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# The Implications of Having High-achieving Versus Low-achieving Friends: A Longitudinal Analysis

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## Abstract

*The present research examines the achievement-related implications of establishing friendships with high-achieving versus low-achieving classmates. Fifth-, sixth-, and seventh-grade students (N = 929) participated. During the fall and spring semesters, the report card grades of children and their friends were obtained and children completed questionnaire measures of their self-evaluative beliefs and preference for challenge. Results suggest that for low-achieving students there are tradeoffs associated with establishing and maintaining friendships with high-achieving classmates. Specifically, low achievers who established and maintained friendships with high-achieving friends evaluated themselves less positively, but also performed better academically, than low achievers with similarly low-achieving friends. Fewer tradeoffs emerged for high achievers.*

*Keywords:* peer relationships; social comparison; achievement; motivation

There is clear evidence that friendships play a critical role in children's social, emotional, and cognitive development (see Asher & Gottman, 1981; Berndt, 1982; Hartup, 1996; Rubin, Bukowski & Parker, 1998, for reviews). Although much of the work in this area has focused on understanding the implications for children of being able to establish and maintain close relationships with peers (e.g. Ladd, Kochenderfer & Coleman, 1997; Parker & Asher, 1993), researchers have begun to examine equally significant questions regarding whether and how children are influenced by the specific characteristics of the friends they choose (e.g. Fisher & Bauman, 1988; Urberg, 1992; Vitaro, Brendgen & Tremblay, 2000). Within the latter tradition, increasing attention is being paid to how children's friendship choices affect their school attitudes and academic performance.

A spate of recent studies in the peer socialization tradition provides at least partial support for the notion that children's achievement-related outcomes vary according to the academic characteristics of the students with whom children establish close relationships (see Berndt, 1999, for a review). In particular, children whose friends do well in school, are actively involved in classroom activities, and hold positive

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achievement-related beliefs (e.g. high levels of school interest) tend to adopt similar characteristics over time (e.g. Altermatt & Pomerantz, 2003; Berndt & Keefe, 1995; Ide, Parkerson, Haertel & Walberg, 1981; Kindermann, 1993; Ryan, 2001). It appears that the reverse is also true, with 'low-achievement' friendships having negative implications for children's long-term academic success.

One limitation of research conducted within the peer socialization framework is that it presumes that, because children are anxious to conform to the behavior and beliefs of their friends (e.g. Haselager, Hartup, van Lieshout & Riksen-Walraven, 1998; Kupersmidt, DeRosier & Patterson, 1995), friends' influence will lead children and their friends to become more similar to one another over time (see Berndt, 1999, for a review). As a result, the expectation is that maintaining friendships with children who hold socially valued characteristics (e.g. excellent academic performance) should lead to beneficial outcomes for all students. This proposal is, on the surface, satisfying. However, some recent research conducted within the peer socialization tradition (e.g. Altermatt & Pomerantz, 2003; Berndt, Hawkins & Jiao, 1999) along with a host of research conducted within the social comparison tradition (see Festinger, 1954; Tesser, 1988; Wood, 1989, for reviews) suggests that the implications of children's friendships may be more complex. Social comparison theories suggest, in particular, that establishing friendships with high-achieving classmates may not be uniformly beneficial and, likewise, that establishing friendships with low-achieving classmates may not be uniformly disadvantageous. Here, children's achievement-related attitudes and outcomes are expected to depend not only on the academic characteristics (particularly the academic achievement) of children's friends, but on children's own level of achievement (especially as it compares to that of a selected friend) and the importance children assign to performing well in school. Notably, social comparison theories also suggest that establishing friendships with high-performing versus low-performing classmates may have different implications for self-evaluative beliefs (e.g. self-esteem) than for motivational beliefs (e.g. preference for challenge) or academic performance (e.g. report card grades).

With regard to self-evaluative beliefs, social comparison theories postulate that individuals assess their capabilities based, in part, on comparisons with others. In general, comparisons with higher performing others (i.e. upward social comparisons) are thought to threaten self-esteem. In contrast, comparisons with lower performing others (i.e. downward social comparisons) are thought to be esteem-enhancing (e.g. Cash, Cash & Butters, 1983; Harter, 1985b; Taylor, Wayment & Carrillo, 1996; Wills, 1981; but see Aspinwall & Taylor, 1993; Blanton, Buunk, Gibbons & Kuyper, 1999; Gibbons & Gerard, 1997). Consistent with this perspective, Marsh and Parker (1984) demonstrated that children who attended schools where the average ability level was very high reported lower self-esteem than children who attended schools where the average ability level was quite low. Similarly, Morse and Gergen (1970) found that job interviewees felt less confident in their skills after being exposed to a self-assured and well-groomed fellow applicant than to a disorganized and poorly groomed fellow applicant.

Significantly, there is evidence that the effects of upward and downward social comparison on children's self-evaluations may be moderated by a number of factors (e.g. Aspinwall & Taylor, 1993; see Collins, 1996; Taylor, Wayment & Carrillo, 1996, for reviews). Newer models of social comparison have incorporated one or more of these moderators, including the similarity and closeness of the comparison other (e.g. Beach, Tesser, Fincham, Jones, Johnson & Whitaker, 1998; Collins, 1996; Suls, Martin

& Wheller, 2002) and the degree to which the individual expects that he or she *can* attain the level of competency of another (e.g. Lockwood & Kunda, 1997; Major, Testa & Bylsma, 1991; Wood & VanderZee, 1997). Of special interest in the present study is the importance children assign to academic success. Abraham Tesser elaborates the moderating role of importance in his Self-Evaluation Maintenance (SEM) model. Consistent with traditional social comparison theories, the SEM model predicts that when the comparison domain is of high importance to the individual, being outperformed is threatening and leads to declines in self-evaluation. A reversal in this pattern is expected, however, when the comparison occurs in a domain that is only of minimal import to the individual's self-definition. Here, individuals are not expected to suffer declines in self-evaluation by comparison, but, instead, to experience gains by 'basking' in the accomplishments of a close other. There is a good deal of empirical evidence to support Tesser's theory (see Tesser, 1988, for a review). Much of the existing research has, however, examined the hypotheses outlined above only indirectly (see Tesser, Millar & Moore, 1988). For example, in support of the notion that being outperformed is threatening to one's self-esteem when the domain of comparison is important, research has indicated that individuals who are outperformed by a close other tend to psychologically distance themselves from (e.g. Pleban & Tesser, 1981) and predict poor performance for (e.g. Tesser & Campbell, 1982) successful others. Notably, these effects are reversed when the domain is of low importance.

In contrast to the relative wealth of research relating social comparison to self-evaluative constructs, considerably less research has examined the effects of upward and downward social comparisons on motivational beliefs (e.g. a preference for challenging academic work) and academic achievement (see Blanton *et al.*, 1999; Gibbons, Blanton, Gerrard, Buunk & Eggleston, 2000; Lockwood, 2002, for exceptions). Still, a number of researchers have suggested that the effects of social comparison on these types of outcomes may be different than the effects on self-evaluative outcomes. At the same time that upward social comparisons can threaten self-worth which can, in turn, lead to learned helpless reactions to failure (see Dweck, 1986, for a review), such comparisons also have the potential to enhance motivation and performance. The motivation- and performance-enhancing effects of upward social comparisons are expected to be particularly evident when comparisons provide individuals with useful information about how to successfully complete challenging tasks (e.g. Feldman & Ruble, 1977; Gruder, 1971; Seta, 1982; Wheeler & Koestner, 1984) or inspire individuals to attempt future challenging tasks by providing them with a sense of their own potential (e.g. Brickman & Bulman, 1977; Buunk, Collins, Taylor, Van Yperen & Dakof, 1990; Lockwood & Kunda, 1997; Major *et al.*, 1991; Taylor & Lobel, 1989). Downward social comparisons are not expected to lead to similar motivational or performance gains as they fail to provide the types of information necessary to master complicated tasks and provide little incentive to attempt to improve one's performance on such tasks (see Taylor *et al.*, 1996, for a review). Experimental research by Seta (1982) is consistent with this perspective. Here, students who worked on a pattern recognition task with a better performing other were more successful than students who completed the task alone or with an inferior other. In addition, both Blanton *et al.* (1999) and Gibbons *et al.* (2000) provide evidence that children's performance is positively affected when children compare test scores with high-achieving classmates.

Research has not, to date, investigated importance as a moderator of the relation between social comparison choice and either motivational beliefs or performance.

Tesser and Campbell (1982) have suggested, however, that the motivation- and performance-enhancing effects of upward social comparisons should be stronger among children who deem school as important than among children who assign little importance to performing well academically. According to Tesser, when children view school as important, the better performance of a close other is likely to be seen as threatening. Children may reduce this threat by increasing their level of effort and, thereby, their performance. When children do not view school as important, the better performance of another should be less threatening and, thereby, lead to fewer attempts at self-improvement. Other possibilities exist, however. For example, children whose beliefs in the importance of school success are lagging may benefit from spending time with friends who can continue to model and encourage positive academic behaviors and attitudes toward school (e.g. a willingness to tackle challenging academic work).

As a whole, then, the social comparison literature suggests that having high-achieving friends may not be uniformly beneficial and that having low-achieving friends may not be uniformly disadvantageous. Instead, the extant literature suggests that there may be tradeoffs associated with establishing friendships with high-achieving versus low-achieving classmates. In particular, at least among children who deem school success to be important, friendships that elicit upward social comparisons may lead children to feel badly, but also endow students with the motivation necessary to lead to enhanced performance over time. Friendships that elicit downward social comparisons may, in contrast, lead to at least short-term confidence gains, but undermine children's motivation and performance in the long run by reducing the incentive to pursue challenging tasks and by reducing access to information that is necessary to succeed on such tasks (see Taylor *et al.*, 1996, for a review).

Little work in the social comparison tradition has examined the implications of social comparison processes in everyday contexts (see Collins, 1996; Wood, 1989, for reviews). A recent study by Blanton *et al.* (1999) represents a step in this direction. Importantly, though, the goal of the Blanton *et al.* study was to predict changes in student confidence and performance from the *absolute* level of the performance of *classmates* with whom children choose to compare test performance. Here, children who chose to compare their performance with high-achieving classmates experienced the expected gains in performance over time. These same children did not, however, report feeling less competent academically than other students in their class. On the one hand, this latter finding might be taken as evidence that children do not suffer self-evaluative declines from comparisons with high achievers. On the other hand, it is quite possible that a different pattern of results will emerge when children's own performance relative to friends' is taken into account and when the target of comparison is a friend rather than a classmate. In particular, it is likely that comparisons of this sort are far more damaging for children who find themselves very clearly outperformed by someone with whom they share a close emotional bond (see Tesser, Campbell & Smith, 1984).

### *Overview of the Present Research*

The current research is designed to examine how children's friendships influence their school-related attitudes and outcomes. Specifically, our goal is to predict changes in children's *self-evaluative beliefs* (including their self-perceptions of competence, self-esteem, and attributional styles), *preference for challenge*, and *report card grades* over

the course of the academic year from the academic performance of children, the academic performance of children's friends, and the importance children assign to performing well in school. Considerable attention has been paid to each of these constructs in the achievement motivation literature. Although interrelated, a distinction between self-evaluative beliefs (i.e. beliefs related to the question, 'Can I do this task?') and motivational beliefs (i.e. beliefs related to the question, 'Do I want to do this task and why?') is important insofar as children who believe that they can succeed academically do not necessarily put forth the effort that is needed to do so. Similarly, children who are unsure of their academic capabilities may continue to work hard and select challenging tasks in an attempt to improve their skills (see Dweck, 1986; Eccles & Wigfield, 2002; Eccles, Wigfield & Schiefele, 1998).

We have chosen to focus on reciprocated friendships (i.e. friendships in which both members of the dyad chooses the other as a best friend). This approach is based on evidence from the peer socialization literature that reciprocated friends engage in more frequent contact and express greater mutual liking and closeness than unilateral friends (see Newcomb & Bagwell, 1995). These characteristics are especially important for the purposes of the present study given evidence from the social comparison literature that individuals are most likely to compare their performance with persons with whom they share a close emotional bond (Miller, Turnbull & McFarland, 1988). Moreover, comparisons with very close others are more likely to affect self-evaluations and performance than comparisons with more distant others (Guay, Boivin & Hodges, 1999; Tesser, 1988).

## **Method**

The data for this study were collected as part of the University of Illinois Self-evaluation Project (e.g. Pomerantz & Saxon, 2001; Pomerantz, Saxon & Oishi, 2000). We used this same dataset in an earlier paper designed to examine similarity and influence among friends using a traditional peer socialization paradigm (Altermatt & Pomerantz, 2003). The central goal of the earlier paper was to predict children's achievement-related beliefs from friends' achievement-related beliefs, both concurrently and over time. To replicate prior research, we also predicted children's academic performance from friends' academic performance. The earlier paper overlaps with the present study with regard to only one finding. In particular, in both studies, we find that changes in children's report card grades over the course of the academic year can be predicted from friends' report card grades.

### *Participants*

Participants were 929 children (463 males, 466 females) in the fifth ( $n = 270$ ;  $M$  age = 9.25 years), sixth ( $n = 449$ ;  $M$  age = 10.25 years), and seventh ( $n = 210$ ;  $M$  age = 11.25 years) grades.<sup>1</sup> The majority of participants (95%) were European-American, but the sample also included 4% African-Americans and 1% other minorities. Approximately 20% of the sample received free or reduced-price lunch. All students attended one of two school districts in the Midwest. Within these school districts, nine schools representing 58 classrooms participated. Letters describing the study were sent home to parents. Parents were asked to contact the school or investigators if they did not want their children to participate. Only 4% of parents did not permit their children to participate.

*Procedure*

Over the course of the academic year, children participated in two waves of data collection approximately six months apart. The first wave took place during the fall and the second wave the following spring.<sup>2</sup> At both waves, children took part in two 45-minute classroom sessions during which questionnaires were administered. A trained research assistant read each item to children who marked their responses on their own. Although all children were asked to complete all of the measures, only children with a reciprocated very best friend (see *friendship assessment*, below) were of interest in the present study. This subsample of 'friended' children ( $N = 485$ ) included 139 fifth-graders (68 males, 71 females), 235 sixth-graders (112 males, 123 females), and 111 seventh-graders (55 males, 56 females).<sup>3</sup>

*Measures**Self-evaluative Beliefs*

Three aspects of children's self-evaluative beliefs were examined: self-perceptions of competence, self-esteem, and attributional styles. Children's scores on these measures were combined to create a composite self-evaluative index.

*Self-perceptions of Competence.* Self-perceptions of both general academic competence and competence in specific school subjects were assessed. *Self-perceptions of general academic competence* were assessed following Harter (1982). Due to time limitations, only five of the six original items were used. Children were presented with descriptions of two types of children differing in competence (e.g. 'Some kids feel like they are just as smart as other kids their age; but other kids aren't so sure and wonder if they are smart'). Children decided which they were more like and indicated if the given statement was 'really' or 'sort of' true for them (range = 1 to 4). *Self-perceptions of competence in school subjects* were assessed following Wigfield, Eccles, Mac Iver, Reuman, and Midgley (1991). Children rated on seven-point scales how skilled they were in each of the subjects for which they received grades (e.g. 'How good at reading are you?') and their relative position in their class (e.g. 'If you were to rank all of the students in your class from the worst to the best in reading, where would you put yourself?'). Fifth- and sixth-graders received grades in six academic subject areas and, thus, completed twelve items assessing their self-perceptions of competence in school subjects. Seventh-graders received grades in four subjects and, thus, completed eight items. A combined index of children's self-perceptions of competence was calculated by averaging children's  $z$ -scored responses to the seventeen (for fifth- and sixth-graders) or thirteen items (for seventh graders) from the two scales. Higher numbers indicate more positive perceptions.

*Self-esteem.* Global self-esteem was assessed with five of the six items of Harter's (1982) Global Self-worth Scale. Children were presented with descriptions of two types of children differing in the degree to which they felt satisfied with themselves as persons (e.g. 'Some kids are often unhappy with themselves, but other kids are pretty pleased with themselves'). Children decided which they were more like and indicated if the given statement was 'really' or 'sort of' true for them. The mean of the five items was employed (range = 1 to 4), with higher numbers representing greater self-esteem.

*Attributional Style.* A modified version of the *Children's Attributional Style Questionnaire* (Seligman, Peterson, Kaslow, Tannenbaum, Alloy & Abramson, 1984) was employed to measure the degree to which children attributed their academic performances to internal, stable, and global factors. Children completed twelve items for success and twelve items for failure. For each item, children were asked to imagine a situation in which they had succeeded (e.g. 'Your teacher quizzes you on what she just went over in class, and you get most things she asks you right') or failed. Children were then presented with two possible explanations for their success or failure (e.g. 'I usually pay attention to most things the teacher says,' 'That day I was paying attention to most things the teacher said'). The explanations held two of the attributional dimensions constant (e.g. internal and global) while varying the third (e.g. stability). Children chose the explanation they thought was best. Children's responses were scored so that a 1 was given for positive attributions (i.e. internal, stable, or global attributions for success and external, unstable, or specific attributions for failure) and a 0 was given for negative attributions (i.e. external, unstable, or specific attributions for success or internal, stable, or global attributions for failure). The mean of children's responses was calculated, with higher numbers (range = 0 to 1) indicating more positive attributional styles.

*Composite Self-evaluative Index.* A composite index of children's self-evaluative beliefs was calculated by averaging children's z-scored responses to the self-perceptions of competence, self-esteem, and attributional style measures. Second-order principal components analysis supported the creation of a single, higher order factor representing children's self-evaluative beliefs. At Wave 1 and at Wave 2, only one factor emerged with an eigenvalue greater than 1. Loadings of the three measures on to this higher order factor ranged from .73 to .87 across waves. The higher order factor accounted for 65% of the variance in the three measures at Wave 1 and 64% at Wave 2.

### *Preference for Challenge*

Preference for difficult over easy academic work was assessed with five of the six items of the Preference for Challenge Sub-Scale of Harter's (1981) Intrinsic Orientation in the Classroom Scale. Children were presented with descriptions of two types of children differing in the type of academic work they prefer (e.g. 'Some kids would rather just learn what they have to in school; but other kids would rather learn about as much as they can'). Children decided which they were more like and indicated if the given statement was 'really' or 'sort of' true for them. The mean of the five items was employed (range = 1 to 4), with higher numbers indicating greater preference for challenge.

### *Academic Performance*

For fifth- and sixth-grade students, children's report card grades were obtained in six academic subject areas (English, math, science, social studies, reading, and spelling). For seventh-grade students, grades were obtained in four academic subject areas (English, math, science, and social studies). Letter grades were converted to numerical values (0 = F to 12 = A+). The mean of the grades across the two academic quarters overlapping with each wave was employed as an index of academic performance.

*Importance of Competence*

The importance of both general academic competence and competence in specific school subjects was assessed. The *importance of general academic competence* was assessed with three items, following Harter (1985a). Children were presented with descriptions of two types of children differing in the importance they place on academic competence (e.g. 'For some kids, it's very important to be as smart as other kids their age; but for other kids, it's not so important to be that smart'). Children decided which they were more like and indicated if the given statement was 'really' or 'sort of' true for them (range = 1 to 4). *Importance of competence in school subjects* was assessed by asking participants to indicate what grade they would deem to be personally acceptable in each of the subjects for which they received grades. Subsequently, children indicated how important it was to them to obtain that grade (1 = Not at all important; 7 = Very important). Fifth- and sixth-graders received grades in six subjects and, thus, completed six items assessing their importance of competence in school subjects. Seventh-graders received grades in four subjects and, thus, completed four items. A composite importance index was calculated by averaging children's z-scored responses to the nine (for fifth- and sixth-graders) or seven (for seventh-graders) items from the two scales. Higher numbers indicate greater importance.

*Friendship Assessment*

Following Parker and Asher (1993), children's friendships were identified using a two-step sociometric nomination procedure. In the first step, children were presented with a class roster and asked to circle the names of their three 'best friends'.<sup>4</sup> Children were instructed that they could circle fewer than three names, but not more. In the second step, children were asked to review their three choices and to nominate their single, very best friend from the previously selected three. A child was considered to have a reciprocated very best friend if his or her nominated very best friend selected the child as one of his or her three best friends. At Wave 1, 80% of students selected a very best friend and 65% of these nominations were reciprocated. All analyses employed this subsample ( $N = 485$ ) of 'friended' children. Children with reciprocated friendships were better adjusted academically than children without reciprocated friendships. In particular, children with reciprocated friends had higher self-perceptions of competence,  $t(895) = 2.72$ ,  $p < .01$ , and higher report card grades,  $t(915) = 4.17$ ,  $p < .001$ , at Wave 1 than children without reciprocated friendships. Across the two waves of data collection, children's friendships were generally fairly stable (i.e. 76% of students who nominated a very best friend at Wave 1 selected this same student as one of their three best friends at Wave 2).

**Results***Data-analytic Strategy*

Table 1 provides an overview of the measures, including the means and standard deviations, the internal reliabilities, and the stability over the two waves for each measure. Bivariate correlations among the measures are presented in Table 2. All values are based on the subsample of 'friended' children.

A series of hierarchical regression analyses was conducted to examine the degree to which children's achievement-related characteristics (i.e. their self-evaluative



**Table 1. Measure Characteristics**

Measure	Mean (SD)		Internal reliability		Stability
	Wave 1	Wave 2	Wave 1	Wave 2	Wave 1 to Wave 2
<i>Self-evaluative beliefs</i> <sup>a</sup>	.00 (1.00)	.00 (1.00)	.73	.72	.73***
<i>Preference for challenge</i>	2.64 (0.73)	2.56 (0.70)	.81	.78	.64***
<i>Academic performance</i>	8.24 (2.34)	8.11 (2.41)	.95	.95	.90***
<i>Importance of competence</i> <sup>b</sup>	.00 (1.00)	.00 (1.00)	.85	.86	.61***

<sup>a</sup> A composite index of children's self-evaluative beliefs was calculated by averaging children's z-scored responses to the self-perceptions of competence ( $M_s = 0.00$ ;  $SD_s = 1.00$ ), self-esteem ( $M_s = 3.26$  and  $3.24$ ,  $SD_s = .69$  and  $.65$ ), and attributional style ( $M_s = .46$  and  $.45$ ,  $SD_s = .20$  and  $.21$ ) measures.

<sup>b</sup> A composite index of importance of competence was calculated by averaging children's z-scored responses to the three items of the importance of general academic competence scale ( $M_s = 3.28$  and  $3.20$ ;  $SD_s = .60$  and  $.63$ ) and the six (for fifth- and sixth-graders) or four (for seventh-graders) items of the importance of competence in school subjects scale ( $M_s = 5.81$  and  $5.68$ ;  $SD_s = 1.14$  and  $1.30$ ).

\*\*\* $p < .001$ .

**Table 2. Bivariate Correlations**

	1	2	3	4
1. Self-evaluative beliefs	1.00	.47***	.49***	.35***
2. Preference for challenge	.47***	1.00	.27***	.26***
3. Academic performance	.51***	.28***	1.00	.32***
4. Importance of competence	.41***	.27***	.33***	1.00

*Note:* Values above the diagonal represent bivariate correlations at Wave 1. Values below the diagonal represent bivariate correlations at Wave 2.

\*\*\* $p < .001$ .

beliefs, preference for challenge, and academic performance) could be predicted, over the course of the academic year, from the achievement level of classmates with whom these children established close friendships. Children's Wave 2 achievement-related characteristics were used as dependent variables in separate regression analyses. Corresponding Wave 1 characteristics were entered at the first step of the analyses. Adjusting for children's Wave 1 characteristics when predicting their Wave 2 characteristics is important given the considerable stability of the measures over time (see Table 1). At Step 2, children's Wave 1 grades, friends' Wave 1 grades, and children's Wave 1 importance ratings were entered. Two-way interaction terms (Children's Grades x Friends' Grades, Children's Grades x Importance, Friends' Grades x Importance) were entered at Step 3. Finally, a three-way interaction term (Children's Grades x Friends' Grades x Importance) was entered at Step 4. Following Hull, Tedlie, and Lehn (1992), we also included, at the appropriate steps, the interactions of children's Wave

1 characteristics with each of the other predictors included in the regression equation (e.g. children's preference for challenge at Wave 1 x children's report card grades at Wave 1). This procedure more fully ensures that our findings reflect effects over time rather than concurrent effects involving children's Wave 1 characteristics. Student gender was also included in initial analyses, but did not significantly moderate other findings. Hence, this variable was dropped from all analyses. All independent variables were centered.

The *main effect* of friends' grades, the *two-way* interaction between children's grades and friends' grades, and the *three-way* interaction among children's grades, friends' grades, and the importance children assigned to academic competence were of particular interest in the present study. Procedures developed by Aiken and West (1991) were used to further investigate significant interactions. Unlike ANOVA-based approaches (wherein median splits of the continuous variables are used), the Aiken and West approach permits examination of significant interactions without any loss of data or statistical power. Specifically, these analyses allow for the calculation of simple regression lines for low and high achievers by setting the values for children's grades at one standard deviation below the mean (for low achievers) and one standard deviation above the mean (for high achievers). By testing the slopes of these regression lines, we were able to determine whether the Wave 2 self-evaluative and performance-related characteristics of low achievers and high achievers varied according to the achievement level of classmates with whom children established friendships.

### *Central Analyses*

#### *Self-evaluative Beliefs*

As shown in Table 3, children's report card grades at Wave 1 emerged as a significant predictor of children's self-evaluative beliefs at Wave 2,  $\beta = .21$ ,  $t(439) = 5.34$ ,  $p < .001$ . Specifically, low-achieving students reported less positive self-evaluative beliefs six months later than did their high-achieving counterparts. Friends' report card grades did not, alone, predict children's self-evaluative beliefs,  $\beta = -.01$ ,  $t < 1$ , *ns*. However, a significant interaction between children's grades and friends' grades emerged in predicting self-evaluative beliefs,  $\beta = .11$ ,  $t(433) = 3.13$ ,  $p < .01$ . The interaction indicated that the effect of having high-achieving friends differed for low achievers and high achievers (see Figure 1). Follow-up analyses revealed that the self-evaluative beliefs of low achievers varied by friends' level of academic performance,  $\beta = -.11$ ,  $t(433) = -2.49$ ,  $p = .01$ . Specifically, low achievers with relatively high-achieving friends evaluated themselves significantly *less* positively than did low achievers with similarly low-achieving friends. Friends' performance was a marginal predictor of high achievers' self-evaluative beliefs,  $\beta = .10$ ,  $t(433) = 1.85$ ,  $p < .10$ . This marginal trend indicated that high achievers with high-achieving friends evaluated themselves somewhat *more* positively than high achievers with low-achieving friends.<sup>5</sup>

#### *Preference for Challenge*

As shown in Table 3, children's academic performance at Wave 1 was a significant, positive predictor of their preference for academic challenge six months later,  $\beta = .10$ ,  $t(401) = 2.19$ ,  $p < .05$ . Alone, neither friends' report card grades nor children's importance ratings predicted children's preference for challenge,  $\beta s < .05$ ,  $ts < 1.10$ , *ns*.

**Table 3. Predicting Self-evaluative Beliefs, Preference for Challenge, and Academic Performance at Wave 2 From Children's Grades, Friends' Grades, and Children's Importance Ratings at Wave 1**

Measure (Wave 1)	Wave 2 characteristics								
	Self-evaluative beliefs			Preference for challenge			Academic performance		
	B	SE	$\beta$	B	SE	$\beta$	B	SE	$\beta$
Step 1									
Wave 1 characteristic	.73	.03	.73***	.63	.04	.66***	—	—	—
Step 2									
Children's grades (A)	.07	.01	.21***	.03	.01	.10*	.89	.02	.87***
Friends' grades (B)	.00	.01	-.01	.01	.01	.02	.06	.02	.06**
Importance (C)	.05	.03	.06	.04	.04	.04	.07	.06	.03
Step 3									
A X B interaction	.02	.01	.11**	.01	.01	.05	.01	.01	.03
A X C interaction	-.01	.02	-.03	-.02	.02	-.06	.03	.03	.03
B X C interaction	-.01	.02	-.04	-.02	.02	-.05	-.02	.03	-.02
Step 4									
A X B X C interaction	.00	.01	.03	-.01	.01	-.10*	-.02	.01	-.04

*Note:* Values are from hierarchical regression analyses predicting children's self-evaluative beliefs, preference for challenge, and academic performance at Wave 2 from children's grades, friends' grades, and the importance children assigned to academic competence at Wave 1. For self-evaluative beliefs and preference for challenge, analyses adjusted for children's Wave 1 scores on these indices (see Step 1) and, following Hull, Tedlie, and Lehn (1992), the interaction of these scores with scores for each of the other predictors (not shown).

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

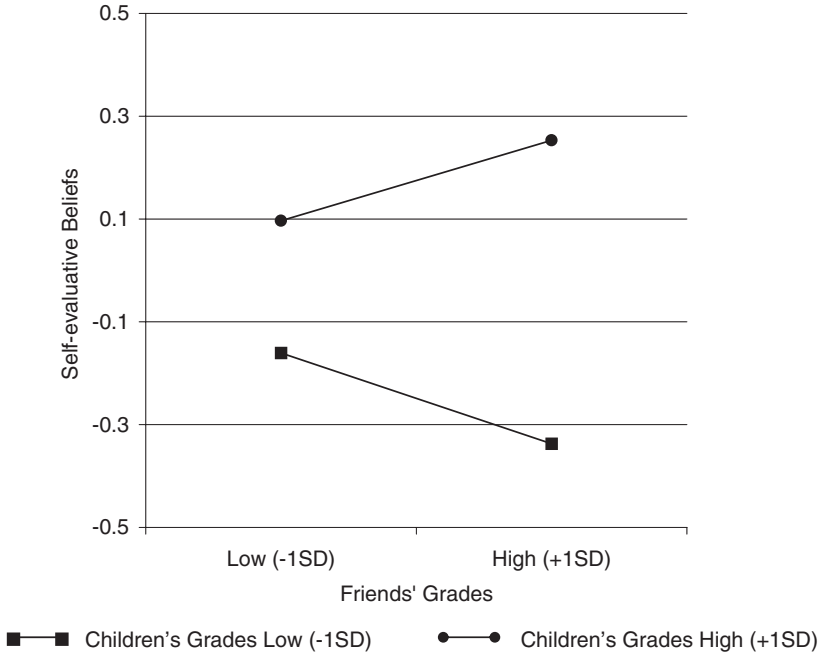


Figure 1. Two-way interaction between children's grades and friends' grades in predicting children's self-evaluative beliefs.

However, the analyses did reveal a three-way-interaction among children's grades, friends' grades, and the importance children assigned to performing well in school in predicting children's Wave 2 preference for challenge scores,  $\beta = -.10$ ,  $t(391) = -1.96$ ,  $p = .05$  (see Figure 2). Follow-up analyses revealed that friends' performance did not significantly predict the preference for challenge scores of low achievers (regardless of the importance children assigned to school performance); nor did it predict the preference for challenge scores of high achievers who viewed school as important,  $\beta$ s  $< .10$ ,  $t$ s  $< 1$ , *ns*. Friends' performance was predictive of changes in children's preference for challenge among low-importance, high achievers, however. Specifically, among children who viewed school as relatively unimportant, high-achieving students with relatively high-achieving friends preferred challenge significantly *more* than high achievers with relatively low-achieving friends,  $\beta = .16$ ,  $t(391) = 2.06$ ,  $p < .05$ .<sup>6</sup>

### Academic Performance

As shown in Table 3, children's academic performance at Wave 1 was a strong, positive predictor of their academic performance six months later,  $\beta = .87$ ,  $t(463) = 38.01$ ,  $p < .001$ . Friends' performance was also a positive predictor of children's performance,  $\beta = .06$ ,  $t(463) = 2.83$ ,  $p < .01$ . No other significant effects emerged. These results indicate that, regardless of their achievement level or the importance they assigned to school, children who established relationships with high-achieving friends received *higher* report card grades than did children who established relationships with low-achieving friends.

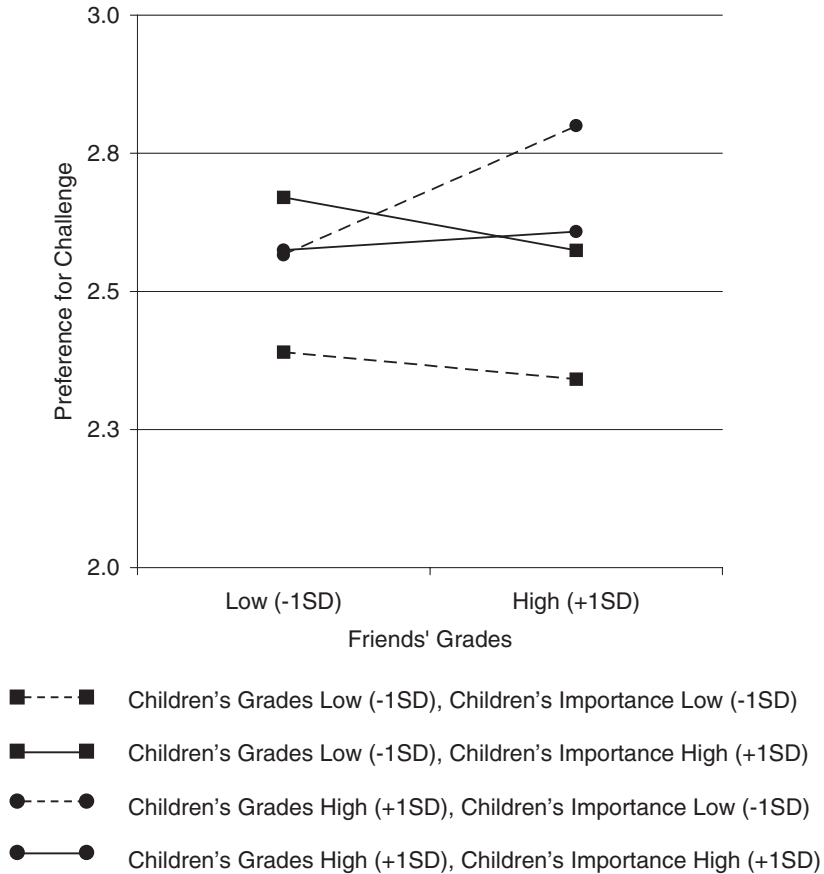


Figure 2. Three-way interaction among children's grades, friends' grades, and importance in predicting children's preference for challenge.

Supplemental Analyses

Prior research has documented a tendency for children to establish friendships with classmates who are similar to themselves with regard to academic performance (e.g. Berndt & Keefe, 1995). We replicated this finding in the current dataset. Specifically, the correlation between children's grades and friends' grades during the first wave of data collection was moderate, at .42. Given the magnitude of this correlation, one might be concerned that children are unlikely to establish friendships with students who perform much better or much worse than themselves. We investigated this concern in two ways. First, we calculated, for each friendship dyad, an academic performance difference score by subtracting children's z-scored report card grades from friends' z-scored grades. Analyses of these difference scores indicated that 32% of children selected a very best friend whose report card grades were at least one standard deviation better or worse than their own. Seven percent of children selected a very best friend whose report card grades differed by at least two standard deviations. Second, we examined the report card grades of the friends of both low-achieving students (i.e. children whose report card grades were greater than one standard deviation

below the mean) and high-achieving students (i.e. children whose report card grades were greater than one standard deviation above the mean). For low achievers ( $N = 76$ ), friends' z-scored report card grades ranged from  $-3.16$  to  $+1.18$ . Twenty-eight percent of low achievers selected friends whose report card grades were better than average (i.e.  $z_s > 0$ ). Nine percent of low achievers selected friends whose report card grades were greater than one standard deviation above the mean. For high achievers ( $N = 83$ ), friends' z-scored report card grades ranged from  $-1.92$  to  $+1.52$ . Fifteen percent of high achievers selected friends whose report card grades were below average (i.e.  $z_s < 0$ ). Seven percent of high achievers selected friends whose report grades were greater than one standard deviation below the mean. Together, these analyses suggest that (1) disparities in academic performance do exist between members of reciprocated very best friend dyads, and (2) these disparities exist even among children who comprise the population extremes in terms of academic performance (i.e. children's whose own report card grades are one standard deviation above or below the mean).

Prior research has also suggested that the stronger and longer lasting the relationship between children and their friends, the more likely friends are to exert an influence on children's beliefs and behaviors (e.g. Berndt *et al.*, 1999; Epstein, 1983; but see Berndt & Keefe, 1995; Ryan, 2001; Urberg, Degirmencioglu & Pilgrim, 1997). Given this, we examined whether the effects we report varied according to the stability of the friendship dyad. We examined this issue by including 'stability' as a dummy variable in our regression analyses. Only one of our effects (i.e. the two-way interaction for self-evaluative beliefs, the three-way interaction for preference for challenge, and the main effect of friends' grades for academic performance) was qualified by friendship stability. Specifically, the main effect of friends' grades in predicting changes in children's grades was qualified by a stability  $\times$  friends' grades interaction,  $\beta = .08$ ,  $t(456) = 1.95$ ,  $p = .05$ . Follow-up analyses indicated that children benefited from having high-achieving friends when their friendships were stable,  $\beta = .10$ ,  $t(352) = 3.82$ ,  $p < .001$ , but not when they were unstable,  $\beta = -.01$ ,  $t < 1$ , *ns*.

## Discussion

There is growing interest in understanding the relation between children's friendship choices and their attitudes, behaviors, and outcomes. The present study contributes to the existing literature by examining the implications for children of establishing close relationships with high-achieving versus low-achieving classmates.

One important contribution of the present research is that it provides evidence that establishing friendships with high-performing classmates is not associated with uniformly beneficial outcomes, at least over short time intervals. Consistent with social comparison theories, we found evidence that children who are outperformed by classmates (i.e. low-achieving children with high-achieving friends) suffer with regard to their self-evaluative beliefs. Specifically, compared to low-achieving children who established friendships with similarly low-achieving peers, outperformed children were more likely to adopt negative self-evaluative beliefs.

Given these findings, an important question is whether low-achieving children with high-achieving friends are likely to maintain their friendships over a six-month time period. If they are not, it suggests that children who are outperformed may remove themselves from these friendships as a means of minimizing the negative self-evaluative consequences of upward social comparisons and, as a result, that the negative consequences may be short-lived. To address this question, we compared levels

of friendship stability for the two groups of low-achieving children: low-achieving children with high-achieving friends and low-achieving children with low-achieving friends. Descriptive analyses revealed that both groups were more likely to stay together than to break off their friendship over a six-month time period. Specifically, sixty-three percent of low achievers who selected high-achieving friends remained friends, while fifty-seven percent stayed together even when their very best friend was a high achiever. Chi-square analyses indicated that the friendship stability of the two groups did not differ significantly,  $\chi^2(1, 31) = .80, ns$ .

In explaining this phenomenon, it is important to keep in mind that the implications of comparing unfavorably to friends do not appear to be entirely negative. During the same period of time that outperformed children were feeling badly about themselves and about their academic capabilities, they did not report lower levels of motivation in school than low achievers who were not outperformed. That is, low-achieving children with high-achieving friends did not differ from low-achieving children with low-achieving friends in terms of their preference for challenge. Moreover, these children showed the same pattern as the sample as a whole with regard to their report card grades. That is, low-achieving children appeared to benefit in terms of their academic performance from establishing and maintaining relationships with high-achieving friends.

The results discussed thus far are consistent with the notion that, for low achievers, there are tradeoffs associated with establishing and maintaining friendships with high-achieving classmates. In short, while being outperformed was associated with more negative self-evaluative beliefs (at least in the short run), establishing and maintaining friendships with high-achieving students also appeared to play a role in improving their academic performance. Future research will be important in determining the exact mechanisms through which high-achievement friendship choices may lead to improved report card grades among students who maintain these friendships. Given that low-achieving children with high-achieving friends did not differ from low-achieving children with low-achieving friends with regard to their preference for challenge at Wave 2, this particular aspect of motivation does not appear to be a key mediator. It is likely, however, that social support (e.g. receiving help and guidance on homework assignments) and observational learning more generally (e.g. modeling high levels of participation in teacher–student interactions) play an important role. Access to these types of resources may diminish when children's relationships break up. This may help to explain why only children who establish *and* maintain relationships with high-achieving students experience gains in their report card grades.

Notably, high achievers did not appear to experience similar tradeoffs. For these students, establishing friendships with high-achieving peers was associated with outcomes that were, at the very least, not harmful and, in some cases, beneficial. Contrary to traditional social comparison notions that outshining another should lead to enhanced self-evaluations, high achievers who established relationships with high-achieving classmates were no more likely to hold negative self-evaluative beliefs than high achievers who established relationships with relatively low-achieving classmates. Significantly, this finding is consistent with newer social comparison models that predict that the self-enhancing effects of downward social comparison should be attenuated in closely committed dyads (Beach *et al.*, 1998; see also Gardner, Gabriel & Hochschild, 2002). In the present study, this finding suggests that the self-evaluative benefits traditionally associated with outperforming a close other may have been offset

by children's realization that their successes were making their best friend look bad by comparison.

High achievers with high-achieving friends did appear to benefit, however, with regard to their motivational beliefs and academic performance. Importantly, the effect for preference for challenge held only among children who expressed a belief that performing well in school was relatively unimportant. One interpretation of this finding is that high-importance high achievers are likely to maintain their level of motivation regardless of the performance of their friends. In contrast, high achievers whose beliefs in the importance of school success are lagging appear to benefit from spending time with friends who can continue to model and encourage positive academic behaviors (e.g. persisting on challenging academic work) and attitudes toward school.

Notably, although importance emerged as a significant moderator for the preference for challenge index, children's importance ratings did not appear to moderate relations between social comparison and self-evaluative beliefs or academic performance. That importance did not play a moderating role when predicting children's self-evaluative beliefs is particularly striking in light of predictions drawn from the SEM model that outperformed children who view school as unimportant might benefit from basking in the reflected glory of their well-performing friends (Tesser, 1988). Instead, we found that the self-evaluative beliefs of outperformed children appeared to be threatened, regardless of the importance these children assigned to performing well in school. One possible reason for this finding is that the effects were attenuated given the tendency of participants (even low-achieving participants) in our sample to view school success as important. At Wave 1, 91% of our sample (and 78% of low achievers) asserted that they were 'really' or 'sort of' like a child who believes that it is 'very important to do very well at their class work'. Similarly, 84% of our sample (and 64% of low-achievers) viewed meeting their self-selected academic standards as at least 'somewhat important'. That importance-related effects may be attenuated in school contexts has been recognized in at least one other study (Gibbons *et al.*, 2000).

A second reason why importance ratings may not have emerged as a moderator for the self-evaluative indices is that basking in the reflected glory of a close friend is a very short-lived phenomenon. Although children who place relatively little value on school success may initially feel proud to be associated with a best friend who is performing very well academically, these children may very quickly recognize the threats associated with being outperformed. Parents and teachers who value school success may, for example, draw explicit comparisons that, intentionally or not, make children feel badly (e.g. 'If Johnny can do it, why can't you?'). Tesser and his colleagues (Tesser *et al.*, 1988) offer some support for the hypothesis that reflection processes are short-lived. As predicted by the SEM model, undergraduates who were outperformed by a peer experienced more positive affect than undergraduates who performed similarly to a peer in a low-importance domain. Importantly, however, this effect emerged only for an indirect measure of affect taken immediately after feedback was administered. Similar effects did not emerge on a self-report measure of affect administered just 10 minutes later. Future research will be important in more fully examining this issue. Research that investigates children's reactions to being outperformed both immediately and shortly after receiving negative feedback (e.g. a poor test score) in the school context will be an important first step. Research that looks at the processes that lead to a shift from positive initial self-evaluations (through reflection) to negative



subsequent self-evaluations (through comparison) will be a critical next step. In both cases, direct measures of social comparison processes might be included. Examining children's social-comparative (e.g. 'How many did you miss?') and self-evaluative (e.g. 'I guess I did pretty bad, then') discourse with peers may be especially helpful in this regard (see Altermatt, Pomerantz, Ruble, Frey & Greulich, 2002).

An additional goal of future research will be to better understand the complexities of children's friendship choices. Although children do tend to select friends who are similar to themselves academically, the correlation is only moderate ( $r = .42$ ). This finding suggests that friendships are formed and maintained on the basis of a variety of factors, including children's overall levels of peer acceptance (Haseleger *et al.*, 1998) and shared interests and experiences in non-academic contexts (Hamm, 2000). Future research will be especially important in determining if and how 'academically disparate' friendships differ from 'academically similar' ones. How are these friendships formed? Why are they maintained – especially when maintaining these friendships is associated with negative self-evaluative outcomes (as when low-achievers select high-achieving friends)? One possibility is that 'academically disparate' friendships are formed through cooperative learning and/or tutoring activities established by teachers in the classroom setting and that these friendships are maintained because of the positive consequences for the high achiever (e.g. the rewards associated with engaging in prosocial behavior), for the low achiever (e.g. higher academic performance), or for both students (e.g. a new friendship).

In the end, the present study highlights the significant role that children's friendship choices may play in the development of self-evaluative and motivational beliefs. Our results indicate that high-achievement friendship choices, although often associated beneficial outcomes, are not uniformly so. The educational implications of these results are complex, but important. At the very least, our findings suggest that high-achieving friends may not be an ideal for all students. Taken further, these results may contribute to the continuing debate over ability grouping practices. Prior research in this area (e.g. Fuligni, Eccles & Barber, 1995) has indicated that ability grouping can affect children's friendship choices (e.g. children in lower ability tracks have fewer opportunities to establish relationships with high-achieving age-mates). The potential tradeoffs of restricting children's friendship choices in this manner is a worthy topic of future study.

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## Notes

1. Only students who completed questionnaires at both waves were included in the final analyses. Three additional children were excluded because, although they completed most of the questionnaire measures,

they failed to complete the friendship assessment measures. The sample for each analysis varies because children sometimes did not complete the majority of items for one of the measures included in the analysis.

2. Data were also collected during the previous spring semester. The present study includes only those data that were collected during the two semesters overlapping a single academic year. This decision was based on our finding that children's friendships were generally unstable during the transition from one grade level to the next (i.e. only 9% of children who nominated a very best friend during the first spring semester selected this same student as one of their three best friends during the following fall semester). Moreover, previous theory and research on friends' influence suggests that results are likely to be attenuated when children's friendships are disrupted by changing classroom assignments (Neckerman, 1996) and when the mechanisms of influence (e.g. modeling, social comparison) are interrupted by an intervening summer break (Berndt *et al.*, 1999; Epstein, 1983).

3. Analyses were also run by matching children with their three best friends rather than with a single, very best friend. Effects were generally weaker than those reported here. This finding is consistent with theory and research indicating that comparisons with very close others are more likely to affect self-evaluations and performance than comparisons with more distant others (Guay *et al.*, 1999; Tesser, 1988).

4. Children in the seventh grade met different teachers and classmates for each subject area. For these students, friendship nominations were limited to children's English classrooms. One concern with this procedure is that the effects may be attenuated among seventh-grade students because they are forced to select friends from a subset of students that may not include their closest friends. This does not appear to be the case, however. Specifically, effects were weaker rather than stronger when seventh-grade students were excluded from the analyses.

5. An alternative way of examining this interaction is to determine whether the effect of children's grades on children's self-evaluative beliefs is moderated by friends' grades. To examine this interpretation, we conducted a second set of Aiken and West (1991) analyses. These analyses revealed that children's grades predict their self-evaluative beliefs (i.e. low achievers feel less confident about themselves than do high achievers), but that the relation is stronger for children with high-achieving friends,  $\beta = .36$ ,  $t(433) = 6.35$ ,  $p < .001$ , than for children with low-achieving friends,  $\beta = .15$ ,  $t(433) = 3.18$ ,  $p < .01$ .

6. An additional set of Aiken and West (1999) analyses showed that the relation between children's grades and preference for challenge held only for two groups of students: children with low-achieving friends who viewed school performance as relatively unimportant,  $\beta = .13$ ,  $t(391) = 1.97$ ,  $p < .05$ , and children with high-achieving friends who viewed school performance as relatively unimportant,  $\beta = .32$ ,  $t(391) = 3.49$ ,  $p < .001$ .

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