

Predicting Changes in Children's Self-Perceptions of Academic Competence: A Naturalistic Examination of Evaluative Discourse Among Classmates

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Classroom discourse was examined as a predictor of changes in children's beliefs about their academic capabilities. Kindergarten, first-grade, and second-grade students ($N = 106$) participated in 2 waves of data collection, approximately 1 year apart. During the 1st year of the study, children's verbal interactions with their classmates were observed and recorded. Children rated their self-perceptions of academic competence during the 1st and 2nd years. Analyses revealed that changes over time in children's competence perceptions could be predicted from the types of statements that children made and had directed toward them by classmates. Examining sequences of child and classmate statements proved helpful in explaining the observed changes in children's perceptions of competence.

At the turn of the century, Cooley (1902) and Mead (1925, 1934) proposed that interactions with others play an important role in determining how we evaluate ourselves (see Harter, 1998, for a review). Cooley and Mead's ideas have heavily influenced how researchers have studied the development of children's self-evaluative beliefs in the academic domain. Indeed, growing evidence suggests social interactions with parents and teachers play an important role in how children view their academic capabilities. For example, children whose parents communicate high expectations for their school performance tend, in turn, to view themselves as academically skilled (e.g., Entwisle & Baker, 1983; Frome & Eccles, 1998; Stevenson & Newman, 1986). In addition, children's self-perceptions of academic competence are related to the types of feedback they receive from teachers in the classroom setting (e.g., Eccles, Parsons, Kaczala, & Meece, 1982; Pintrich & Blumenfeld, 1985).

Although there is increasing evidence that interactions with parents and teachers are key predictors of children's self-evaluative beliefs, very little attention has been paid to whether interactions with other children are related to children's self-views. This dearth of research is surprising in light of evidence that the amount of time children spend interacting with peers rivals that spent with parents and teachers (e.g., Ellis, Rogoff, & Cromer, 1981; Larson & Richards, 1991). It is also surprising given growing theoretical and empirical evidence that other children play a role in influencing children's academic performance and classroom engagement as well as the positive self-perceptions that likely underlie these successful school outcomes (e.g., Altermatt & Pomerantz, in press; Berndt, Hawkins, & Jiao, 1999; Berndt & Keefe, 1995; Berndt, Laychak, & Park, 1990; Epstein, 1983; Harris, 1995; Kindermann, 1993; Ryan, 2001; Sage & Kindermann, 1999; Wentzel, 1991).

The present study was designed to address this gap in the achievement motivation literature by investigating the degree to which changes in children's self-perceptions of academic competence can be predicted from the evaluative discourse in which children and their classmates engage in the naturalistic setting of the classroom. We chose to focus on children's discourse with classmates because such discourse appears to serve a number of important functions related to the self-evaluative process. First, evaluative discourse is a vehicle through which children can gather direct feedback about their level of academic skill (e.g., "You're good at math."). Second, students can use evaluative discourse to comment on their competencies and to socially compare their performance with that of others. For example, children can make statements about their level of academic competence (e.g., "I'm a good reader.") or compare their level of skill to that of a classmate (e.g., "I'm the best reader!"). Likewise, classmates can provide children with valuable information regarding how their performance measures up (e.g., "You're only on 6? I'm on 10."). Third, discourse can serve as an important mechanism for learning. For example, children can request help from classmates (e.g., "How do

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you do Number 6?") or receive clarification from classmates regarding how specific academic tasks are to be accomplished (e.g., "You need to add first."). As is evident from these examples, discourse among classmates is comprised of two types of statements: (a) statements that are made by children to classmates (i.e., focal child statements) and (b) statements that are made by classmates to focal children (i.e., classmate statements).

Focal child statements and classmate statements are potentially important predictors of change in children's self-evaluative beliefs. Focal child statements are, perhaps, best conceptualized as behavioral markers of children's perceptions of academic competence. Focal child statements may be predictive of changes in children's self-reported competence perceptions through a number of intra-individual processes. First, focal child statements may mark a shift in children's self-views (e.g., children who are feeling increasingly confident in their mathematics skills may engage in high levels of self-praise). Second, these statements may reflect the outcomes of earlier socialization (e.g., children whose reading skills are repeatedly criticized by classmates may verbalize their declining competence perceptions through negative self-evaluations). Finally, focal child statements may represent enhancing or protective self-representational tactics (e.g., children who are becoming increasingly unsure about their academic capabilities may avoid asking for assistance in order to obscure their perceived achievement deficits). In contrast to focal child statements, classmate statements are perhaps best conceptualized as markers of contextual influence. Consistent with this view, children who are frequently praised by classmates or who are frequently asked for assistance may experience gains in competence perceptions. In contrast, children who find that their skills are consistently disparaged by classmates may experience declining self-views. Importantly, the degree to which focal child and classmate statements predict positive versus negative competence perceptions over time will likely depend on the context in which these statements are made. For example, self-praise (e.g., "I finished Number 2 really fast.") that is typically followed by additional self-praise (e.g., "And, I finished Number 3 fast.") or by positive feedback from a classmate (e.g., "You are fast.") is likely to predict gains in competence perceptions over time. In contrast, children's competence perceptions may suffer if self-praise is not affirmed by classmates or is contradicted (e.g., "You're not that fast.").

The central goals of this study were twofold. First, we examined the role that children's verbal interactions with classmates play in the development of children's self-perceptions of competence over time. We focused specifically on verbal interactions that are related, either directly (e.g., self-praise) or indirectly (e.g., requesting or receiving help), to the evaluative process (see Frey & Ruble, 1985). Second, we explored whether changes in children's self-perceptions of competence could be explained by investigating sequences of child and classmate statements. By examining the contexts in which children's statements typically occur (e.g., do children typically respond to requests about their progress by evaluating themselves positively or by evaluating themselves negatively?), we hoped to better understand why the types of statements that children and their classmates make are associated with positive versus negative competence perceptions over time.

Classroom Discourse and Children's Self-Perceptions of Competence

Examining the content of children's classroom discourse and its relation to children's self-perceptions of competence is not a novel endeavor. Most of the initial research, however, focused on the interactions in which students engaged with their teachers (e.g., Brophy & Good, 1970; Eccles Parsons et al., 1982; Good, Sikes, & Brophy, 1973), while ignoring verbal interactions between classmates. Consequently, little is known about whether children's interactions with classmates are related to the manner in which children evaluate themselves.

Recent research in the social comparison tradition is representative of a change in focus from teachers to classmates. In examining the content of children's discourse with classmates, investigators have shown, for example, that children are considerably more likely to deprecate the work of classmates than to compliment it (Frey & Ruble, 1987), that girls are more likely than boys to make self-critical statements (Frey & Ruble, 1987), and that overt social comparison statements (e.g., "I'm on 13, and you're only on 11.") decrease as children proceed through elementary school while subtle forms of social comparison, including inquiries about classmates' progress (e.g., "What number are you on?"), increase in prevalence (Frey & Ruble, 1985; Pomerantz, Ruble, Frey, & Greulich, 1995). Attempts to link these evaluative comments to children's competence perceptions have focused on concurrent associations. For example, in their 1985 study of developmental changes in children's social comparison behaviors, Frey and Ruble showed that second- and fourth-graders who frequently requested information about their classmates' performance (e.g., "How many did you miss?") held negative opinions of themselves. In addition, Frey and Ruble (1987) reported a moderate, positive relation between boys' perceptions of competence in reading and the frequency with which they made self-congratulatory comments (e.g., "I got them all right!"). Pintrich and Blumenfeld (1985) examined the types of feedback (positive, negative, and neutral) that children received from their teacher and classmates, but found no significant relations between classmate feedback and children's ability perceptions.

Although research in this vein has served as an important first step toward identifying discourse among classmates as a potentially important predictor of changes in children's achievement-related beliefs, there are some very notable gaps in our knowledge. First, and most critically, all of the studies conducted to date have examined associations between children's evaluative discourse and their self-perceptions of competence using a concurrent design. Consequently, it is not clear whether children's discourse is predictive of changes in competence perceptions over time. Second, most prior work has focused on a limited number of statement types, primarily congratulatory and critical comments. In consequence, it is unclear if and how children's self-perceptions of competence are related to a number of other aspects of classroom discourse (e.g., being asked about one's progress or requesting help from a classmate). Third, previous studies have focused either on statements that are made by focal children to classmates (i.e., focal child statements) or on statements that are directed to focal children by classmates (i.e., classmate statements). As a result, prior research has been limited to investigating single instances of focal child and classmate statements. Examining sequences of statements may be helpful in determining why particular types of

statements are related to positive versus negative competence perceptions. For example, negative self-evaluations may be predictive of negative competence perceptions if children are inclined to repeat negative self-statements or if classmates typically respond to focal children's self-critical statements with disparaging remarks (e.g., "You only got two right. That's bad."). However, if classmates typically respond with positive and supportive statements (e.g., "You're doing fine. You just need to slow down."), self-critical comments may actually bolster children's competence perceptions over time.

In the present study, we proposed that changes in children's self-perceptions of academic competence can be predicted from the types of verbal interactions that they have with their classmates. For example, children who frequently praise themselves in the presence of classmates (e.g., "I'm a good reader.") are expected to feel increasingly confident about their academic skills over time, whereas children who find that their academic skills are consistently disparaged by classmates (e.g., "You're only on Number 3?") are expected to experience declines in perceptions of competence over time. Predictions are somewhat less clear with regard to help-seeking interactions. On the one hand, obtaining assistance from classmates may lead to enhanced performance and, in turn, to gains in perceived competence. On the other hand, the necessity of requesting or receiving help on classroom assignments that are typically intended to be familiar and of low difficulty may be predictive of declining competence perceptions over time (e.g., Graham & Barker, 1990; Ryan & Pintrich, 1997).

Of special interest in the present study was determining whether evaluative discourse among classmates is differentially related to the competence perceptions of younger and older children or boys and girls. Prior research has documented grade-level and sex-related differences in children's competence perceptions (e.g., Marsh, Barnes, Cairns, & Tidman, 1984; Nicholls, 1979; Stipek, 1981), in children's evaluative discourse with classmates (e.g., Frey & Ruble, 1985, 1987; Pomerantz et al., 1995), and in concurrent associations between children's evaluative discourse and their competence perceptions (Frey & Ruble, 1985, 1987). This research did not, however, suggest clear hypotheses about the nature or direction of grade-level and sex-related effects.

Competing hypotheses exist with regard to grade-level differences. On the one hand, prior research has shown that younger children, who do not yet understand that their ability is temporally and situationally constant, may be less likely than older children to recognize that others' appraisals have implications for their future performance (e.g., Benenson & Dweck, 1986; Nicholls, 1978; Pomerantz & Ruble, 1997; Ruble & Flett, 1998; see Rholes, Newman, & Ruble, 1990; Stipek & Mac Iver, 1989, for reviews) and less likely to engage in social comparison or to use social-comparative information to judge their capabilities (e.g., Butler, 1989; Ruble, Boggiano, Feldman, & Loebel, 1980; Ruble, Feldman, & Boggiano, 1976; but see Butler, 1998). Together, these findings suggest that the relation between evaluative discourse and competence perceptions may be stronger for older than for younger children. On the other hand, new evidence (Pomerantz & Saxon, 2001) suggests that older children may be more likely than younger children to defend themselves successfully against negative evaluations. These findings suggest that there may be cases in which relations between evaluative discourse and competence perceptions are weaker for older children than for younger chil-

dren. For example, older children may be less likely than younger children to be adversely influenced by criticism from classmates.

Similarly competing hypotheses exist with regard to sex differences. On the one hand, prior research has shown that girls are more sensitive than boys to the evaluative feedback they receive (e.g., Roberts, 1991; Roberts & Nolen-Hoeksema, 1994; but see Dweck & Bush, 1976). These findings suggest that children's verbal interactions with their classmates may be more strongly related to girls' self-perceptions of competence than to boys'. A more complex set of predictions is suggested, however, by research showing that elementary school-aged children typically seek out same-sex peers (e.g., Maccoby, 1988; Maccoby & Jacklin, 1987) and that girls' peer interactions are more harmonious, more collaborative, and less competitive than boys' interactions (e.g., Leaper, 1991; Maccoby, 1990). More harmonious, less competitive interactions may be particularly beneficial to girls in help-seeking and help-giving situations. Specifically, girls who ask for help may be provided more effective help and, in turn, may be willing to provide effective help to a classmate in need. In this case, we would expect that girls who are frequently involved in helping interactions may feel more confident in themselves over time, whereas boys' competence perceptions may be unrelated or even negatively related to the frequency of their involvement in help-seeking and help-giving interactions.

Examining Sequences of Evaluative Statements

As noted earlier, fully understanding children's evaluative discourse and its role in the development of their self-perceptions of competence requires understanding the context in which such discourse occurs. Indeed, the focus on single instances of child and classmate statements represents a major gap in prior research. By examining sequences of statements, we hoped to offer a window into the processes by which children's discourse with classmates is related to their competence perceptions. In particular, we expected that by examining the natural sequence in which focal child and classmate statements occur we could gain insight into why children's evaluative discourse is associated with positive versus negative competence perceptions over time.

The value of exploring sequences of statements when examining complex social interactions is becoming increasingly acknowledged in the study of marital interactions (e.g., Cousins & Vincent, 1983; Gottman, 1979; Margolin & Wampold, 1981), relationship satisfaction (e.g., Ginsberg & Gottman, 1986), and the counseling process (e.g., Friedlander & Phillips, 1984; Hill, Carter, & O'Farrell, 1983). Sequential analysis techniques are somewhat less well-known in the developmental literature, but have been used in several studies to examine children's play behaviors (e.g., Bakeman & Brownlee, 1980; Morrison & Kuhn, 1983), parent-child interactions (e.g., Leaper, Leve, Strasser, & Schwartz, 1995; Martin, Maccoby, Baran, & Jacklin, 1981; Vuchinich, Hetherington, Vuchinich, & Clingempeel, 1991), and children's conversations with peers (e.g., Leaper, 1991; Leaper, Carson, Baker, Holliday, & Myers, 1995; Leaper, Tenenbaum, & Shaffer, 1999).

Two recent studies suggested the usefulness of these techniques in answering the types of questions posed in the current study. Hokoda and Fincham (1995) used sequential techniques to study the ways in which mothers socialize children's achievement-related behaviors. Here, helpless children were distinguished from mastery-oriented children by the types of interactions in which

mothers and their children engaged while completing a series of experimental tasks. For example, relative to mothers of mastery-oriented children, mothers of helpless children were more likely to respond to their children's low-ability statements by suggesting that their children quit the activity. In this case, mothers' responses help to explain why helpless children perform poorly relative to mastery-oriented children. Similar techniques were used by Sage and Kindermann (1999) to examine peers' influence on children's achievement motivation. Here, highly motivated children were distinguished from less motivated children in the level of approval or disapproval they received for on-task and off-task behavior from members of their peer group. For example, highly motivated children were more likely than less motivated children to receive approval for on-task behavior. Again, these analyses help to explain why highly motivated children continue to actively and enthusiastically participate in classroom activities.

In this study, we used sequential data analysis techniques in a similar manner to examine the nature of children's discourse, beyond the level of the individual statement. Specifically, sequential analyses allow for exploration of the prevalence of specific types of exchanges between children (e.g., self-praise followed by additional self-praise, requests for help followed by a critical remark from a classmate). In so doing, such analyses can offer (at least initial) insight into why particular types of evaluative statements are associated with positive versus negative perceived competence. For example, if children typically respond to inquiries about their progress by evaluating themselves positively, this could help to explain why being asked about one's progress may lead to positive self-perceptions of competence over time. Sequential analyses may be particularly helpful in exploring developmental and sex differences. For example, although complimenting one's own performance might be expected to lead to gains in perceived competence, this relation may hold only for very young (i.e., kindergarten and first-grade) students. Older children (i.e., second graders) who publicly comment on their own good performance may, instead, experience declines in the degree to which they feel confident in their scholastic abilities. Sequential analyses could offer insight into this grade-level difference. For instance, kindergartners and first graders who evaluate themselves positively in public (e.g., "I'm really good at drawing.") may receive confirmation of their self-enhancing evaluations (e.g., "You are good. I wish I was better."), whereas older children may typically be ignored or even receive critical feedback. These findings would corroborate previous research (e.g., Pomerantz et al., 1995) suggesting that, as children proceed through elementary school, they increasingly view classmates' self-praise as boastful. It would, furthermore, suggest that children who continue to compliment themselves in this manner suffer consequences with regard to their competence perceptions.

Overview of the Present Research

The current study was designed as a naturalistic examination of the role that evaluative discourse plays in the development of children's achievement-related self-perceptions. Two key research questions were addressed. First, can children's self-perceptions of competence be predicted, over time, from the evaluative discourse in which children and their classmates engage? Second, can one gain insight into these associations by examining sequences of focal child and classmate statements? To investigate these ques-

tions, kindergarten, first-grade, and second-grade children participated in two waves of data collection, approximately 1 year apart. During the winter of the first year of the study, children's verbal interactions with their classmates were observed and recorded. During the spring of each year, children were individually interviewed. As part of these interviews, children's self-perceptions of competence were assessed.

Method

Participants

The data for this study were collected as part of a larger study of social comparison processes (see Pomerantz et al., 1995).¹ Participants were 106 focal children (54 girls and 52 boys). There were 32 children in kindergarten (mean age at Year 1 = 5.5 years), 40 children in first grade (mean age at Year 1 = 6.5 years), and 34 children in second grade (mean age at Year 1 = 7.5 years). Kindergarten and first-grade students were drawn from six and five classrooms, respectively, dispersed across three elementary schools. Second-grade students were drawn from five classrooms dispersed across two of these same three elementary schools. All three elementary schools were public, suburban, and located in a primarily middle-class area in the northeastern United States. Ninety-nine percent of the participants were European American.

Procedure

Classroom observations. Classroom observations were conducted in the winter by four female research assistants who recorded the verbal interactions of each focal child with his or her classmates. Assistants underwent approximately 150 hr of classroom training to learn the coding system and increase their typing speed on a compact computer. Assistants spent 5 days prior to collecting data making observations in their assigned classrooms. This time frame allowed observers ample opportunity to identify all children in the class and also enabled children to adjust to the presence of the observers in the classroom. By the end of the 5 days, children did not appear to notice the observers.

Observations took place during independent work time. During this time, children worked at their desks on language or math assignments and were permitted to talk quietly among themselves. The degree to which children sat in rows versus work groups and the degree to which these groups were self-selected versus teacher-assigned varied from classroom to classroom. A focal child sampling procedure was used to record children's discourse with classmates, with the constraint that no focal child was observed for more than 4 min during the course of a single day. Using this procedure, a focal child was randomly selected from the group of independently working children. During the next 4 min, every phrase uttered by the focal child and every phrase directed to the focal child was coded. After the 4-min time period had elapsed, another focal child was randomly selected until, over the course of a 1.5-month period, each focal child was observed for at least 32 min. These observations yielded a sample of (a) comments made by the focal child (focal child statements) and (b) comments directed to the focal child from another student in the classroom (classmate statements).

Although teachers were present in the classroom during all observations, they were typically occupied in tasks (e.g., providing assistance to an individual child or meeting with a small reading group) that did not involve

¹ Pomerantz et al. (1995) examined age-related changes in children's social comparison behaviors and beliefs, with special attention to children's changing use of direct comparison statements and peer progress checks. In consequence, grade-level differences in the frequency of direct comparison statements described in the *Preliminary Analyses* section of the present article partially overlap with those reported in the earlier article.

Table 1
Statement Types and Examples

Statement type	Example
Self-referenced evaluative statements	
Positive ($\kappa = .92$)	“Look at how many I’ve done.”
Negative ($\kappa = .82$)	“I’m a really slow reader.”
Peer-referenced evaluative statements	
Positive ($\kappa = .93$)	“You’re doing the problems really fast.”
Negative ($\kappa = .82$)	“That’s not how you do it.”
Direct comparison statements	
Positive ($\kappa = .91$)	“Mine is better than yours.”
Negative ($\kappa = .90$)	“He’s on page 10, and I’m only on page 8.”
Task-evaluative statements	
Task easy ($\kappa = .97$)	“This is really easy.”
Task difficult ($\kappa = 1.00$)	“These math problems are hard.”
Peer progress checks ($\kappa = .87$)	“How many did you miss?”
Helping statements	
Help seeking ($\kappa = .73$)	“What else can I put in my story?”
Help giving ($\kappa = .65$)	“I know how. Let me help you.”

the group of children under observation. In consequence, interactions between students and their teachers were rare (making up only 6% of total coded discourse). Because, in the present study, our focus was on children’s evaluative discourse with classmates, we did not include teacher statements in our regression analyses (i.e., we did not attempt to predict changes in children’s competence perceptions from the interactions they had with teachers). Focal-child-to-teacher and teacher-to-focal-child statements were included in our sequential analyses, however. Inclusion of these statements ensured that we had a complete and accurate record of the natural sequence of focal children’s interactions. Notably, these statements were always made in the presence of and in the midst of children’s interactions with classmates.

The verbal content of children’s discourse was coded *in situ*. Statements were categorized phrase-by-phrase (using verbal content, tone of voice, and facial expression) and instantly entered into a compact computer held by the observers. Statements were recorded in the natural sequence in which they occurred and were coded according to (a) the person who made the statement (e.g., a focal child), (b) the person who received the statement (e.g., a classmate), and (c) the content of the statement made. Statement content was independently coded into 16 mutually exclusive categories similar to those used by Frey and Ruble (1985, 1987). Fifteen of these categories were deemed to be either directly (e.g., positive self-referenced evaluative statements) or indirectly (e.g., help-seeking statements) evaluative in the academic domain. The final category, miscellaneous statements, included statements that were generally nonevaluative (e.g., “That’s my pencil.”) or evaluative, but not in the academic domain (e.g., “I like your lunchbox.”). Although miscellaneous statements made up the majority of children’s discourse (i.e., nearly 80%), we did not expect these statements to be related to children’s academic competence perceptions and we did not consider them further. Importantly, any code could freely follow from any other code (e.g., focal children could follow one positive self-referenced evaluative statement with another; focal children could receive two inquiries about their progress in a row, either from the same classmate or from two different classmates).

Checks on observers’ reliability in categorizing children’s discourse were conducted both during the 5-day preobservation period and at 2-week intervals during the actual observation session. Reliability coefficients were estimated following Cohen (1960) and were calculated by collapsing across all instances in which a statement was uttered, regardless of by whom or to whom the statement was directed. Averaging across statement types and observers, percentage agreement in coding statements was .87 (Cohen’s $\kappa = .86$). Mean kappas between each pair of observers ranged from .78 to .96. Individual kappas could not be calculated for three statement types (i.e., neutral peer-referenced evaluative statements, neutral

direct comparison statements, and requests for evaluation) because they did not occur during the reliability-checking sessions. In addition, kappas for neutral self-evaluative statements did not reach acceptable levels ($\kappa < .60$). These statement types are not included in our analyses and are not discussed further. All remaining statement types are listed, with examples and individual kappas (κ s), in Table 1.

Self-perceptions of academic competence. Children were individually interviewed by a research assistant who was not in the classroom during the observation period and who was not aware of the results obtained therein. As part of this interview, children’s self-perceptions of competence were assessed by asking children to rate their skills in mathematics and reading using a row of five schematic faces, each accompanied by stars representing skill level. Children were told that the first (leftmost) face, with one star under it, represented kids who do not do well at all in math (or reading). The second, third, fourth, and fifth faces, accompanied by two, three, four, and five stars, respectively, were described as representing increasing levels of skills, with the fifth (rightmost) face representing kids who do very well in math (or reading). Comprehension was tested by asking children to point to the face representing each level of skill. Once children passed the comprehension test, they were asked to point to the face that represented their own math (or reading) skill. The order in which the math and reading scales were administered was counterbalanced. A composite measure of children’s self-perceptions of competence was calculated by averaging children’s ratings on the math and reading scales.²

Results

Four broad sets of analyses were carried out. First, descriptive statistics were calculated to examine the content of children’s discourse with classmates and preliminary univariate analyses of

² Correlations between children’s self-perceptions of competence in math and reading were near zero ($r = .06$ at Year 1; $r = .08$ at Year 2). Despite the weak correlations, there was evidence that children’s self-perceptions of competence were fairly consistent across the two domains. At Year 1, 89% of children rated their skills in math and reading within one scale point of each other. At Year 2, 92% of children did so. However, to ensure that the results were not substantially affected by the decision to average children’s math and reading scores to form a composite index, children’s evaluative discourse was used to predict changes in children’s perceptions of competence in math and in reading separately. These analyses yielded very similar results to those reported in the present article.

Table 2
Descriptive Statistics: Focal Child and Classmate Statements

Statement type	Frequency		<i>M (SD) % of total</i>	
	Focal child statements	Classmate statements	Focal child statements	Classmate statements
Self-referenced evaluative statements				
Positive	184 (66)	84 (52)	4.59 (6.16) ^b	3.21 (4.21) ^{a,b,c}
Negative	42 (31)	18 (16)	1.06 (2.61)	0.75 (2.04)
Peer-referenced evaluative statements				
Positive	6 (4)	19 (17)	0.10 (0.50)	1.41 (4.51)
Negative	67 (35)	81 (41)	1.33 (2.37)	4.08 (8.10)
Direct comparison statements				
Positive	44 (26)	17 (15)	0.84 (1.81) ^{a,b,c}	0.78 (2.30) ^{b,c}
Negative	4 (4)	2 (2)	0.08 (0.46)	0.09 (0.63)
Task-evaluative statements				
Task easy	15 (11)	6 (6)	0.25 (0.80) ^{a,b}	0.26 (1.28)
Task difficult	5 (5)	6 (6)	0.11 (0.48)	0.27 (1.36)
Peer progress checks	35 (24)	36 (29)	0.86 (2.01)	1.75 (3.89)
Helping statements				
Help seeking	94 (50)	91 (45)	3.21 (5.77)	3.85 (5.94)
Help giving	131 (50)	160 (62)	3.20 (5.53)	9.94 (17.07)
Total	3,948 (106)	2,373 (106)		

Note. Focal child statements are those statements that are made by the focal child to himself or herself or to a classmate. Classmate statements are those statements that are directed to the focal child from another student in the classroom. For frequency of focal child statements, numbers in parentheses represent the number of students who made at least one of these statements. For frequency of classmate statements, numbers in parentheses represent the number of students who had at least one of these statements directed toward them by a classmate. Totals include all evaluative statements and all miscellaneous work- or nonwork-related statements.

^a Kindergartners made significantly ($p < .05$) more of these statements than did first graders. ^b Kindergartners made significantly ($p < .05$) more of these statements than did second graders. ^c First graders made significantly ($p < .05$) more of these statements than did second graders.

variance (ANOVAs) and multivariate analyses of variance (MANOVAs) were conducted to test for grade-level and sex differences in children's self-perceptions of competence and evaluative discourse, respectively. Second, a series of regression analyses was conducted to examine relations between children's evaluative discourse and their competence perceptions over time. Third, sequential analyses were conducted to determine whether particular sequences of statements occurred more (or less) frequently than expected by chance and whether rates of occurrence varied by grade level or sex. Finally, a set of exploratory, supplemental analyses was conducted to link specific antecedent-consequent statement pairs to changes in children's competence perceptions.

Preliminary Analyses

To assess the content of children's classroom discourse during Year 1, we calculated the raw frequency with which each type of statement occurred (for the sample as a whole). We also calculated the number of students who had nonzero frequencies, the percentage of each child's total statements that fell into each category, and the means and standard deviations of these percentages.³ Raw frequencies, *ns*, means, and standard deviations are presented in Table 2. To control for individual differences in the total number of statements focal children made and received, all ANOVA and regression analyses were based on percentages rather than raw frequencies.⁴ 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.

Separate Grade Level (kindergarten, first grade, second grade) \times Sex (boys, girls) ANOVAs were computed for children's self-perceptions of competence at Year 1 ($M = 4.41$, $SD = 0.56$) and at Year 2 ($M = 4.35$, $SD = 0.56$). These analyses yielded no significant grade-level or sex-related effects ($F_s < 1$). Separate Grade Level \times Sex MANOVAs were computed for focal child and classmate statements at Year 1. Although no overall sex-related effects emerged for either focal child or classmate statements ($F_s < 1$), significant grade-level effects emerged for both focal child, $F(2, 100) = 1.88$, $p = .01$, and classmate statements, $F(2, 100) = 2.22$, $p < .01$. For focal child statements, there were

³ The raw frequency of focal child statements considerably exceeded that of classmate statements for several statement categories (e.g., positive self-referenced evaluative statements). These discrepancies result from the decision to include as focal child statements all utterances that the focal child directed to a classmate as well as utterances that, although publicly made, were directed primarily to the self (as both statement types were expected to predict children's self-perceptions of competence). In contrast, classmate statements include only those statements that are directed to the focal child (as classmate statements that are self-directed or directed toward a classmate other than the focal child are unlikely to influence the competence perceptions of the focal child).

⁴ Researchers (e.g., Frey & Ruble, 1985, 1987; Pomerantz et al., 1995) have typically utilized percentages rather than raw frequencies in their analyses to control for differences in total verbal output. In the present study, two sets of analyses were conducted—one set using percentages and one set using raw frequencies. Because generally similar results were obtained using these two procedures, only the data obtained using arcsine transformed percentages are reported here.

significant grade-level differences for positive self-referenced evaluative statements, $F(2, 100) = 3.32, p < .05$; positive direct comparisons, $F(2, 100) = 11.01, p < .01$; and task-easy statements, $F(2, 100) = 5.66, p < .01$. Follow-up t tests ($ps \leq .05$) indicated that kindergartners made more positive self-evaluative statements ($M = 5.08, SD = 4.99$) than did second graders ($M = 4.18, SD = 7.97$). Kindergartners also made more positive direct comparisons ($M = 1.81, SD = 0.26$) and task-easy statements ($M = 0.61, SD = 1.17$) than both first graders ($M = 0.77, SD = 1.47; M = 0.19, SD = 0.70$) and second graders ($M_s = 0.00, SD_s = 0.00$). In addition, first graders made more positive direct comparisons than did second graders. For classmate statements, there were significant grade-level differences for positive self-referenced evaluative statements, $F(2, 100) = 12.43, p < .01$, and positive direct comparisons, $F(2, 100) = 3.73, p < .05$. Follow-up t tests ($ps \leq .05$) indicated that kindergartners were more likely than first graders and kindergartners and first graders were more likely than second graders to have classmates evaluate themselves positively ($M_k = 4.52, SD_k = 3.35; M_{1st} = 3.82, SD_{1st} = 4.95; M_{2nd} = 1.26, SD_{2nd} = 3.29$). Kindergartners and first graders were also more likely than second graders to have classmates make positive direct comparisons ($M_k = 1.04, SD_k = 2.37; M_{1st} = 1.23, SD_{1st} = 3.00; M_{2nd} = 0.00, SD_{2nd} = 0.00$).

Predicting Year 2 Self-Perceptions of Competence

To examine relations between evaluative discourse and competence perceptions over time, we conducted separate hierarchical regression analyses for each statement type. Specifically, children's self-perceptions of competence at Year 2 were predicted from focal child and classmate statements at Year 1. At Step 1 in these analyses, we entered children's competence perceptions during the first year of the study. Following Hull, Tedlie, and Lehn (1992), we also included (at the appropriate steps) the interactions of children's Year 1 competence perceptions with each of the other predictors included in the regression equation. Adjusting for children's earlier perceptions when predicting their later perceptions is important given that the two assessments are correlated ($r = .26, p < .01$) and ensures that significant findings indicate that children's discourse predicts changes in children's competence perceptions over time, rather than that discourse and competence perceptions are related concurrently. Statement type, grade level,

and sex were entered at Step 2. Two-way interaction terms (Statement Type \times Grade Level, Statement Type \times Sex, Grade Level \times Sex) were entered at Step 3. A three-way interaction term (Statement Type \times Grade Level \times Sex) was entered at Step 4, but it yielded no significant effects. Statement type effects unqualified by grade level or sex are presented first, followed by effects that varied by grade level and sex. Significant interactions were broken down using procedures developed by Aiken and West (1991). All continuous independent variables were standardized. A summary of the results from these analyses is presented in Table 3.

Statement type effects. For focal child statements, significant statement type effects emerged for positive self-referenced evaluative statements and for help-seeking statements. These effects were qualified, however, by significant interactions involving grade level and sex, respectively.

For classmate statements, a significant statement type effect emerged for peer progress checks. Specifically, focal children who were frequently asked by classmates about their progress experienced gains in their self-perceptions of competence over time ($\beta = .50, t(92) = 2.17, p < .05$).

Statement Type \times Grade Level effects. For focal child statements, significant Statement Type \times Grade Level interactions emerged for both positive ($\beta = -.55, t(92) = -2.42, p = .01$, and negative ($\beta = -.42, t(92) = -2.16, p < .05$, self-referenced evaluative statements. Testing of the individual regression slopes for positive self-referenced evaluative statements indicated that kindergartners' and first graders' self-perceptions of competence at Year 2 were not significantly predicted by their levels of self-praise at Year 1 ($\beta_s < .28, t_s < 1.80, ns$). In contrast, frequent self-praise was associated with declining competence perceptions among second graders ($\beta = -.28, t(96) = -2.03, p < .05$). A similar pattern of results was found for self-criticism. Here, high levels of self-criticism were associated with significant gains in competence perceptions among kindergartners ($\beta = .37, t(96) = 1.98, p = .05$). A trend in this same direction emerged for first graders, but did not reach significance ($\beta = .20, t(96) = 1.23, ns$). Second graders' perceptions of competence at Year 2 were unaffected by the frequency with which they made self-critical remarks at Year 1 ($\beta = -.03, t < 1, ns$).

Statement Type \times Sex effects. For focal child statements, a significant Statement Type \times Sex interaction emerged for help-

Table 3

Summary of Hierarchical Regression Analyses Predicting Competence Perceptions at Year 2 From Focal Child and Classmate Statements at Year 1

Statement type	Statement type effect	Statement Type \times Grade Level interaction	Statement Type \times Sex interaction
Focal child statements			
Positive self-referenced evaluative statements	.51*	-.55**	-.15
Negative self-referenced evaluative statements	.29	-.42*	.15
Help-seeking statements	.44*	-.12	-.24*
Classmate statements			
Peer progress checks	.50*	-.23	-.14
Help-giving statements	-.05	.36	-.53**

Note. Values represent standardized beta coefficients from hierarchical regression analyses predicting children's self-perceptions of competence at Year 2 from focal child and classmate statements at Year 1 (controlling for children's self-perceptions of competence at Year 1). Data are presented for all variables for which significant ($p \leq .05$) statement type, Statement Type \times Grade Level, or Statement Type \times Sex interactions emerged.

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

seeking statements ($\beta = -.24$), $t(92) = -1.93$, $p = .05$. Testing of the individual regression slopes for boys and for girls indicated that girls who frequently sought help from classmates experienced gains in their competence perceptions over time ($\beta = .29$), $t(101) = 2.39$, $p = .01$. In contrast, levels of help-seeking at Year 1 did not significantly predict boys' perceptions of competence at Year 2 ($\beta = .11$, $t < 1$, *ns*).

For classmate statements, a significant Statement Type \times Sex interaction emerged for help-giving statements ($\beta = -.53$), $t(92) = -2.84$, $p < .01$. The pattern of results was very similar to that found for help-seeking statements. Specifically, girls who received frequent help from classmates experienced gains in competence perceptions over time ($\beta = .32$), $t(101) = 2.02$, $p < .05$. In contrast, the frequency with which boys received help from classmates was unrelated to their competence perceptions 1 year later ($\beta = -.06$, $t < 1$, *ns*).

Summary. Longitudinal regression analyses revealed that changes in children's self-perceptions of competence can be predicted from the types of evaluative discourse in which they engage. Both intraindividual and contextual processes were implicated in predicting changes in children's self-views. Regardless of grade level and sex, focal children who were frequently asked by classmates about their progress experienced gains in their competence perceptions over time. The degree to which focal children's self-praise and self-criticism predicted changes in their competence perceptions varied by grade level. Older children, but not younger children, who engaged in frequent self-praise experienced declines in their competence perceptions over time. In contrast, among younger children, but not older children, frequent self-criticism was associated with positive self-perceptions of competence over time. The effect of asking for and receiving help from classmates on children's competence perceptions varied by sex. In both cases, girls benefited from frequent involvement in these types of interactions relative to boys.

Sequential Analyses

To further investigate the findings from our regression analyses, sequential data analysis techniques were used to examine statements in the natural sequence in which they occurred. To reiterate, it was predicted that by examining the types of statements that followed from focal child and classmate statements, we might better understand why children's evaluative discourse is associated with gains versus losses in perceived competence over time.

Sequential analysis begins with a simple frequency count of the number of times an antecedent event i (e.g., focal child asks for help) occurs in sequence with a consequent event j (e.g., help is given by a classmate) at some *lag*, or interval. For the purposes of the present research, lags of +1 were used. That is, we were interested in determining the frequency with which each antecedent event (i.e., the event at Lag 0) is 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). Bakeman and Quera's (1995) method was used in the present study because, consistent with the procedures used in the present study, it allows consecutive events to be assigned the same code (e.g., one positive self-referenced evaluative statement can be followed by another) and allows for codes to be pooled across

multiple children observed over multiple time points. 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 on the basis of the probability that each event occurs alone (i.e., on the basis of 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.

Grade-level and sex-related differences in the level of dependency between statement types (e.g., "Were girls more likely than boys to receive help after requesting assistance?") were of particular interest in the current study and were also examined. To adjust for group-level differences in total verbal output, the z scores obtained for each group 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.

Overview. In consideration of our goal to use sequential analyses to gain insight into why children's evaluative discourse predicts their competence perceptions over time and to minimize the possibility of Type I errors (see Bakeman & Gottman, 1997), we limited our sequential analyses to those statement types that emerged as significant predictors of children's perceptions of competence at Year 2 in our regression analyses. For the statement type effect that emerged for peer progress checks, we were primarily interested in determining which statements followed more (or less) often than expected by chance. For Statement Type \times Grade Level and Statement Type \times Sex interactions, we were interested in whether the prevalence of particular sequences differed for kindergartners, first graders, and second graders or for boys and girls.

Statement type effects. The prior regression analyses revealed that, regardless of grade level or sex, being asked about one's progress (e.g., "What number are you on?") was associated with gains in competence perceptions over time. Results of the sequential analyses examining this effect are presented in Table 4. These analyses indicated that focal children used these opportunities to evaluate themselves positively more often than expected by chance ($z = 5.16$, $p < .01$). Notably, children never responded to a peer progress inquiry by evaluating themselves negatively (conditional probability = .00; $z < 1$).

Statement Type \times Grade Level effects. The prior regression analyses revealed that the degree to which children's competence perceptions were predicted by evaluating themselves positively (e.g., "I'm a really good reader!") or negatively (e.g., "My picture is awful!") varied by grade level. Older students who frequently engaged in self-praise experienced declines in competence perceptions. Younger students who frequently engaged in self-criticism appeared to benefit from involvement in these types of interac-

Table 6
Results of Sequential Analyses Examining Statement Type × Sex Interactions

Consequent (Lag +1)	Conditional probability		Expected probability		z score		z diff.
	Female FC	Male FC	Female FC	Male FC	Female FC	Male FC	
Antecedent (Lag 0) = FC requests help from classmate							
Classmate evaluates self negatively	.02	.05	.00	.00	0.90	3.41**	-2.01*
Classmate requests help from FC	.00	.05	.04	.03	-1.52	0.78	-1.63†
Classmate gives help to FC	.77	.73	.10	.13	16.67**	11.95**	3.42**
Antecedent (Lag 0) = Classmate gives help to FC							
FC requests help from classmate	.13	.12	.04	.03	4.50**	5.20**	-0.90
FC requests help (T)	.00	.07	.01	.04	-0.96	2.47*	-2.48**
Classmate evaluates self positively	.05	.00	.04	.03	0.49	-1.73†	1.62†
Classmate evaluates FC negatively	.04	.06	.05	.03	-0.44	1.73†	-1.65†
Classmate gives help to FC	.18	.26	.10	.13	2.56*	3.80**	-1.29

Note. Data are listed for all sequences for which the conditional probability equals or exceeds .05 for either boys or girls. Positive values for z scores indicate that the sequence occurred more often than expected by chance. Positive values for the z -score difference (diff.) indicate that the sequence occurred more frequently for girls than for boys. FC = focal child; T = statement directed from focal child to teacher.

† $p \leq .10$. * $p \leq .05$. ** $p \leq .01$.

a statistically significant sex difference emerged indicating that girls were less likely than boys to request additional help from their teacher ($z_{\text{diff}} = -2.48, p = .01$). Although no other individual effects reached significance, sex differences did emerge when we collapsed across all four responses that seem to indicate that the help given was relatively ineffective—in the sense that the focal child asked for additional help (i.e., interactions in which the focal child requested additional help from a classmate or from their teacher), the focal child was made to feel badly after receiving help (i.e., interactions in which classmates evaluated the focal child negatively), or the focal child appeared to need additional help (i.e., interactions in which classmates gave additional help to the focal child).⁵ Analyses revealed that girls were significantly less likely to be involved in these types of ineffective help-giving interactions than were boys ($z_{\text{diff}} = -2.65, p < .01$).

Summary and interpretation. Sequential analyses proved helpful in providing insight into the findings from our regression analyses. Again, both focal child and classmate statements appeared to play an important role in contributing to changes in children's self-views. Being asked about one's progress may have been associated with gains in competence perceptions over time because children interpreted these inquiries as implied compliments and took advantage of the opportunity to affirm their own accomplishments. Affirmation also helps to explain grade-level differences in the effect of self-praise and self-criticism. Older students who engaged in high levels of self-praise may have experienced declines in their competence perceptions because they were neither confident enough to affirm their own positive self-views (by engaging in additional self-praise) or fortunate enough to have these positive self-views affirmed by classmates. A reversal in this pattern of results was found for negative self-evaluations. Here, older students did not rebound from self-criticism as did their younger counterparts, perhaps because they were sufficiently dissatisfied with their skills to verbalize additional self-criticism or unfortunate enough to have their negative self-views affirmed by classmates. The results of the sequential analyses for help-seeking and help-giving interactions suggest that

girls benefit from these interactions relative to boys because they were more successful at getting effective help from classmates.

Supplementary Analyses

The sequential analyses provide some initial insights into why particular statement types might be linked to gains or losses in self-perceptions of competence. However, our ability to statistically link specific antecedent-consequent pairs to changes in children's competence perceptions was limited due to the relatively infrequency with which evaluative statements occurred. Importantly, supplemental analyses using our most frequently occurring code (i.e., focal children's positive self-referenced evaluative statements) have yielded promising results. Here, on the basis of the findings from our sequential analyses, we hypothesized that younger students who frequently evaluate themselves positively may not experience the same declines in competence perceptions that their older counterparts experience because, unlike their older counterparts, they feel confident enough to affirm their own self-evaluations or are fortunate enough to have them affirmed by classmates. If this interpretation is valid, we would expect to find that children whose self-evaluations are affirmed by themselves or

⁵ We thank an anonymous reviewer for offering an alternative interpretation for this finding. In particular, it is possible that boys who received help asked for additional help and received additional help, not because the help given was ineffective but because boys at this age are either more willing than girls to ask for assistance or are truly in need of more assistance. The possibility that boys are more willing than girls to ask for help will need to be reconciled with research indicating that boys and girls are equally likely to detect the low-ability cues associated with asking for help (see Graham & Barker, 1990) and that girls generally exhibit higher levels of dependency than do boys (see Feingold, 1994). Both interpretations are, however, consistent with research showing that boys may be less prepared, both cognitively and socially, for the school environment than are girls (e.g., May & Welch, 1986; Reznick, Gibbons, Johnson, & McDonough, 1989).

by others should report higher competence perceptions than children whose self-evaluations are not affirmed. To address this possibility, a 1 was assigned to any child who followed one positive self-evaluation with another and to any child who had a classmate respond with a direct comparison statement in which the classmate evaluated himself or herself negatively and the focal child positively. All other focal children who made positive self-evaluative statements were assigned a score of 0. For students who made multiple positive self-evaluative statements, codes (i.e., 1 or 0) were assigned in a manner that corresponded to the majority of their statements.

As hypothesized, children whose positive self-evaluations were affirmed by themselves or by a classmate had significantly higher self-perceptions of competence ($M = 4.62$, $SD = 0.18$), controlling for earlier competence perceptions, than children whose positive self-evaluations were not affirmed ($M = 4.30$, $SD = 0.08$), $F(1, 63) = 2.51$, $p = .05$ (one-tailed). Notably, these results remained significant after controlling for students' cohort and sex. Similar patterns of results emerged for each of the five statement types that yielded significant effects in our regression analyses. However, likely because of small n s, these findings did not reach conventional levels of significance. Because evaluative discourse occurs relatively infrequently in the context of the classroom, these types of questions may be best addressed in seminaturalistic or in laboratory-based contexts where the number of interactions should be higher and where the characteristics of the interaction partners and interaction context can be carefully controlled. The present study represents an important step in guiding this type of follow-up work.

Discussion

Almost a century ago, Cooley (1902) and Mead (1925, 1934) proposed that social interactions are key to the development of self-evaluation. Since then, considerable attention has been paid to how children's self-views are affected by the ways in which children interact with their parents and students interact with their teachers. The present research significantly extends this work by examining children's interactions with classmates as a potentially important predictor of changes in children's self-perceptions of competence in the academic domain. Both focal child statements and classmate statements, representing intraindividual and contextual processes of change respectively, were examined.

Our preliminary analyses suggested that evaluative discourse occurs relatively infrequently in the classroom setting, accounting for about 20% of children's total verbal interactions with classmates. This finding is consistent with research conducted in the teacher socialization tradition. For example, in a study of second and sixth graders' interactions with their teachers, Pintrich and Blumenfeld (1985) recorded, on average, three instances of work-related praise and two instances of work-related criticism per child over a nonconsecutive, 2-hr period. Instances of praise and criticism appeared even less frequently among older children (i.e., fifth through ninth grade students received, on average, fewer than one instance of praise or criticism per class period; see Eccles Parsons et al., 1982). Importantly, despite the low occurrence of teacher praise and criticism in naturalistic contexts, both have been linked to changes in children's beliefs about their academic capabilities (Eccles Parsons et al., 1982; Pintrich & Blumenfeld, 1985). These linkages attest to the notion that even infrequently occurring events

can be psychologically relevant. In fact, the very distinctiveness of evaluative statements may make them particularly important markers of children's self-views and/or encourage children to pay particularly close attention to evaluative statements directed toward them by classmates (see Eccles Parsons et al., 1982, for a similar argument). It should also be noted that observational procedures like the one used in the present study capture only a sample of children's experiences. A single instance of criticism received during a nonconsecutive, 30-min time frame implies that a student may receive considerable amounts of criticism during the course of an average day.

Consistent with the notion that evaluative discourse is important, the present research provides evidence that children's verbal interactions with classmates are predictive of changes in children's competence perceptions over time.⁶ Children's self-evaluations were predicted, in particular, by the manner in which children evaluated themselves in the presence of classmates as well as by the levels of help-seeking and help-giving in which they participated. Together with the illuminating findings from our sequential analyses, these results provide varying degrees of evidence for the direct feedback, social comparison, and learning functions of evaluative discourse.

The Direct Feedback Function of Evaluative Discourse

One of the primary functions of classroom discourse is to provide students with direct feedback about their academic skill: *Did I solve the problem correctly? Do I need to read more carefully? We* anticipated that children who were frequently praised by classmates would experience gains in their competence perceptions over time, whereas children who were frequently criticized by classmates would experience declines. Surprisingly, we found no evidence to support either of these hypotheses in our regression analyses. The lack of significant findings for classmate-to-focal child praise may, in part, be due to the particularly low occurrence of these types of statements. At the same time, we were somewhat surprised to find that children's competence perceptions were generally unaffected by even relatively high levels of classmate-to-focal child criticism. There are a number of reasons why this might be the case. One possibility is that even the older children in the present study lacked some of the cognitive capacities necessary to accurately detect the incompetence cues that were present in the negative feedback that they received from classmates and to incorporate this information into their self-views (see Graham, 1990; Stipek & Mac Iver, 1989). An alternative possibility is that even the younger children in our study had already begun to master what appears to be a broader human tendency to eschew information that reflects unfavorably on the

⁶ It is possible that students' self-perceptions of competence are not being predicted by evaluative discourse, per se, but by the critical third variable of student IQ, which may be related both to the types of discourse in which students engage and to changes in competence perceptions over time. Although we do not have a measure of IQ, per se, we do have teacher ratings and rankings of student abilities. Specifically, teachers in our study were asked to both rate and rank students in their classroom according to their level of ability in math and reading. To test for the third variable interpretation, we reran all of our regression analyses with teacher ratings or rankings as a control. All findings remained at least marginally significant (i.e., $ps < .10$).

self and interpret negative feedback in a manner that is less damaging to one's self-image (see Taylor & Brown, 1988; Wood, 1989). A supplementary set of sequential analyses performed on instances of classmate-to-focal child criticism provides some empirical support for this second hypothesis. Specifically, focal children responded to classmate criticism by evaluating themselves positively (e.g., "I know what I'm doing.") significantly more often than would be expected by chance ($z = 2.28, p < .05$). Importantly, despite evidence for developmental (e.g., Rholes et al., 1990) and sex-related differences (e.g., Dweck & Bush, 1976; Roberts, 1991) in children's interpretation of and susceptibility to negative feedback, the tendency to self-protect in this manner did not vary either by grade level or sex.

The Social-Comparative Function of Evaluative Discourse

Related to interactions that provide children with direct feedback about their performance are interactions that provide children the opportunity to promote their own accomplishments, particularly as they compare to those of classmates. Several findings from the present study suggest that children and their classmates are often joint contributors to children's attempts at self-enhancement. For example, by asking focal children about their progress, classmates granted children clear opportunities to evaluate their work. That children overwhelmingly took these opportunities to evaluate themselves positively may have been fostered by the implicit realization that the inquiring classmate considered them to be a worthy target of (presumably upward) social comparison. These findings are significant insofar as they demonstrate the overlap of intraindividual and contextual processes on children's self-evaluations. That is, although positive self-evaluations may be conceptualized simply as a marker of children's self-perceived competence, instances of focal child self-praise were often elicited by inquiries from classmates.

Even when children make direct attempts at self-enhancement, classmates may play a role in determining whether these attempts are successful. A central finding in the present study is that younger students who engaged in high levels of self-praise did not experience the same declines in competence perceptions that their older counterparts did. Part of the reason for this grade-level difference may be that younger children's self-praise is more indicative of a strong, enduring, and overly optimistic confidence in their abilities than is older students' self-praise (see Stipek & Gralinski, 1991). This interpretation is supported by sequential analyses indicating that younger children were more likely to repeat positive self-evaluative statements than were older children. At the same time, the responses of classmates may also have contributed to this grade-level difference. Younger children's self-praise was often affirmed by classmates who not only agreed with the child's positive views of their absolute level of skill, but also bolstered the child's sense of relative performance by deprecating their own level of accomplishment. Consistent with prior theory and research indicating that self-praise is increasingly viewed as boastful as children develop (e.g., Pomerantz et al., 1995), older students received less of this type of affirmation. In this case, it appears that the absence of affirmation of one's positive self-views may be detrimental. Similar arguments have been made elsewhere. Harter (1998) suggested, for example, that negative feedback can be communicated directly or can be inferred from the absence of

positive feedback. Importantly, although older children were less likely to affirm their positive self-views or to have them affirmed by classmates, they were more likely than younger children to affirm their negative self-views (by repeating them to their teacher) or to have them affirmed by classmates. This affirmation of negative self-views may help to explain why older students did not benefit from self-criticism in the same way that their younger counterparts did.

The Learning Function of Evaluative Discourse

A third, and for our purposes, final function of evaluative discourse is that it promotes learning. The present study corroborates prior research suggesting that the consequences of requesting and receiving help may be mixed (e.g., Graham & Barker, 1990) and, more importantly, provides new evidence that classmates play an important role in determining whether these consequences are positive or negative. In particular, the present study provides preliminary evidence that help-seeking and help-giving interactions can lead to gains in competence perceptions when—as was more often the case for girls than for boys in the present study—classmates provide children with the types of information and assistance that children need to improve their skills. Similar gains are not apparent when—as was more often the case for boys—children demonstrate an inability to secure effective assistance from classmates.

To better understand why the effects of help-seeking and help-giving varied by sex, it would help to know the sex and achievement level of focal children's classmates. A number of possibilities exist. On the one hand, it is possible that boys are benefiting less than girls from these interactions because they are giving help to and receiving help from other boys who, as a group, are typically more competitive and less cooperative in their communication styles than are girls (see Leaper, 1991; Leaper et al., 1999; Maccoby, 1990). On the other hand, it is possible that boys are equally likely to select male and female classmates as potential helpers, but are either less successful at or less concerned about selecting a classmate who can provide reasonable assistance. Boys may, for example, make their choices on the basis of factors other than achievement level, including the proximity of the classmate, whether the classmate is a friend, or how well-liked the classmate is in general. Alternatively, boys may actually purposely choose to ask for help from classmates whom they deem to be academically inferior to themselves. Such choices would be consistent with the suggestion made by Maccoby (1995) that boys are motivated to conceal their shortcomings, particularly from other boys.

Limitations and Directions for Future Research

Together, then, our results provide new evidence that changes in children's competence perceptions are related to the self-evaluative discourse in which they and their classmates engage. At the same time, the findings of the present study are in need of both replication and expansion.

First, although the present study is important insofar as it examines the effects of evaluative discourse in a naturalistic setting, there are certain methodological implications related to the relative infrequency with which evaluative statements occur in this context (see also Eccles Parsons et al., 1982; Frey & Ruble, 1985, 1987; Pintrich & Blumenfeld, 1985). One important consequence for the

present study is that it was necessary to pool data across multiple children in our sequential analyses, ignoring a number of potentially important individual differences and allowing for the generalization of the results only to the subset of students and their interaction partners who actually engaged in the types of evaluative discourse examined (see Bakeman & Gottman, 1997). Research conducted in seminaturalistic or laboratory-based settings where heightened levels of evaluative discourse can be promoted will be an important step in replicating and generalizing the current findings. Significantly, the results of the present study will be critical both in designing this research and interpreting how the results obtained relate to children's everyday experiences.

Second, although the present study took the important first step of including grade level and sex of the focal child as potential moderators of the relation between evaluative discourse and competence perceptions, additional individual-level and, especially, classroom-level factors are in need of examination. For example, it seems likely that classroom context may play an important role in determining the prevalence of evaluative discourse and how evaluative discourse is interpreted. Negative self-statements and negative feedback from classmates may be particularly strong predictors of declining competence perceptions in classrooms where competition is encouraged and relative performance is made salient. Help-giving and help-seeking interactions may also be less effective in this environment, resulting in additional declines in children's self-evaluative beliefs over time (see Ames, 1992, for a review).

Third, although the present study represents one of very few studies to look at children's discourse with classmates (as opposed to parents or teachers) and its relation to children's competence perceptions over time, potentially important differences in the relationships that exist between the interaction partners were not fully explored. Seating arrangements varied from classroom to classroom such that some children were interacting with partners who were self-selected, whereas other children were interacting with partners who were primarily teacher-assigned. Relatedly, some children were interacting with partners who were close affiliates (e.g., friends), whereas other children were interacting with acquaintances. Considerable empirical evidence exists to suggest that children's peer interactions vary with the status of the interaction partner. Friends are, for example, more likely than nonfriends to engage in frequent conversation and to interact in ways that are characterized by high levels of sharing, cooperation, advice-giving, and positive affect (e.g., Whitesell & Harter, 1996; see Newcomb & Bagwell, 1995; and Rubin, Bukowski, & Parker, 1998, for a review; but see Berndt, Perry, & Miller, 1988). On the basis of this evidence, we might expect higher levels of self-disclosure (e.g., in the form of self-praise and self-criticism), positive feedback, and help-giving among friends than among nonfriends. The implications for children's self-evaluations are unclear. For example, positive feedback from friends may lead to greater confidence gains than positive feedback from nonfriends if the friend's opinion is trusted and valued more than the nonfriend's. Alternatively, positive feedback from a nonfriend may lead to greater confidence gains if the nonfriend is a classmate whom the child particularly respects. Distinguishing between friend and nonfriend classmates and between self-selected and teacher-selected partners will be an important area for future inquiry.

Finally, although the present study extends prior work by examining relations between multiple forms of evaluative discourse and children's competence perceptions, additional self-evaluative, motivational, and performance constructs should be examined. This work seems especially important given that a plethora of research has revealed important relations between parent and teacher feedback and children's attributional styles, expectations for future success, and learning goals (see Eccles, Wigfield, & Schiefele, 1998, for a review). In conducting this work, more detailed coding of children's statements may be necessary. For example while negative evaluations that represent global criticism (e.g., "I'm bad at math." or "You're a bad reader.") may be related to declines in both competence perceptions and performance, negative evaluations that represent factual disagreements (e.g., "I added wrong." or "That's not how you spell it.") may actually predict performance gains in the short term and perceptions of competence gains in the long term. Similarly, peer progress checks regarding individual work (e.g., "How far did you get?") may have different consequences than peer progress checks regarding group work (e.g., "How far did we get?"). The peer progress checks recorded in the present study were primarily, if not exclusively, of the former kind.

Conclusions

In the end, the present research adds significantly to our knowledge regarding the relation between evaluative discourse and children's self-evaluative beliefs and, at the same time, provides the impetus for future and related studies. Regression analyses revealed that children's verbal interactions with classmates are predictive of changes in children's self-perceptions of competence over time. Both statements made by focal children to classmates (e.g., "I'm a good reader.") and statements made by classmates to focal children (e.g., "What number are you on?") appeared important in predicting changes in children's self-evaluations. These findings suggest that both intraindividual and contextual processes play a role in predicting and, perhaps, shaping children's self-views. Sequential analyses provided important evidence that focal children and classmates may jointly contribute to changes in children's self-perceptions of academic competence. Together, these findings represent a critical first step in uncovering answers to questions regarding not only whether discourse among classmates contributes to changes in children's achievement-related beliefs, but how it does so as well.

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