Social Comparison Processes and Academic Achievement: The Dependence of the Development of Self-Evaluations on Friends' Performance

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Abstract
The purpose of this study was to examine the role of social comparison processes in children's self-evaluations. Children's aptitudes to gauge their self-evaluations of their abilities in school activities (i.e., perceived academic competence) on the basis of their actual performance depended on how well their reciprocated friends performed academically. Self-evaluations of performance were not affected when the comparison was based on levels of nonreciprocated friends' achievement.

Over the past two decades, much research has focused on the relation between perceived academic competence and academic performance, with the view that perceived academic competence is a determinant of school achievement (e.g., Boggiano, Main, & Katz, 1988; Eccles, Adler, & Meece, 1984; Grolnick & Slowiaczek, 1994; Guay, Boivin, & Hodges, 1999; Pierson & Connell, 1992). However, perceived academic competence could also stem from academic achievement (Frame & Eccles, 1998; Hymel, Woody, Ditner, & LeMare, 1988) because children tend to calibrate their perceptions of competence on the basis of their actual scholastic achievement.

Few studies have focused on processes that could explain the relation between achievement and perceived competence. For instance, in addition to their own grades, classmates' levels of achievement could influence children's perceived academic competence through social comparison processes (Pomerantz, Ruble, Frey, Greulich, 1995; Ruble & Frey, 1991). However, by using social comparison as a tool for enhancing self-knowledge, children may expose themselves to some potential threat to their self-concepts (Brickman & Bulman, 1977). More precisely, the way that children feel about themselves could be affected by the quality of the performance exhibited by others in the school context. For example, findings from Marsh and his colleagues (Marsh, 1987, 1994; Marsh, Chessor, Craven, & Roche, 1995; Marsh & Parker, 1984) on the big-fish-little-pond effect indicated that equally able students have lower academic self-concepts in high-ability schools than in low-ability schools.

It seems that the effect of social comparison processes on self-evaluations also depends on who is the performing other (Berger, 1977; Brickman & Bulman, 1977). Social comparison process may not have the same effect on self-evaluations when the comparison is based on friends' performance rather than when the comparison is based on nonfriends' performance. Having higher performing friends may have a stronger negative impact on self-evaluations than having high performing nonfriends (see also Tesser, 1988, 1991) because more valid inferences can be made from similar others (Brickam & Bulman, 1977). This is especially likely to be true when the activity under which performance takes place is relevant to one's self-definition (Tesser, 1988,
Hence, having a friend who performs better on a relevant activity should threaten self-evaluations by making one's own performance look inferior by comparison.

The purpose of the present study was to evaluate the role of social comparison processes in perceived academic competence as a function of the specificity of the relationship with peers (i.e., friends vs. nonfriends). We evaluated three hypotheses in the present study. First, in line with previous studies (e.g., Frame & Eccles, 1998; Hymel et al., 1988), we expected that children's actual school achievement would be positively associated with perceived academic competence. Second, we hypothesized that the relation between school performance and perceived academic competence would be moderated by (i.e., interact with) reciprocated friends' academic achievement (reciprocated friendships were identified when children mutually selected each other as a friend). Thus, we expected that the relation between scholastic achievement and perceived academic competence would be maximized under low levels of reciprocated friends' achievement and minimized under high levels of reciprocated friends' achievement. Indeed, because academic success is likely to be relevant to children's self-definition (e.g., Wigfield et al., 1997), we hypothesized that high reciprocated friends' achievement would negatively interfere with children's ability to calibrate their perceptions of academic competence on the basis of their own academic performance.

Some empirical evidence exists to support this second hypothesis. For example, Tesser, Campbell, and Smith (1984) found that when an activity was relevant to children's self-definition, they minimized their best friend's performance relative to their own performance. This strategy is used in order to prevent potential loss in self-evaluation. In Tesser et al.'s study, however, self-evaluations were inferred through behavioral indices. As suggested by Tesser (1988, 1991), the causal route from threats' perceptions to behavior is not direct. Threats to self-evaluations engender some negative affective states (Tesser, Millar, & Moore, 1988) that, in turn, mediate the behaviors enacted to reduce the impact of these threats (Tesser, Pilkington, & McIntosh, 1989). We believe that perceived academic competence could be one of those states that is likely to be influenced by comparison with friends' academic achievement.

Third, in contrast to reciprocated friends, we did not expect a moderating effect of nonreciprocated friends' achievement on the relation between children's academic achievement and perceived academic competence (nonreciprocated friendships were identified when children selected someone who, in turn, did not select them as a friend). The absence of mutuality among nonreciprocated friends reflects a lower level of psychological intimacy; thus, performance differentials should not interfere with self-evaluations (Tesser, 1988, 1991). For example, a child who compares grades with nonreciprocated friends who perform well should not feel as threatened as when the child compares grades with reciprocated friends.

**Method**

**Participants**

Participants were 1,002 French Canadian children (girls = 507, boys = 495) from 10 elementary schools. The children were from Quebec City, Canada, and had diverse socioeconomic
backgrounds. They attended second (n = 433), third (n = 333), and fourth (n = 236) grades. Children's participation required parental consent. The participation rate was over 98%.

**Procedure**

Children participated in an individual interview during which friendship status within the classroom was assessed. The Self-Perception Profile for Children (Harter, 1985) and a single item that assessed relevance of academic achievement to children's self-definition were administered in group-testing sessions. Finally, teachers completed a questionnaire that assessed children's academic achievement in three subjects: writing, reading, and mathematics.

**Measures**

*Reciprocated-nonreciprocated friends.* Friendship status within the classroom was assessed through a picture nomination procedure. Children were asked to identify three "liked most" choices in response to the question, "With whom do you prefer to play the most?" Children who mutually nominated each other on that question (range = 0-3) were identified as reciprocated friends. Children who, in turn, selected someone who did not select them were identified as nonreciprocated friends (range = 0-3). Among the overall sample of children, 566 had both reciprocated and nonreciprocated friends, 204 had only reciprocated friends, and 232 had only nonreciprocated friends. We then computed reciprocated friends' scholastic performance by averaging the performance of each child's reciprocated friends. The same procedure was used to obtain an index of nonreciprocated friends' performance. The average numbers of reciprocated and nonreciprocated friends that went into the calculations above were 1.8 and 1.9, respectively.

*Self-evaluations.* Participants completed the French version of the Self-Perception Profile for Children (SPPC; Harter, 1985; Boivin, Vitaro, & Gagnon, 1992). This is a 36-item scale (6 items per subscale) designed to evaluate children's general self-worth and self-concept across five domains that are relevant to elementary school children (i.e., academic competence, athletic competence, physical appearance, social acceptance, and behavioral conduct). In the present study, we used the five domain-specific subscales. Cronbach's alphas for these subscales ranged between .69 and .77.

*Relevance.* We used a single-item measure to assess the relevance of academic achievement to children's self-definition. Like the SPPC, this item used a structured alternative format: "Some kids do not believe that it is important to succeed in their academic work, but other kids do believe that it is important to succeed in their academic work." Children selected the statement that best described them and subsequently indicated whether it was "Like me" or "Little like me." This item was scored on a 4-point scale, where 1 indicated low levels of relevance to self-definition, and 4 indicated high levels of relevance to self-definition.

*Academic achievement.* The measure that was used to assess academic achievement was a 3-item teacher rating scale. Each of the three items was designed to assess academic achievement in reading, writing, and mathematics. Teachers rated a child's academic performance in these three subjects relative to other classmates with the following ordinal scale: 1 = quite under the mean, 2 = slightly under the mean, 3 = at the mean, 4 = slightly above the mean, and 5 = quite above the
mean (see also Frentz, Gresham, & Elliot, 1991, for a similar methodology). Cronbach's alpha for this measure was .93.

Results

We computed the percentage of children that believed that academic achievement was relevant to their self-definition. A total of 87% of the children had a score greater than or equal to 3 on the item that assessed relevance, which indicates that most children believed that academic achievement was relevant to their self-definition. Thus, social comparison processes were likely to be activated in the present situation (Tesser, 1988).

We conducted two regression analyses to test the hypotheses. Both of these regression analyses tested the first hypothesis that children's actual school achievement would be positively associated with perceptions of academic competence. In addition, these analyses were conducted to test the second and third hypotheses (i.e., the relationship between school performance and perceived academic competence would be moderated by reciprocated friends' academic achievement but not by nonreciprocated friends' achievement).

In these two regression analyses, an aggregate score of the four remaining self-perceptions subscales of the SPPC (i.e., athletic competence, physical appearance, social acceptance, and behavioral conduct) was included as a covariate in order to provide a specific measure of perceived academic competence. Furthermore, the relevance of academic achievement to children's self-definition was entered in the regression analyses as a covariate. This was done because prior research has shown that competence valuation (i.e., placing importance on doing well) is positively related to perceived competence (e.g., Reeve & Deci, 1996).

The first analysis was based only on participants who had at least one reciprocated relation ($n = 770$). The regression equation evaluated whether children's achievement, reciprocated friends' achievement, and the interaction between both variables predicted perceived academic competence (see Table 1). On the first step, perceived academic competence was regressed onto self-worth in other domains ($\beta = .57$, $p < .001$) and relevance ($\beta = .01$, ns). These two predictors accounted for 33% of the variance in perceived academic competence. On the second step, children's academic achievement ($\beta = .35$, $p < .001$) and reciprocated friends' achievement ($\beta = .01$, ns) were entered in the equation. These two predictors accounted for an additional 12% of the variance in perceived academic competence. Finally, the interaction term that involved children's achievement and reciprocated friends' achievement was entered on the third step and was significant ($p < .001$). This interaction term explained 1% of additional variance in perceived academic competence. Although a 1% increase of predictable variance may appear to be a small effect size, it is important to keep in mind that it is concordant with previous research. That is, Chaplin (1991) reviewed literature on moderator effects in three broad areas of psychology and found that effect sizes for interactions are usually small, typically accounting for about 1% of the variance in outcomes. Thus, the present effect size is in line with effect sizes observed in previous research that used moderators.

To interpret this interaction effect, which involved continuous variables, simple slopes were derived for high ($+1 \ SD$), medium ($0 \ SD$), and low ($-1 \ SD$) levels of the moderator (i.e.,
reciprocated friends' achievement; Aiken & West, 1991). Children's achievement was less significantly related to perceived academic competence at high levels of reciprocated friends' achievement ($\beta = .26, p < .01$) than at moderate ($\beta = .34, p < .01$) and low ($\beta = .41, p < .001$) levels of friend's achievement.

A second analysis was conducted with participants who had nonreciprocated relations with classmates ($n = 798$; see Table 2). On the first step, perceived academic competence was regressed onto self-worth in other domains ($\beta = .59, p < .001$) and relevance ($\beta = .01, ns$). These two predictors accounted for 35% of the variance in perceived academic competence. On the second step, perceived academic competence was regressed onto children's achievement ($\beta = .33, p < .001$) and their nonreciprocated friends' achievement ($\beta = -.03, ns$). These two predictors accounted for an additional 10% of the variance in perceived academic competence. Finally, the interaction term that involved children's achievement and reciprocated friends' achievement was entered in a third step. As expected, this interaction term was not significant.

We performed two complementary sets of analyses in order to make a stronger case for the robustness of the interaction effect. In the first set, we performed a random splitting of the overall sample for the participants involved in reciprocated and nonreciprocated analyses. For reciprocated friends ($n = 770$), there were significant interaction effects (i.e., children's achievement by reciprocated friends' achievement) for the first subsample ($n = 382, p = .026$) and the second subsample ($n = 388, p = .027$). In contrast, for nonreciprocated friends ($n = 798$), there were nonsignificant interaction effects (i.e., children's achievement by nonreciprocated friends' achievement) for the first subsample ($n = 394, p = .34$) and the second subsample ($n = 404, p = .36$). In the second set of analyses, we performed two regression analyses with a sample of 566 participants that had both types of relationships (reciprocated and nonreciprocated friends). Results were similar to those obtained with the overall sample (i.e., the interaction was significant for reciprocated friends [$p = .004$] but nonsignificant for nonreciprocated friends [$p = .46$]). Thus, it appears that the obtained results are quite stable across subsamples and are not due to differences in sample characteristics.

Discussion

Academic achievement was positively related to perceived academic competence, a finding that is consistent with previous studies (e.g., Frome & Eccles, 1998; Hymel et al., 1988). However, this relation depended on the performance of close friends. As expected, the relation between children's scholastic achievement and children's perceived academic competence was maximized when reciprocated friends' achievement was low and minimized when reciprocated friends' achievement was high. Social comparison with best friends who have high levels of achievement may create a potential threat to self-evaluations by minimizing the contribution of children's own performance to their perceived academic competence. It may be that children who have high-performing friends are not able to adequately calibrate their academic perceptions of competence because their friends' grades make their own performance look inferior by comparison. On the other hand, children who have low-performing friends would be more able to base their judgments on their own objective performance because their friends' level of achievement does not hinder or threaten their academic self-evaluation.
It should be noted that previous findings from Marsh and his colleagues (Marsh, 1987, 1994; Marsh, Chessor, Craven, & Roche, 1995; Marsh & Parker, 1984) revealed a direct negative effect of others' achievement in the school context on perceived academic competence, which was not the case here (i.e., a moderating effect of reciprocated friends' achievement). However, a possible reason for this difference (i.e., a direct negative effect vs. a moderating effect) may stem from the fact that the relevant standard of comparison is much broader in Marsh's work (e.g., schoolwide achievement level) than the one used in our study (i.e., achievement level of reciprocated friends). As suggested by Berger (1977), universalistic and particularistic standards of comparison could lead to distinct results. Universalistic standards include performance from a wider range of individuals, whereas particularistic standards involve similar individuals. We believe that Marsh's work takes universalistic standards rather than particularistic ones. In contrast, our study clearly involves particularistic standards (reciprocated friends' achievement). However, because Marsh and his colleagues have not tested an interaction effect between others' achievement and self-achievement, it is difficult to compare their results with those of the present study. Further research is needed to identify specific processes that explain why the comparison effect would take a different form when considering universalistic standards rather than particularistic ones.

Although comparing grades with high-performing friends interfered with children's academic self-evaluation, high levels of achievement from nonreciprocated friends did not appear to affect their perceptions of academic competence. Therefore, it seems that comparison processes affect perceived academic competence only to the extent that the comparison is based on reciprocated friends' performance and not on performance from nonreciprocated friends (Tesser, 1988, 1991). Another possible explanation for this null effect is that children did not engage in social comparison with nonreciprocated friends. Because, in the present study, we have not assessed comparison behaviors per se, it is difficult to know whether children have indeed used social comparison to gather information about their own abilities. Thus, future research on the issue is needed.
References


Table 1. Regression Analyses for Reciprocated Friends

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Note. SEID = self-worth in other domains; RELE = relevance of academic achievement to children's self-definition; ACHC = children's achievement; ACHF = reciprocated friends' achievement; AC×AF = interaction term involving children's achievement and reciprocated friends' achievement. *p < .001.

Table 2. Regression Analyses for Nonreciprocated Friends

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Note. SEID = self-worth in other domains; RELE = relevance of academic achievement to children's self-definition; ACHC = children's achievement; ACHN = nonreciprocated friends' achievement; AC×AN = interaction term involving children's achievement and nonreciprocated friends' achievement. *p < .001.