Children in grades one through six evaluated same-sex classmates in terms of sociometric nominations (three children you "like best") and sociometric ratings (a six-point scale ranging from "like very much" to "like very little"). In addition, each child performed a recursive version of each of the tasks (i.e., "Who do you think nominated you?"; "What rating do you think that each classmate gave you?"). Based on peer nominations and ratings, children were grouped into five social status categories: popular, average, neglected, controversial, and rejected. Significant main effects of status were found when actual and expected nominations and ratings were compared. Both ratings and nominations were underestimated by popular children, accurately estimated by average children, and overestimated by rejected children. Neglected children were accurate in their perceptions of peer ratings but not nominations, whereas controversial children were more accurate on nominations than ratings. Fifth and sixth grade girls were significantly more accurate than any other group, according to results of a signal detection analysis of the nomination data. Rejected boys were significantly less accurate than any other group. It is concluded that social status was related to social recursive thinking ability, and this relationship was the clearest among subjects in the extreme sociometric groups. (Author/RH)
Children's Awareness of Their Popularity and Social Acceptability

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ABSTRACT

Children in grades one through six evaluated same-sex classmates in terms of a) sociometric nominations (three children you "like best") and b) sociometric ratings (a six-point scale ranging from "like very much" to "like very little"). In addition, each child performed a recursive version of each of these tasks (i.e., "Who do you think nominated you?"; "What rating do you think that each classmate gave you?"). Based on peer nominations and ratings, children were grouped into five social status categories: Popular, Average, Neglected, Controversial, and Rejected. Comparing actual to expected nominations and ratings, there were significant main effects of Status. Popular children underestimated, Average children were accurate, and Rejected children overestimated both ratings and nominations. Neglected children were accurate in their perceptions of peer ratings but not nominations, whereas Controversial children were more accurate on nominations than ratings. Applying a signal detection analysis to the nomination data, the oldest (5th & 6th grade) girls were significantly more accurate than any other group. Rejected boys were significantly less accurate than any other group. Thus, social status was related to social recursive thinking ability, and this relationship was the clearest for the extreme sociometric groups.
PURPOSE

The present research integrates previous work from two research domains: peer sociometric decision making and social cognition. Traditional sociometric research provides a good indication of a child's popularity and status from the peer's perspective, and is a good predictor of social behavior, as well as of social information processing.

In a very separate research tradition, researchers of the development of social cognition have examined the ontogenesis of children's ability to infer the psychological processing of others. A hallmark of this work has been recursive thinking, or the ability to think about someone thinking about self. Until recently the vast majority of work in social cognition has been process-based and has focused on content- and context-free decision-making. However, it is one thing for me to be able to think about the fact that you are thinking about me, and another altogether for me to be able to correctly determine what it is that you think about me.

While links between sociometry and social cognitive information processing have been examined, no-one to date has explored linkages between a child's sociometric standing and his or her social-cognitive knowledge of that status. That is, does one's sociometric recursive thinking ability relate to one's social status? Does one's understanding of how peers view the self in terms of sociometric nominations and ratings relate to one's position as derived from those nominations and ratings?

We examined peer relations and recursive thinking to determine the relation of sociometric recursive thinking to children's sociometric standing. The focus of the present research was to assess the accuracy of children's thoughts about other's perceptions of their social acceptability, that is, the recursive aspect of social cognition.
METHOD

Subjects
Subjects were the entire student body (429 students, in sixteen classrooms) of a public elementary school, grades one through six.

Measures
Nominations. Sociometric nominations were collected, for which children were given a roster of all of their same-sex classmates. They were asked to circle the names of the three people that they liked best.

Ratings. Sociometric ratings along a six-point scale, ranging from "like very much" to "like very little" were gathered. The children were given a drawing of water glasses, with varying levels of liquid, to illustrate the rating scale and were asked to write a number from 1 to 6 on a roster next to each person's name to show how much they liked that person. Each child was asked to rate all same-sex classmates.

Recursive sociometry. A recursive version of each of these sociometric measures was administered. These measures, also completed on a sheet containing a class roster, assessed how the children thought their same-sex classmates see them on each measure. In the recursive version of the nomination task, the children were asked "Who do you think nominated you?" For the recursive ratings task the children used the 6-point rating scale to indicate "What rating do you think that each classmate gave you?"

Procedure
The recursive version of each sociometric measure was administered immediately after the standard version of the measure, so that the children did not have the opportunity to forget the original instructions. The measures were divided into two groups which took an approximately equivalent amount of time to administer. The order of these two sessions was counterbalanced across classrooms at each grade level. The order of presentation of the tasks was counterbalanced within sessions, as well. The measures were administered in group format, in two 45-minute visits to each classroom. They were administered by two adult researchers, who read the instructions to all of the children, and read each of the items to the first and second graders. They also walked around the classroom while the children were completing the measures, in order to answer the children's questions and assure that the measures were completed correctly.
REPORT

Using the method outlined by Asher & Dodge (1986), children were assigned to five sociometric status groups: Popular (14.5%), Rejected (14.9%), Neglected (12.8%), Controversial (4.7%), and Average (15.4%). This method left 37.8% of children unclassified. Since analyses yielded no significant differences between the unclassified and the Average children, these two groups were collapsed.

Accuracy of children's recursive thinking was analyzed in separate 2 (Gender: male, female) x 3 (Grade Levels: 1-2, 3-4, 5-6) x 5 (Status Groups: Popular, Average, Neglected, Controversial, Rejected) analyses of variance (ANOVAs). Results are presented first in terms of ratings and then in terms of nominations.

Ratings

The ANOVA on the accuracy of children's expected ratings (Expected minus Actual) revealed a significant main effect of Status, $F(4, 381) = 21.25, p < .001$ (See Figure 1). Popular children underestimated their acceptability. Rejected and Controversial children overestimated their social acceptability. Average and Neglected children were relatively accurate in their perceptions of peer ratings of self.

Figure 1

Accuracy of Perceived Ratings:
Status Effects

![Accuracy of Perceived Ratings: Status Effects](image)
Nominations

The ANOVA on the accuracy of children's expected nominations (Expected minus Actual) revealed a significant main effect of Grade, $F (2, 393) = 102.89, p < .001$. These results are presented in Figure 2. The two oldest groups of children were significantly more accurate than the 1st and 2nd graders. There was also a significant main effect of Status, $F (2, 393) = 209.52, p < .001$ (See Figure 3). Popular children again significantly underestimated their popularity compared to all other children. Rejected and Neglected children overestimated their likability, and Average and Controversial children tended to be the most accurate. Thus, relative to accuracy of perceived ratings, Controversial and Neglected children switched places. That is, Neglected children accurately perceived their social acceptability (ratings); Controversial children accurately perceived absolute preference (nominations).

Figure 2

![Accuracy of Perceived Nominations: Grade Effects](image)

Figure 3

![Accuracy of Perceived Nominations: Status Effects](image)
Nominations

Differences in the number of nominations expected over grades could be artifactually inflated due to differences in same-sex class sizes, so the proportion of nominations expected to the number of possible recursive nominations (number of same-sex classmates) also was examined. This ANOVA revealed a significant Grade by Status interaction, $F(8,393) = 2.69, p < .007$. These results are presented in Figure 4. The youngest group of Controversial children believed they received more nominations than did any other group. Average and Rejected 5th and 6th graders thought that they received fewer nominations than did the younger groups. From this analysis, it appears that the oldest group of Rejected children may have become somewhat more "realistic" than the two younger groups, in that they believed that they received significantly fewer nominations. However, this may not be reflected in their accuracy scores because their peers also are giving them fewer nominations. Thus, for Rejected children, they may not expect as many nominations in the oldest grades, but they are still expecting far more than they are receiving.

Figure 4

Proportion of Nominations Expected:
Grade by Status

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**Signal detection analysis.** We examined accuracy of expected nominations using signal detection theory, $d'$, in the third analysis. $d'$ assesses the accuracy of children's specific nominations while taking possible response biases into account. The ANOVA on the accuracy of children's expected nominations as measured by $d'$ revealed a significant Sex by Status interaction, $F(4, 391) = 2.52, p < .041$ (See Figure 5). Rejected boys were significantly less accurate than any other group. There was also a significant Sex by Grade interaction, $F(2, 391) = 11.20, p < .001$ (See Figure 6). The oldest (5th and 6th grade) girls were significantly more accurate than any other group.

![Figure 5](signal_detection_analysis_sex_by_status.png)

**Figure 5**

**Signal Detection Analysis: Sex by Status**

- Popular
- Average
- Neglected
- Controversial
- Rejected

![Girls](girls.png) ![Boys](boys.png)

![Figure 6](signal_detection_analysis_sex_by_grade.png)

**Figure 6**

**Signal Detection Analysis: Sex by Grade**

- 1-2
- 3-4
- 5-6

![Girls](girls.png) ![Boys](boys.png)
SUMMARY AND CONCLUSIONS

Children's sociometric recursive thinking ability was related to their sociometric standing in terms of both ratings and nominations. Ratings are a measure of general social acceptability, while nominations are a measure of absolute peer preference. The accuracy of children's thinking about both their own social acceptability and their own likability varies as a function of the children's social status, grade level and gender. Specifically:

1. Regardless of social status, older children were generally more accurate than younger children.
2. Popular children tended to underestimate their peers' acceptance/preference for them. Average children tended to be accurate.
3. Whether using simple difference scores (ratings or nominations) or signal detection analyses, Rejected children consistently overestimated their likability relative to any other group.
4. When response biases are eliminated (d' analysis), preadolescent girls (5th or 6th grade) were the most accurate perceivers of their likability. Whether or not boys "catch up" to the girls' level of accuracy after sixth grade remains an open issue.
5. Rejected boys were the least accurate.

Rejected children may become Rejected because they are consistently unable to comprehend peers' perceptions of them either globally (ratings) or more specifically (nominations). Further, their perceptions of themselves as well liked may cause them to see no need for change, or at least, make them less open to change.

Controversial and Neglected children differed in their sociometric recursive thinking as a function of sociometric measure. Neglected children were accurate in their perceptions of peer ratings but not nominations, whereas Controversial children were more accurate on nominations than ratings. This suggests that Neglected children are aware of the more general perceptions that their peers as a whole have toward them, but are unaware of how few people are actually their friends. Controversial children, however, know who their friends are, but since Controversial children tend to be both highly liked and highly disliked, it may be difficult for them to understand the more general perceptions of their peers.