = .44$, $SD = 1.09$) following success rather than failure. In contrast, friends were more likely to discount their performance ($M_{\text{success}} = .52$, $SD = 1.38$; $M_{\text{failure}} = 1.96$, $SD = 3.00$), state that they had performed poorly ($M_{\text{success}} = 0.28$, $SD = 1.14$; $M_{\text{failure}} = 4.90$, $SD = 4.29$), evaluate themselves negatively ($M_{\text{success}} = .34$, $SD = 1.14$; $M_{\text{failure}} = 2.51$, $SD = 3.42$), and state that the task was difficult ($M_{\text{success}} = .16$, $SD = 2.39$; $M_{\text{failure}} = 5.89$, $SD = 4.89$) when they failed than when they succeeded. In addition, one gender by relative performance interaction emerged for performance checks ($F[1,112] = 5.84$, $p < .05$). Follow-up analyses revealed that male friends ($M = 7.13$, $SD = 4.71$) were more likely than female friends ($M = 3.35$, $SD = 5.15$) to ask focal children about their performance (e.g., "How many did you get?") in the success condition ($t[56] = -2.54$, $p = .01$). No gender differences emerged in the failure condition ($t[56] < 1$, *ns*).

Predicting Responses to Failure

To examine relations between children's discourse and changes in focal children's responses to failure from postfailure to postdiscussion, we conducted separate hierarchical regression analyses for each statement type. To minimize the chance of Type 1 errors, we included only statements with a mean frequency greater than 1%. At Step 1 in these analyses, we entered focal children's postfailure responses to failure. Adjusting for children's responses immediately after failure (but prior to discussions with friends)

Table 2. Descriptive Statistics: Focal Child and Friend Statements

Statement Type	Frequency		Mean Percentages (SDs)	
	Focal Child	Friend	Focal Child	Friend
<i>On-task evaluative statements</i>				
Discounting	132	74	2.40 (3.80)	1.24 (2.43)
Direct comparison statements (failure)	9	9	0.14 (0.71)	0.13 (0.69)
Direct comparison statements (positive)	3	5	0.05 (0.34)	0.08 (0.39)
Direct comparison statements (negative)	13	4	0.21 (1.05)	0.07 (0.35)
Expectancy statements (positive)	43	38	0.59 (1.41)	0.52 (1.32)
Expectancy statements (negative)	15	25	0.23 (0.83)	0.42 (1.32)
Help seeking	84	27	1.63 (3.69)	0.43 (1.86)
Help giving	28	249	0.39 (1.38)	3.68 (7.91)
Performance checks	165	169	3.86 (5.71)	3.36 (4.78)
Performance statements (positive)	5	112	0.09 (0.49)	2.46 (3.64)
Performance statements (negative)	265	137	5.50 (4.79)	2.59 (3.89)

Other-evaluative statements (positive)	54	60	1.07 (2.41)	1.00 (1.85)
Other-evaluative statements (negative)	10	30	0.17 (0.73)	0.49 (1.41)
Self-evaluative statements (positive)	27	43	0.42 (1.15)	0.75 (1.69)
Self-evaluative statements (negative)	153	82	2.81 (3.73)	1.43 (2.76)
Task statements (easy)	45	99	0.71 (1.48)	1.88 (3.64)
Task statements (difficult)	263	239	4.48 (4.57)	3.72 (4.41)
Task statements (positive)	40	75	0.64 (1.69)	1.09 (2.33)
Task statements (negative)	127	76	2.08 (3.71)	1.40 (3.23)
<i>On-task nonevaluative statements</i>	4,673	4,850	72.53 (14.42)	73.27 (14.61)
<i>Off-task statements</i>	2,287	2,156	26.83 (22.65)	25.51 (21.31)
Total	8,441	8,559		

Note. Mean percentages for the 19 on-task evaluative statement categories and 1 on-task nonevaluative statement category were calculated by dividing the number of statements each child made in each category by the total number of on-task statements made by that child (where on-task statements include all on-task evaluative statements and on-task nonevaluative statements). Mean percentages for off-task statements were calculated by dividing the number of off-task statements each child made by the total number of statements made by that child.

when predicting their postdiscussion responses is important to ensure that significant findings indicate that children's discourse predicts changes in children's responses rather than that discourse and responses to failure are related concurrently. Statement type, gender, and condition were entered at Step 2. Two-way interaction terms (statement type \times gender, statement type \times condition, gender \times condition) were entered at Step 3. A three-way interaction term (statement type \times gender \times condition) was entered at Step 4. Significant interactions were broken down using procedures developed by Aiken and West (1991). All continuous independent variables were centered.

Off-task statements. A significant statement type main effect emerged for off-task statements made by friends ($\beta = .13$, $t[114] = 2.29$, $p < .05$). Focal children whose friends made off-task statements more frequently reported more learned helpless responses to failure than focal children whose friends made off-task statements less frequently.

On-task focal child statements. Significant statement type main effects emerged for discounting statements ($\beta = .19$, $t[111] = 2.29$, $p < .05$) and for task negative statements ($\beta = .20$, $t[111] = 2.39$, $p < .05$). Specifically, focal children reported more learned helpless reactions to failure when they more frequently discounted their failure (e.g., "It doesn't matter") and when they more frequently evaluated the task negatively (e.g., "I hate these kinds of puzzles"). A significant statement main effect also emerged for help-seeking statements ($\beta = -.81$, $t[111] = -2.90$, $p < .01$) such that focal children who sought help relatively frequently from peers reported less of a learned helpless response to failure than focal children who sought help relatively infrequently. This effect was qualified, however, by a significant statement type \times relative performance interaction ($\beta = .67$, $t[111] = 2.57$, $p = .01$). Follow-up analyses indicated that help seeking was associated with significantly lower learned helpless responses in the failure condition ($\beta = -.23$, $t[55] = -2.98$, $p < .01$) but not in the success condition ($\beta = -.11$, $t[55] = -1.54$, *ns*). Finally, a significant statement type by gender interaction emerged for negative performance statements ($\beta = .24$, $t[111] = 3.37$, $p = .001$). Analyses conducted separately by gender revealed that males who made relatively frequent negative performance statements (e.g., "I didn't get any of them") reported more learned helpless responses to failure ($\beta = .27$, $t[37] = 2.92$, $ps < .01$). In contrast, negative performance statements were related to significantly lower learned helpless responses to failure for females ($\beta = -.17$, $t[73] = -2.68$, $p < .01$).

On-task friend statements. For friend statements, significant statement type main effects emerged for help-giving statements ($\beta = -.44$, $t[111] = -2.09$, $p < .05$) and task negative statements ($\beta = .14$, $t[111] = 2.16$, $p < .05$). Regardless of gender or condition, focal children reported more adaptive

reactions to failure when their friends engaged in relatively high levels of help giving (e.g., “Let me show you how to do it”) but fewer adaptive reactions to failure when their friends evaluated the task negatively relatively frequently (e.g., “I hated these puzzles”).

Sequential Analyses

To further investigate the findings from our regression analyses, we used sequential data analysis techniques to examine children’s on-task evaluative discourse in the natural sequence in which it occurred. To reiterate, we expected that by examining the types of statements that followed from focal child and friend statements, we might better understand why certain features of children’s discourse (e.g., discounting) were associated with more maladaptive learned helpless responses to failure from postfailure to postdiscussion.

Sequential analysis begins with a simple frequency count of the number of times an antecedent event i (e.g., the focal child asks for help) occurs in sequence with a consequent event j (e.g., the friend provides help) at some lag, or interval. In the current study, lags of +1 were used. That is, we determined the frequency with which each antecedent event (i.e., the event at Lag 0) was immediately followed by each consequent event (i.e., the event at Lag +1).

Methods designed to test for the independence of antecedent and consequent events have been developed by Sackett (1979) and modified by Allison and Liker (1982) and by Bakeman and Quera (1995). We used Bakeman and Quera’s method in the present study because, consistent with the procedures used in our study, Bakeman and Quera’s method allows consecutive events to be assigned the same code (e.g., one negative self-evaluative statement could be followed by another) and allows for codes to be pooled across multiple children. As noted by Bakeman and Gottman (1997), pooling is often necessary when—as in the present study—multiple children are observed and relatively few instances of codable behavior are observed for each individual. The purpose of testing for independence is to determine whether one type of event follows another type of event more (or less) often than would be expected by chance. In the language of sequential analysis, the conditional probability (i.e., the probability that event j occurs given that event i has just occurred) is compared with the expected probability that such a sequence will occur based on the probability that each event occurs alone (i.e., based on the unconditional probabilities of the two events). The z statistic is compared to the standard normal distribution. If the null hypothesis of independence is rejected, then it can be said that i and

j are dependent; that is, event j follows event i more (or less) often than expected by chance.

Gender and relative performance differences in the level of dependency between statement types were also examined. In order to adjust for gender and relative performance differences in total verbal output, z -scores were transformed to phi coefficients, r_ϕ (see Bakeman & Gottman, 1997). Differences between phi coefficients were then examined using standard procedures for testing the difference between two independent correlation coefficients (see Glass & Hopkins, 1984; Hays, 1994). These procedures yield a z statistic (referred to here as z_{diff}) that can be compared to the standard normal distribution.

Analysis overview. In consideration of our goal to employ sequential analyses to gain insight into why children's evaluative discourse predicts their responses to failure from postfailure to postdiscussion and to minimize the possibility of Type 1 errors (see Bakeman & Gottman, 1997), we limited our sequential analyses to those statement types that emerged as significant predictors of children's failure responses in our regression analyses. For the statement type main effects that emerged for discounting and negative task statements made by the focal child and for help-giving and negative task statements made by friends, we were interested in determining which statements followed more (or less) often than expected by chance. For the statement type \times relative performance interaction that emerged for focal children's help-seeking statements, we were interested in whether the prevalence of particular sequences differed for children in the friend-success and friend-failure conditions. For the statement type \times gender interaction that emerged for focal children's negative performance statements, we were interested in whether the prevalence of particular sequences differed for males and females.

Focal child statements. Earlier regression analyses on focal child statements revealed two unqualified statement type main effects, one statement type by relative performance interaction, and one statement type by gender interaction. Sequential analyses examining each of these effects will be discussed in turn.

First, focal children who frequently discounted their failure (e.g., "I don't really care") reported more negative learned helpless responses to failure than did focal children who did so relatively infrequently. As shown in Table 3, sequential analyses examining these discounting statements revealed that focal children continued to discount their performance and that friends mirrored these discounting statements (e.g., "Yeah. It doesn't matter.") more often than expected by chance ($z_s > 11.95$, $ps < .001$). Focal children followed up with a negative performance statement (e.g., "I didn't get any of

Table 3. Results of Sequential Analyses Examining Statement Type Effects for Statements Made by Focal Children

Consequent (Lag +1)	Conditional Probability	Expected Probability	z
<i>Antecedent (lag 0) = Focal child discounts failure</i>			
Focal child discounts failure	.25	.04	11.95***
Focal child makes negative performance statement	.02	.08	-2.29*
Focal child makes task difficult statement	.04	.08	-1.91
Friend discounts failure	.27	.02	18.48***
Friend gives help to focal child	.03	.08	-2.22*
<i>Antecedent (lag 0) = Focal child evaluates task negatively</i>			
Focal child makes negative performance statement	.02	.08	-2.98**
Focal child makes task difficult statement	.06	.08	-0.82
Focal child evaluates task negatively	.30	.04	15.10***
Friend evaluates task negatively	.13	.02	8.17***
Friend gives help to focal child	.00	.08	-2.84**

* $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$.

Note. Data are listed for all sequences for which the conditional or expected probabilities equal or exceed .08. Positive values for z-scores indicate that the sequence occurred more often than expected by chance.

them”), and friends responded by providing help to the focal child (e.g., “You just need to . . .”) less often than expected by chance ($z_s > -2.20$, $ps < .05$).

Second, focal children who frequently evaluated the task negatively (“Those puzzles were stupid”) responded more negatively to failure than did focal children who did so relatively infrequently. As shown in Table 3, sequential analyses revealed that focal children repeated negative task statements and friends mirrored these negative task statements more often than expected by chance ($z_s > 8.15$, $ps < .001$). At the same time, focal children followed up by making negative performance statements (e.g., “I didn’t get any”), and friends followed up by giving help to the focal child (e.g., “What you need to do is . . .”) less often than expected by chance ($z_s > -2.84$, $ps < .01$).

Third, focal children who sought help from friends relatively frequently responded more positively to failure than focal children who avoided help seeking, but only when friends also failed. As shown in Table 4, sequential analyses revealed that focal children were more likely to continue to seek

Table 4. Results of Sequential Analyses Examining Statement Type \times Relative Performance Interaction for Help-Seeking Statements Made by Focal Children

Consequent (lag + 1)	Success Condition			Failure Condition			z	zdiff
	Conditional Probability	Expected Probability	z	Conditional Probability	Expected Probability	z		
<i>Antecedent (lag 0) = Focal child requests help from friend</i>								
Focal child makes negative performance statement	.01	.08	-2.08*	.00	.09	-1.26		.55
Focal child makes task difficult statement	.01	.06	-1.54	.06	.11	-.63		-.55
Focal child seeks help from friend	.30	.05	10.01***	.12	.01	4.32***		4.28***
Friend makes negative self-statement	.00	.00	-.59	.12	.04	1.47		-1.46
Friend makes task difficult statement	.01	.04	-.95	.00	.11	-1.48		.28
Friend gives help to focal child	.34	.13	5.52***	.53	.01	9.91***		-2.86**

* $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$.

Note. Data are listed for all sequences for which the conditional or expected probabilities exceed .08 for either the success or failure conditions. Positive values for z-scores indicate that the sequence occurred more often than expected by chance. Positive values for the z-score difference indicate that the sequence occurred more frequently in the success condition than in the failure condition.

help from friends (e.g., “How did you do it?”) when friends succeeded than when friends failed ($z > 4.28, p < .001$). Somewhat surprisingly, however, successful friends were less likely to respond to requests for help with assistance than were friends who also failed ($z = -2.86, p < .01$).

Finally, regression analyses revealed that negative performance statements (e.g., “I got zero right”) predicted negative responses to failure for boys but positive responses to failure for girls. As shown in Table 5, sequential analyses indicated that boys’ friends were significantly more likely than girls’ friends to respond to these statements by asking about the focal child’s performance (e.g., “You didn’t get *any* of them?!”) ($z_{\text{diff}} = -2.29, p < .05$) and marginally more likely to respond by evaluating their own performance positively (e.g., “I got them all”) ($z_{\text{diff}} = -1.74, p < .10$). Girls’ friends were, in contrast, more likely to mirror their friends’ negative performance statements (e.g., “I didn’t get any either”) ($z_{\text{diff}} = 3.77, p < .001$).

Friend statements. Earlier regression analyses on friend statements revealed two statement type main effects. Sequential analyses examining these effects are discussed in turn.

First, focal children who received help relatively frequently from friends reported fewer maladaptive learned helpless responses to failure than did focal children who received help infrequently. As shown in Table 6, sequential analyses revealed that friends continued to give help to the focal child significantly more often than expected by chance and that focal children continued to seek help from friends significantly more often than expected ($z_s > 7.70, p_s < .001$). In contrast, focal children responded to help giving from friends by making negative performance statements (e.g., “I didn’t get any of them”) and task difficult statements (e.g., “They were so hard”) less often than expected by chance ($z_s > -4.20, p_s < .001$).

Second, focal children whose friends relatively frequently evaluated the task negatively (e.g., “I hate doing puzzles”) responded more negatively to failure. As shown in Table 6, sequential analyses showed that both focal children and friends continued to evaluate the task negatively more often than expected by chance ($z_s > 9.95, p_s < .01$). In contrast, focal children followed negative task statements with negative performance statements (e.g., “I only got one”), and friends followed negative statements by giving help to the focal children significantly less often than expected by chance ($z_s > -2.60, p_s < .01$).

Discussion

Our first goal was to better understand the nature of children’s conversations with friends following failure. Not surprisingly, the content of friends’

Table 5. Results of Sequential Analyses Examining Statement Type \times Gender Interaction for Negative Performance Statements Made by Focal Children

Consequent (Lag +1)	Female focal child			Male focal child			z	zdiff
	Conditional Probability	Expected Probability	z	Conditional Probability	Expected Probability	z		
<i>Antecedent (lag 0) = Focal child makes negative performance statement</i>								
Focal child checks on friend's performance	.03	.03	0.15	.09	.07	0.83		-.62
Focal child makes negative performance statement	.19	.08	5.98****	.19	.10	2.96***		.71
Focal child makes task difficult statement	.06	.08	-1.09	.09	.08	0.44		-.95
Friend checks on focal child performance	.10	.04	3.79****	.19	.06	5.07****		-2.29**
Friend makes positive performance statement	.03	.03	0.23	.09	.04	2.13**		-1.74*
Friend makes negative performance statement	.19	.04	10.13****	.09	.05	2.04**		3.77****
Friend helps focal child	.02	.08	-2.81***	.01	.09	-2.85****		.91

* $p \leq .10$, ** $p \leq .05$, *** $p \leq .01$, **** $p \leq .001$.

Note. Data are listed for all sequences for which the conditional or expected probabilities exceed .08 for either females or males. Positive values for z-scores indicate that the sequence occurred more often than expected by chance. Positive values for the z-score difference indicate that the sequence occurred more frequently for females than for males.

Table 6. Results of Sequential Analyses Examining Statement Type Effects for Statements Made by Friends

Consequent (Lag +1)	Conditional Probability	Expected Probability	z
<i>Antecedent (lag 0) = Friend gives help to focal child</i>			
Focal child makes negative performance statement	.00	.08	-4.76**
Focal child makes task difficult statement	.01	.08	-4.23**
Focal child seeks help from friend	.10	.03	7.70**
Friend gives help to focal child	.67	.08	35.07**
<i>Antecedent (lag 0) = Friend evaluates task negatively</i>			
Focal child makes negative performance statement	.00	.08	-2.68*
Focal child makes task difficult statement	.09	.08	0.30
Focal child evaluates task negatively	.26	.04	9.96**
Friend makes task difficult statement	.08	.07	0.07
Friend evaluates task negatively	.22	.02	11.40**
Friend gives help to focal child	.00	.08	-2.64*

* $p \leq .01$, ** $p \leq .001$.

Note. Data are listed for all sequences for which the conditional or expected probabilities equal or exceed .08. Positive values for z-scores indicate that the sequence occurred more often than expected by chance.

discourse differed depending on their performance. For example, friends were more likely to state that they had performed well and help the focal child when they succeeded and were more likely to state that they had performed poorly and suggest the task was difficult when they failed. More interesting is that focal children's discourse varied according to their friends' performance. When friends succeeded, focal children were more likely to communicate that they had performed poorly, that they didn't like doing the task, and that they needed help. These findings support prior research indicating that children in elementary school use social comparison information to evaluate themselves and to guide their behaviors (Ruble et al., 1980) and are willing to express their weaknesses to friends in the service of receiving help (Parker & Asher, 1993).

Although boys' and girls' conversations were generally similar, some gender differences did emerge. First, male focal children asked about their friends' performance more than female focal children did. One reason for

this finding might be that male friends were less forthcoming about their performance and thus needed to be asked several times before they revealed how they had performed. Follow-up sequential analyses support this interpretation. Specifically, male focal children followed up a performance check with another performance check 15% of the time, a rate significantly higher than expected by chance ($z = 2.93, p < .05$). In contrast, female focal children followed up a performance check with another performance check only 4% of the time, a rate that did not differ from chance ($z = .62, ns$). This finding is consistent with prior research indicating that girls self-disclose more than boys (Lansford & Parker, 1999; McNelles & Connolly, 1999; Parker & Asher, 1993; Rose, 2002) and that boys may be more interested in maintaining their privacy (Rose & Asher, 2004). A significant gender difference also emerged in the frequency with which friends asked about the performance of the focal children. Here, male friends were more likely than female friends to inquire about the focal child's performance, but only in the success condition. One reason for this might be that in asking the focal child about their performance, male friends were hoping to be given the opportunity to talk about their own good performance. This finding supports the notion that boys are more likely than girls to want to present themselves in a positive light (Rose & Asher, 2004), while girls may be more likely to worry about hurting others (see Rose & Rudolph, 2006) and may be more sensitive to potential distress in others (see Rose, 2002).

Our next set of analyses focused on understanding how particular features of children's conversations might predict changes in responses to failure from postfailure to postdiscussion. We began by examining the consequences of engaging in high versus low levels of off-task talk (e.g., talking about a birthday party rather than the experimental task). As expected, focal children whose friends engaged in high levels of off-task talk reported more maladaptive learned helpless responses to failure than focal children whose friends engaged in low levels of off-task talk. This finding is consistent with evidence that engaged problem-focused coping strategies (e.g., help seeking) are associated with better adjustment than more disengaged emotion-focused coping strategies (e.g., cognitive avoidance) (Compas et al., 2001). Increasingly negative learned helpless responses to failure were also predicted when focal children or their friends made negative task statements ("Those puzzles were stupid") or when focal children discounted the failure by suggesting it was unimportant ("It doesn't matter"). One reason for these findings, as suggested by our sequential analyses, is that these types of negative/dismissive statements tended to lead to conversations that remained emotion-focused rather than problem-focused. Indeed, sequential analyses revealed that when focal children or friends evaluated the task

negatively or focal children discounted their failures, the most frequent consequence was a mirroring of these statements either by the focal child or the friend (e.g., “I hated those puzzles.” “Uh-huh. Me too.”). Moreover, in all three cases these statements led friends to give help to the focal child significantly less often than expected by chance.

This lack of help giving is important given that focal children benefited from receiving help from friends. That is, focal children who received relatively high levels of help from friends reported fewer learned helpless responses to failure than those who received less help. The results of help seeking were somewhat more complex. Consistent with the literature that children benefit from adaptive help seeking (i.e., seeking help when they need it), focal children who frequently asked for help reported fewer learned helpless responses to failure than focal children who asked for help relatively infrequently. Importantly, however, this effect was qualified by a significant relative performance interaction, indicating that the benefits of help seeking held only when friends had also failed. Follow-up sequential analyses provide some insight into this phenomenon, showing that children were less likely to receive help immediately after asking for it when friends succeeded than when friends failed. Children in the friend-success condition frequently had to ask for help again. It appears that focal children eventually received the help they needed (as indicated by the finding that, overall, children received more help in the success condition than in the failure condition), but help didn't come as quickly when friends succeeded as when friends failed. The reason may be that friends realized the potentially negative self-evaluative consequences of needing to ask for help (see Ryan, Pintrich, & Midgley, 2001) and held off providing it to help their friends save face. This approach may, however, have led to negative outcomes, leading children to feel less competent than if their friend had offered immediate assistance.

Only one gender difference emerged in predicting changes in children's responses to failure from the features of their conversations with friends. Although girls and boys did not differ in the degree to which they commented on their poor performance (e.g., “I didn't get any”), the consequences of making negative performance statements differed for boys and girls. For boys, these statements predicted fewer adaptive responses to failure. For girls, they predicted more adaptive responses.

Our sequential analyses again provide some insight into these findings. Boys' friends were significantly more likely than girls' friends to respond to negative performance statements (e.g., “I didn't get any”) by checking on the focal child's performance, in effect asking them to repeat the negative performance statements (e.g., “How many did you miss?). Male friends

were also marginally more likely to respond by making positive performance statements (e.g., “Really? I got them all.”). These types of responses likely highlighted the focal child’s poor performance in ways that made them less than anxious to tackle additional puzzles. In contrast, girls were significantly more likely than boys to have friends respond by mirroring the negative performance statements. Thus, the social comparison information that girls received was far less damaging than that received by boys.

Still, it is not entirely clear why making negative performance statements—and having those statements mirrored by friends—would lead to more positive responses to failure. One way to make sense of these findings is in light of the corumination phenomenon recently identified by Rose (2002). Corumination is characterized by repeated discussion of the same problem and mutual encouragement of discussing the problem, as in the following conversation between two girls in the present study.

Focal child: How did you do?

Friend: Um . . . I only got one right out of all eight puzzles I did.

Focal Child: I didn’t even get any done.

Friend: I was pretty close sometimes, but I didn’t get it.

Focal child: Yeah, I think that my problem was, um, was sometimes I couldn’t find the blocks that I wanted.

Friend: Yeah, sometimes I couldn’t find . . . I had the same problem. Sometimes I couldn’t find the blocks that I needed.

Focal child: Yeah. I couldn’t get any of them.

Research by Rose and her colleagues shows that girls are more likely to coruminate than are boys and that corumination has its trade-offs (Rose, 2002; Rose et al., 2007). Specifically, Rose finds that corumination may lead girls to feel better about their friendships (because corumination is socially supportive) but also to worry more (because it leads girls to ruminate on their failures). In the case of the present study, the trade-offs may also involve immediate versus long-term outcomes. These types of coruminative interactions may boost girls’ immediate confidence insofar as they feel socially supported by a friend. However, these types of interactions may not boost girls’ confidence for long as girls come to face the reality that they’ve performed poorly and may have to face similar challenges alone in the future. In the end, then, good feelings about the friendship may stand the test of time, but negative feelings about the self may remain and may contribute to girls’ greater tendency to engage in learned helpless behavior.

Future research will certainly be needed to replicate and further explore the findings reported here. In this research, several limitations of

the present study should be addressed. First, although the present study extends prior work by examining relations between children's discourse with friends and changes in children's responses to failure, the degree to which particular conversational features predict other outcomes—including children's behaviors and children's feelings about their friends—was not examined. It is likely that the consequences of children's statements may differ from outcome to outcome. For example, while off-task talk was associated with fewer adaptive responses to failure in the current study, this same conversational feature may lead children to evaluate their friendships more positively. Second, future research will be important in examining children's interactions with peers following failure in the classroom or in other achievement settings. Given that children interact with a variety of peers in the classroom setting—only some of whom may be friends—it is very possible that children's conversations will differ (e.g., children may be less willing to ask for help from nonfriends because of self-presentation concerns) and that the consequences of particular conversational features might differ as well (e.g., children who ask for help, particularly from nonfriends, in a classroom setting may be judged harshly, leading to fewer positive achievement-related beliefs). Third, while the current study is important in demonstrating that changes in children's learned helpless responses to failure over time can be predicted by the features of their conversations with friends, potentially important third variables (e.g., personality or friendship characteristics) cannot be ruled out. Future research, perhaps directly manipulating feedback from friends, will be important in making causal links between the features of children's discourse and changes in their achievement-related beliefs.

Still, the present study contributes to the literature in several ways. First, it represents one of only a handful of studies to examine the processes by which social interactions between friends contribute to children's achievement-related behaviors and beliefs (see also Altermatt et al., 2002; Berndt et al., 1990; Sage & Kindermann, 1999). Second, this study answers calls emanating from achievement motivation, coping, and friendship literatures to supplement self-reports of children's coping behaviors and friendship experiences with observations of actual social interactions between close friends (Berndt & Hanna, 1995; Compas et al., 2001; Denton & Zarbatany, 1996; Rubin et al., 2006). Given evidence that unsuccessful coping with daily stressors can lead to negative and long-term interpersonal, psychological, and achievement-related outcomes (Folkman, 1984; Repetti, 1996; Rutter, 1979; Windle & Windle, 1996), the current study has important practical implications for improving the social and emotional well-being of children and for promoting school success,

suggesting in particular that friends can help children to cope effectively with failure by providing assistance and social support. Teachers may play an important role in this process by attending to the classroom climates they create. Prior research has shown, for example, that students are more likely to ask for help when teachers emphasize that learning from mistakes is an important part of the educational process and students feel that they are a part of a caring, supportive, and friendly social community (see Ryan, Gheen, & Midgley, 1998; Wigfield et al., 2006).

References

- Aiken, L. S., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions*. Newbury Park, CA: Sage.
- Allison, P. D., & Liker, J. K. (1982). Analyzing sequential categorical data on dyadic interaction: A comment on Gottman. *Psychological Bulletin*, *91*, 393–403.
- Altermatt, E. R. (2007). Coping with academic failure: Gender differences in students' self-reported interactions with family members and friends. *Journal of Early Adolescence*, *27*, 479–508.
- Altermatt, E. R., & Kenney-Benson, G. A. (2006). Friends' influence on school adjustment: A review of three perspectives. In A. V. Mitel (Ed.), *Trends in Educational Psychology* (pp. 137–153). New York: Nova Science Publishers.
- Altermatt, E. R., & Pomerantz, E. M. (2003). The development of competence-related and motivational beliefs: An investigation of similarity and influence among friends. *Journal of Educational Psychology*, *95*, 111–123.
- Altermatt, E. R., Pomerantz, E. M., Ruble, D. N., Frey, K. S., & Greulich, F. K. (2002). Predicting changes in children's self-perceptions of academic competence: A naturalistic examination of evaluative discourse among classmates. *Developmental Psychology*, *38*, 903–917.
- Bakeman, R., & Gottman, J. M. (1997). *Observing interaction: An introduction to sequential analysis*. Cambridge: Cambridge University Press.
- Bakeman, R., & Quera, V. (1995). Log-linear approaches to lag-sequential analysis when consecutive codes may and cannot repeat. *Psychological Bulletin*, *118*, 272–284.
- Band, E. B., & Weisz, J. R. (1988). How to feel better when it feels bad: Children's perspectives on coping with everyday stress. *Developmental Psychology*, *24*, 247–253.
- Benjamini, Y., & Hochberg, Y. (1995). Controlling the false discovery rate: A practical and powerful approach to multiple testing. *Journal of the Royal Statistical Society, Series B*, *57*, 289–300.

- Berndt, T. J. (1999). Friends' influence on students' adjustment to school. *Educational Psychologist, 34*, 15–28.
- Berndt, T. J., & Hanna, N. A. (1995). Intimacy and self disclosure in friendships. In K. J. Rotenberg (Ed.), *Disclosure processes in children and adolescents* (pp. 57–77). New York: Cambridge University Press.
- Berndt, T. J., Hawkins, J. A., & Hoyle, S. G. (1986). Changes in friendship during a school year: Effects on children's and adolescents' impressions of friendship and sharing with friends. *Child Development, 57*, 1284–1297.
- Berndt, T. J., & Keefe, K. (1995). Friends' influence on adolescents' adjustment to school. *Child Development, 66*, 1312–1329.
- Berndt, T. J., Laychak, A. E., & Park, K. (1990). Friends' influence on adolescents' academic achievement motivation: An experimental study. *Journal of Educational Psychology, 82*, 664–670.
- Brendgen, M., Markiewicz, D., Doyle, A. B., Bukowski, W. M. (2001). The relation between friendship quality, rank-friendship preference, and adolescents' behavior with their friends. *Merrill-Palmer Quarterly, 47*, 395–415.
- Burhans, K., and Dweck, C. S. (1995). Helplessness in early childhood: The role of contingent worth. *Child Development, 66*, 1719–1738.
- Butler, R. (1989). Interest in the task and interest in peers' work in competitive and non-competitive situations: A developmental study. *Child Development, 60*, 562–570.
- Cauce, A. M. (1986). Social networks and social competence: Exploring the effects of early adolescent friendships. *American Journal of Community Psychology, 14*, 607–628.
- Causey, D. L., & Dubow, E. F. (1992). Development of a self-report coping measure for elementary school children. *Journal of Clinical Child Psychology, 21*, 47–59.
- Cohen, J. (1960). Coefficient of agreement for nominal scales. *Educational and Psychological Measurement, 20*, 37–46.
- Compas, B. E., Connor-Smith, J. K., Saltzman, H., Thomsen, A. H., & Wadsworth, M. E. (2001). Coping with stress during childhood and adolescence: Problems, progress, and potential in theory and research. *Psychological Bulletin, 127*, 87–127.
- Compas, B. E., Malcarne, V. L., & Fondacaro, K. M. (1988). Coping with stressful events in older children and young adolescents. *Journal of Consulting and Clinical Psychology, 56*, 405–411.
- Costanza, R. S., Derlega, V. J., & Winstead, B. A. (1988). Positive and negative forms of social support: Effects of conversational topics on coping with stress among same-sex friends. *Journal of Experimental Social Psychology, 24*, 182–193.

- Denton, K., & Zarbatany, L. (1996). Age differences in support processes in conversations between friends. *Child Development, 67*, 1360–1373.
- Diener, C. I., & Dweck, C. S. (1978). An analysis of learned helplessness: Continuous changes in performance, strategy, and achievement cognitions after failure. *Journal of Personality and Social Psychology, 36*, 451–462.
- Dweck, C. S. (1986). Motivational processes affecting learning. *American Psychologist, 41*, 1040–1048.
- Dweck, C. S. (2002). The development of ability conceptions. In A. Wigfield & J. Eccles (Eds.), *The development of achievement motivation*. New York: Academic Press.
- Dweck, C. S., & Bush, E. S. (1976). Sex differences in learned helplessness: I. Differential debilitation with peer and adult evaluators. *Developmental Psychology, 12*, 147–156.
- Dweck, C. S., Davidson, W., Nelson, S., & Enna, B. (1978). Sex differences in learned helplessness: II. The contingencies of evaluative feedback in the classroom: III. An experimental analysis. *Developmental Psychology, 14*, 268–276.
- Dweck, C., & Gilliard, D. (1975). Expectancy statements as determinants of reactions to failure: Sex differences in persistence and expectancy change. *Journal of Personality and Social Psychology, 32*, 1077–1084.
- Dweck, C. S., Goetz, T. E., & Strauss, N. L. (1980). Sex differences in learned helplessness: IV. An experimental and naturalistic study of failure generalization and its mediators. *Journal of Personality and Social Psychology, 38*, 441–452.
- Dweck, C. S., & Repucci, N. D. (1973). Learned helplessness and reinforcement responsibility in children. *Journal of Personality and Social Psychology, 25*, 109–116.
- Folkman, S. (1984). Personal control and stress and coping processes: A theoretical analysis. *Journal of Personality and Social Psychology, 46*, 839–852.
- Frey, K. S., & Ruble, D. N. (1985). What children say when the teacher is not around: Conflicting goals in social comparison and performance assessment in the classroom. *Journal of Personality and Social Psychology, 48*, 550–562.
- Frey, K. S., & Ruble, D. N. (1987). What children say about classroom performance: Sex and grade differences in perceived competence. *Child Development, 58*, 1066–1078.
- Glass, G. V., & Hopkins, K. D. (1984). *Statistical methods in education and psychology*. Needham Heights, MA: Allyn and Bacon.
- Greene, A. L. (1988). Early adolescents' perceptions of stress. *Journal of Early Adolescence, 8*, 391–403.
- Harlow, R. E., & Cantor, N. (1994). Social pursuits of academics: Side-effects and spillover of strategic reassurance seeking. *Journal of Personality and Social Psychology, 66*, 386–397.

- Hays, W. L. (1994). *Statistics*. Orlando: Harcourt Brace.
- Hokoda, A., & Fincham, F. D. (1995). Origins of children's helpless and mastery achievement patterns in the family. *Journal of Educational Psychology, 87*, 375–385.
- Ide, J. K., Parkerson, J., Haertel, G. D., & Walberg, H. J. (1981). Peer group influence on educational outcomes: A quantitative synthesis. *Journal of Educational Psychology, 73*, 472–484.
- Kamins, M., & Dweck, C. S. (1999). Person vs. process praise and criticism: Implications for contingent self-worth and coping. *Developmental Psychology, 35*, 835–847.
- Kindermann, T. A. (1993). Natural peer groups as contexts for individual development: The case of children's motivation in school. *Developmental Psychology, 29*, 970–977.
- Kurdek, L. A., & Sinclair, R. J. (1988). Adjustment of young adolescents in two-parent nuclear, stepfather, and mother-custody families. *Journal of Consulting and Clinical Psychology, 56*, 91–96.
- Lansford, J. E., & Parker, J. G. (1999). Children's interactions in triads: Behavioral profiles and effects of gender and patterns of friendships among members. *Developmental Psychology, 35*, 80–93.
- Larson, R., & Richards, M. H. (1991). Daily companionship in late childhood and early adolescence: Changing developmental contexts. *Child Development, 62*, 284–300.
- Lewis, C. E., Siegel, J. M., & Lewis, M. A. (1984). Feeling bad: Exploring sources of distress among pre-adolescent children. *American Journal of Public Health, 74*, 117–122.
- Lobel, T., & Bempechat, J. (1992). Socialization of achievement: Influence of mothers' need for approval on children's achievement cognitions and behavior. *Journal of Educational Psychology, 84*, 529–536.
- Mantzicopoulos, P. (1997). Coping with school failure: Characteristics of children employing successful and unsuccessful coping strategies. *Psychology in the Schools, 27*, 138–143.
- McNelles, L., & Connolly, J. (1999). Intimacy between adolescent friends: Age and gender differences in shared affect and behavioral form. *Journal of Research on Adolescence, 9*, 143–159.
- Medrich, E. A., Rosen, J., Rubin, V., & Buckley, S. (1982). *The serious business of growing up*. Berkeley: University of California Press.
- Nicholls, J. G. (1975). Causal attributions and other achievement-related cognitions. *Journal of Personality and Social Psychology, 31*, 379–389.
- Nolen-Hoeksema, S., Wolfson, A., Mumme, D., & Guskin, K. (1995). Helplessness in children of depressed and nondepressed mothers. *Developmental Psychology, 31*, 377–387.

- Parker, J. G., & Asher, S. R. (1993). Friendship and friendship quality in middle childhood: Links with peer group acceptance and feelings of loneliness and social dissatisfaction. *Developmental Psychology, 29*, 611–621.
- Patterson, J. M., & McCubbin, H. I. (1987). Adolescent coping style and behaviors: Conceptualization and measurement. *Journal of Adolescence, 10*, 163–186.
- Repetti, R. L. (1996). The effects of perceived daily social and academic failure experiences on school-age children's subsequent interactions with parents. *Child Development, 67*, 1467–1482.
- Rose, A. J. (2002). Co-rumination in the friendships of girls and boys. *Child Development, 73*, 1830–1843.
- Rose, A. J., & Asher, S. R. (2004). Children's strategies and goals in response to help-giving and help-seeking tasks within a friendship. *Child Development, 75*, 749–763.
- Rose, A. J., Carlson, W., & Waller, E. M. (2007). Prospective associations of co-rumination with friendship and emotional adjustment: Considering the socio-emotional trade-offs of co-rumination. *Developmental Psychology, 43*, 1019–1031.
- Rose, A. J., & Rudolph, K. D. (2006). A review of sex differences in peer relationship processes: Potential trade-offs for the emotional and behavioral development of girls and boys. *Psychological Bulletin, 132*, 98–131.
- Rubin, K. H., Bukowski, W., & Parker, J. G. (2006). Peer interactions, relationships and groups. In N. Eisenberg (Ed.), *Handbook of child psychology: Vol. 3. Social, emotional, and personality development* (6th ed., pp. 571–645). Hoboken, NJ: Wiley.
- Ruble, D. N., Boggiano, A. K., Feldman, N. S., & Loebel, J. H. (1980). Developmental analysis of the role of social comparison in self-evaluation. *Developmental Psychology, 16*, 105–115.
- Ruble, D. N., Feldman, N. S., & Boggiano, A. K. (1976). Social comparison between young children in achievement situations. *Developmental Psychology, 12*, 192–197.
- Rutter, M. (1979). Protective factors in children's responses to stress and disadvantage. In M. W. Kent & J. E. Rolf (Eds.), *Primary prevention of psychopathology: Social competence in children* (Vol. 3., pp. 49–74). Hanover, NH: University Press of New England.
- Ryan, A. M. (2000). Peer groups as a context for the socialization of adolescent's motivation, engagement, and achievement in school. *Educational Psychologist, 35*, 101–111.
- Ryan, A. M. (2001). The peer group as a context for the development of young adolescent motivation and achievement. *Child Development, 72*, 1135–1150.
- Ryan, A. M., Gheen, M. H., & Midgley, C. (1998). Why do some students avoid asking for help? An examination of the interplay among students' academic

- efficacy, teachers' social-emotional role, and the classroom goal structure. *Journal of Educational Psychology* 90, 528–535.
- Ryan, A. M., Pintrich, P. R., & Midgley, C. (2001). Avoiding seeking help in the classroom: Who and why? *Educational Psychology Review*, 13, 93–114.
- Sackett, G. P. (1979). The lag sequential analysis of contingency and cyclicity in behavioral interaction research. In J. D. Osofsky (Ed.), *Handbook of infant development* (pp. 623–652). New York: Wiley.
- Sage, N. A., & Kindermann, T. A. (1999). Peer networks, behavior contingencies, and children's engagement in the classroom. *Merrill-Palmer Quarterly*, 45, 143–171.
- Schulenberg, J. E., Asp, C. E., & Petersen, A. C. (1984). School from the young adolescent's perspective: A descriptive report. *Journal of Early Adolescence*, 4, 107–130.
- Wentzel, K. R. (1999). Social influences on school adjustment: Commentary. *Educational Psychologist*, 34, 59–69.
- Wigfield, A., Eccles, J. S., Schiefele, U., Roeser, R. W., & Davis-Kean, P. (2006). Development of achievement motivation. In N. Eisenberg (Ed.), *Handbook of child psychology: Vol 3. Social, emotional, and personality development* (6th ed., pp. 933–1002). Hoboken, NJ: Wiley.
- Williams, V. S. L., Jones, L. V., & Tukey, J. W. (1999). Controlling error in multiple comparisons, with examples from state-to-state differences in educational achievement. *Journal of Educational and Behavioral Statistics*, 24, 42–69.
- Windle, M., & Windle, R. C. (1996). Coping strategies, drinking motives, and stressful life events among adolescents: Associations with emotional and behavioral problems, and academic functioning. *Journal of Abnormal Psychology*, 105, 551–560.
- Ziegert, D. I., Kistner, J. A., Castro, R., & Robertson, B. (2001). Longitudinal study of young children's responses to challenging achievement situations. *Child Development*, 72.

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