Social preference, social prominence, and group membership in late elementary school: homophilic concentration and peer affiliation configurations

**Thomas W. Farmer · Matthew J. Irvin ·
Man-Chi Leung · Cristin M. Hall ·
Bryan C. Hutchins · Erin McDonough**

Abstract   This study investigated the social preference and social prominence of 622 5th graders (290 boys, 332 girls) in relation to peer group membership. The sample was recruited from 11 elementary schools in a southeastern state. The ethnicity of participants was 55% European American, 41% African American, and 4% other. Peer groups were classified on each of three domains (academic, aggression, popular) by the proportion of group members who were high on the characteristic of interest. Participants' peer affiliations were also classified with cluster analytic techniques that yielded distinct configurations of aggression, popularity, and academic competence. Social preference and social prominence were each related to popular peer group type for both boys and girls and differentially related to aggressive and academic group types. Social prominence, but not social preference, was related to peer group configurations for both girls and boys. Implications for the development of social contextual interventions to support students' adjustment and academic engagement during late elementary school are discussed.

T. W. Farmer (✉) · C. M. Hall
College of Education, Pennsylvania State University, 227 CEDAR Building, University Park,
PA 16801, USA
e-mail: twf2@psu.edu

M. J. Irvin · M.-C. Leung · B. C. Hutchins · E. McDonough
Center for Developmental Science, University of North Carolina, 100 East Franklin Street, CB# 8115,
Chapel Hill, NC 27599-8115, USA

1 Introduction

Children's classroom peer relationships have been strongly linked to school motivation, academic achievement, and key educational outcomes including high school completion and postsecondary attainment (Cairns and Cairns 1994; Hughes and Zhang 2007; Kindermann et al. 1996; Mahoney et al. 2003; Wentzel and Caldwell 1997). On this score, the creation of classroom social contexts that promote productive peer relations and children's corresponding engagement in school is a critical task for teachers, school psychologists, and counselors (Akos et al. 2007; Rimm-Kaufman and Chiu 2007; Wentzel and Wigfield 1998). However, much of the research on school peer relations has focused on identifying individual differences that are associated with peer acceptance and relatively little work has examined classroom social dynamics (i.e., social processes that contribute to how children sort themselves into peer groups) (Gifford-Smith and Brownell 2003; Rodkin and Hanish 2007).

Yet, teachers do not intervene with individual students—rather their charge is to manage a complex social system that involves individuals embedded within peer groups that are embedded within a hierarchically organized social structure (Bronfenbrenner 1943; Rodkin and Hodges 2003). To help teachers manage classroom social dynamics, there is a need to clarify how peer relational processes contribute to the social stratification of children into distinct peer groups. In particular, there is a need to investigate linkages between distinct indices of classroom social position (i.e., social preference, social prominence) and behavioral homophily (i.e., associating with peers who are similar on key social and behavioral characteristics). Accordingly, the goal of the present study is to examine how social preference (i.e., how well a student is liked by classmates in general) and social prominence (i.e., the degree to which classmates perceive a student as being cool or popular) are related to the composition of classroom social networks as a function of the proportion of group members who are rated by teachers as high on key school adjustment variables (i.e., academic achievement, popularity, and aggressive/problem behavior).

1.1 The study of classroom peer relations

Classical studies of children's peer relations focused on interpersonal attraction (Moreno 1934) and processes that reduce tension and promote collaboration within groups (Sherif 1956). In early studies that focused specifically on naturally occurring peer relations in the classroom, Bronfenbrenner (1943) and Moreno and colleagues (Moreno et al. 1943) articulated the importance of understanding the classroom as a dynamic social system that involves the organization of children into networks that are hierarchically layered and that reflect the complex interplay between the characteristics of individuals and the social groups that they form. In a similar vein, in *The Adolescent Society,* Coleman (1961) described considerable variability across schools and social systems in terms of how adolescent subcultures valued and developed around a variety of interpersonal characteristics including popularity, athletic prowess, and scholastic achievement.

Recognizing the importance of peer relations in education, Gronlund (1959) wrote *Sociometry in the Classroom* to help teachers learn how to assess children's classroom social positions. However, unlike Moreno and Bronfenbrenner who focused on simultaneously capturing information about individuals and their social networks, Gronlund's approach emphasized the degree to which individual children were generally accepted by peers. This applied approach to sociometry facilitated the identification of children who have social difficulties in the classroom (McConnell and Odom 1986). Building from the methodological work of Gronlund and early research showing that peer acceptance is related to later educational and psychological adjustment (see Parker and Asher 1987), the study of sociometric status as an index of peer popularity and peer rejection in school became a major focus of educational researchers from the 1970s through the 1990s. In particular, researchers were concerned about identifying social and behavioral correlates of sociometric status and developing social skills interventions to enhance the social competence of children who experienced peer difficulties in school (see Asher and Coie 1990; Rubin et al. 1998).

Although the study of sociometric popularity provides important information about linkages between children's social behaviors and their acceptance in the classroom, current sociometric status procedures do not provide a complete picture of children' social position or the social dynamics that contribute to their social standing. As Cairns (1983) observed, applied sociometric status techniques focus on psychometric properties of measuring how likable a child is and do not measure actual sociometric properties including the composition of peer groups and the resultant hierarchical social structures that emerge as children form distinct social cliques.

Further, in recent years, social development researchers have differentiated between sociometric popularity and perceived popularity (e.g., Babad 2001; Farmer and Rodkin 1996; Parkhurst and Hopmeyer 1998; Lafontana and Cillessen 1999; Lindstrom and Lease 2005). Building from the work of Gronlund (1959), sociometric popularity is a measure of how well children are liked by peers in general and is determined by calculating social preference scores from peer nominations of *liked most* and *liked least*. Social preference scores are computed by subtracting the total number of nominations a child receives from peers for *liked least* from the total number they receive for *liked most* (Coie et al. 1982). In contrast, perceived popularity is a measure of the degree to which classmates view a peer as being popular. Perceived popularity assesses a child's social prominence in the social structure and is determined by the total number of nominations a child receives for behavioral descriptors such as popular, cool, and leader (e.g., Farmer and Hollowell 1994; Lease et al. 2002; Luthar and McMahon 1996; Rodkin et al. 2006).

While there is some overlap between the two constructs, the indices of sociometric popularity (i.e., social preference) and perceived popularity (i.e., social prominence) tend to be differentially related to key interpersonal characteristics (LaFontana and Cillessen 2002; Lease et al. 2002; Parkhurst and Hopmeyer 1998). Sociometric popularity is related to positive social characteristics (i.e., friendly, leader, academic competence). Perceived popularity is related to both positive (i.e., leader, social competence) and negative (i.e., socially dominant, physically aggressive, relationally aggressive) characteristics. Recent work suggests that as children transition into adolescence,

there may be a shift in the social importance of these two constructs and the role of aggression in youth's peer relations (Cillessen and Mayeux 2004). While aggression is linked to low social preference in childhood, increases in social prominence in early adolescence are linked to relational aggression. Ethnographic studies in elementary and middle school have generated similar findings and suggest that late elementary school students become increasingly aware of conceptions of popularity and will use various forms of aggression to promote or protect their social prominence (Adler et al. 1992; Eder 1985; Merten 1997). In fact, social prominence appears to contribute to the formation and organization of peer groups in the social structures of late elementary school classrooms (Adler and Adler 1995, 1996).

Compared to individual oriented measures of peer relations (i.e., sociometric status, peer behavioral assessments), relatively little research in the last half of the twentieth century focused on peer social networks in the classroom (Cairns et al. 1998). However, in the last two decades there has been a resurgence of research on children's peer affiliations and classroom social structures as new techniques have been developed to advance social network analyses in the classroom (Kinderman 2007; Kwon and Lease 2007; Rodkin and Hanish 2007). Collectively, studies on classroom social network have yielded new information on how youth sort themselves into peer groups that contribute to a range of school adjustment variables including school bonding and engagement, academic motivation, school grades, involvement in aggression and bullying, and school discipline problems (e.g., Cairns and Cairns 1994; Estell et al. 2002b; Farmer et al. 2003a, 2009; Hamm and Faircloth 2005; Kindermann 1993; Kinderman 2007).

1.2 Peer relations and educational outcomes

For decades, researchers have documented the importance of peer relations in children's school adjustment and academic achievement. However, the findings depend on the conceptual and methodological approaches that undergird such research. For example, as compared to rejected status children, children who have popular sociometric status are more likely to be engaged in instruction, to exhibit socially responsible and helpful behaviors, to be perceived by classmates as good students, to succeed academically in terms of coursework, and to complete school (Asher and Coie 1990; Parker and Asher 1987; Rubin et al. 1998; Wentzel and Asher 1995; Wentzel and Caldwell 1997). In contrast, perceived popularity (particularly when it is paired with elevated levels of aggression) has been linked to lower school grades, bullying and problem behavior, academic disengagement, and school dropout (Adler and Adler 1996; Cairns et al. 1989; de Bruyn and Cillessen 2006; Farmer et al. 2003b, 2009; Lease et al. 2002; Vaillancourt and Hymel 2006).

Differences in the academic achievement and educational outcomes of sociometrically popular and perceived popular children and youth may reflect social dynamic processes that are associated with peer group stratification in the classroom. As children form peer cliques, they tend to establish rules of inclusion and exclusion within the group (Adler and Adler 1995). That is, children and youth who affiliate together tend to develop a shared identity around particular academic, behavioral, and social

characteristics and may exclude others who do not measure up to the distinctive features of their group (Adler et al. 1992; Corsaro and Eder 1990; Evans and Eder 1993; Eder and Kinney 1995). Often, perceived popular children will take on leadership roles and will use defiance of authority, problem behavior, and disengagement from academic tasks to demonstrate their social power and to maintain the boundaries and status of their peer group (Adler and Adler 1996; de Bruyn and Cillessen 2006; Farmer et al. 2003a). While such youth may be socially successful in terms of being perceived as cool, their peer support may ultimately be at the cost of their disengagement in school and their risk for school dropout (Farmer et al. 2003b; Ream and Rumberger 2008; Staff and Kreager 2008). Thus, while it appears that popular sociometric status (i.e., social preference) may be associated with school engagement and achievement, it appears that perceived popularity (i.e., being cool) may be associated with peer group support for behaviors that interfere with academic motivation and educational attainment. Consequently, there is a need to examine linkages between social preference, social prominence, and peer group composition. Such research is necessary to generate information that can promote the development of strategies that teachers can use to manage classroom social dynamics and reduce peer support for academic disengagement.

1.3 Clarifying classroom social dynamics

Investigations of social preference and social prominence have focused on determining how these constructs are related to interpersonal characteristics. However, social preference and social prominence may be differentially linked to the composition and organization of classroom peer groups (Gifford-Smith and Brownell 2003; Gest et al. 2001). Clarifying the relationship between these constructs and peer group characteristics may yield new perspectives on the social dynamics that contribute to children's academic motivation and behavioral adjustment in school.

Children form friendships with others who are similar to them on key social characteristics including aggression, academic competence, and popularity (Espelage et al. 2008; Haselager et al. 1998; Rose et al. 2004). This tendency, known as homophily, has also been identified at the peer group level (Cairns et al. 1988; Farmer and Hollowell 1994). It is possible that as children form peer groups, they are influenced by two distinct processes. First, they may be attracted to individuals who are similar to them on one or more key social characteristics. Second, they may sort themselves into groups with others who share their level of status in the classroom social structure. Therefore, there is a need to examine the relationship between peer group characteristics and the social positions of group members.

In addition, there is a need to expand current conceptions of peer group homophily. Research on homophily frequently uses intraclass correlations to determine whether children who are in a group are more similar to each other than they are to others who are not in the group. This is done by examining the variance within the group in relation to the variance between groups on the characteristic of interest. While this technique provides a good index of similarity on a particular dimension, it does not describe the degree to which the characteristic is concentrated within peer groups. For

example, intraclass correlations can indicate whether children who affiliate together are similar on academic achievement but they do not yield information about which peer groups contain high concentrations of classmates who are high in academic achievement.

Recent studies have shown that peer groups can be classified according to the proportion of members who are high on a particular social construct in relation to their classmates (Farmer et al. 2002, 2003a). This procedure makes it possible to identify homophilic concentration in the classroom on a particular social dimension (e.g., academic competence, aggression, popularity). This is important because it is possible that one group within a class may contain all the class members who are high on a construct while the other groups in the class may affiliate on other dimensions that are unrelated to the construct. Thus, the intraclass correlation may be modest even though there is a strong concentration of the characteristic in one group. The assessment of hompohilic concentration may yield a new perspective on classroom social dynamics.

While the study of homophilic concentration may generate new information on peer groups, there are multiple social constructs or dimensions around which children form groups. To assess the various combinations of social factors that are reflected in children's affiliations, other investigations have used cluster analytic techniques (i.e., Estell et al. 2002a, 2003, 2008; Kwon and Lease 2007; Xie et al. 1999). It is possible that children's social positions (i.e., social preference and social prominence) are related to the composition of their peer group on a particular social construct or they may be related to a combination of factors. Therefore, the goal of the current study was to examine social preference and social prominence in relation to the classification of peer groups on distinct social characteristics (i.e., academic, aggression, popularity) and on configurations of various combinations of these characteristics.

Accordingly, this study was guided by four research aims. The first aim was to determine the proportion of students who affiliated together along three behavioral domains (i.e., academic, aggressive, popular). This involved classifying groups according to whether at least half of their members were relatively high on the construct of interest. This procedure provided an index of homophilic concentration for each behavioral dimension. The second aim was to determine whether the different behavioral dimensions were distinctly related to the composition of peer groups. This involved determining the correlation or overlap among groups on the different behavioral dimensions. The third aim was to examine social prominence and social preference in relation to peer-group types. The focus of this aim was to examine whether these different indices of social position were differentially related to peer group composition as a function of the construct of interest (i.e., academic, aggression, popularity). The fourth aim was to investigate social prominence and social preference in relation to peer affiliation configurations. This made it possible to examine whether children's social positions were related to the complex organization of multiple dimensions in their peer associations. That is, when the different dimensions that contribute to how children sort themselves into groups in late elementary school are considered collectively, does social preference or social prominence continue to be related to children's peer affiliations?

2 Method

This study involved a multi-respondent survey design (i.e., teacher-and peer-reports) to assess participants' academic, behavioral, and social characteristics. This investigation was conducted as part of an ongoing longitudinal study of the transition to middle school. Data were gathered during the baseline assessment wave (i.e., prior to the middle school transition) when participants were in the 5th grade. All data were collected concurrently in the spring semester.

2.1 Participants

Participants were recruited from elementary schools in two school districts in a southeastern state. One district served a small metropolitan area and the other served a rural county. Parental consent and student assent was attained for 69% of students (622/901) from 45 classrooms across 11 elementary schools. Participation rates varied somewhat across gender (76% for girls and 64% for boys). Nonetheless, there were more boys than girls in these schools and the final sample sizes for boys ($n = 290$) and girls ($n = 332$) were similar. In terms of ethnicity, the sample was 55% European American, 41% African American, and 4% other.

2.2 Procedures

Group administration procedures were used when collecting the survey data. Before the administration of the survey, participants were assured their answers would be kept confidential, were asked to protect the confidentiality of their responses, and were told that they could stop participating at any time. During the survey, one administrator read the instructions and questions aloud, while additional administrators provided mobile monitoring and assistance as needed. Teachers also completed rating forms on each participant during the group administration.

For all peer nomination measures, the probe focused on the classroom level (i.e., participants were told that they could only nominate peers in their classroom). This was done because the sample was in elementary school and there was minimal interaction among students in different classes. All peer nominations were made from free recall (i.e., no class rosters were provided).

2.3 Measures

2.3.1 Peer affiliations

The *Social Cognitive Mapping* (SCM) procedure was used to identify the peer affiliations or social network of each participant. For this measure participants were asked "Are there some kids in your classroom who hang around together a lot? Who are they?" Following the procedures developed by Cairns and colleagues (e.g., Cairns et al. 1985), students were then instructed to list as many groups as they could think of in their school. SCM procedures have been used extensively in research on school

social networks (e.g., Cairns et al. 1988, 1995a; Kindermann 1993; Leung 1996; Xie et al. 1999). Three week test-retest reliability coefficients indicate high short-term stability of children's peer groups (i.e., 90% of groups maintain a majority of their members over this period) (Cairns et al. 1995a). Validity has been established through data demonstrating that students interact more frequently with members of their own group (Gest et al. 2003), high consistency among students in their reports of group membership (up to 96% in some classrooms) (Cairns et al. 1995a, 1985) and relatively high behavioral homogeneity among members of the same peer groups (Cairns and Cairns 1994; Farmer and Hollowell 1994; Leung 1996).

To identify participants' peer group and affiliates within the school social network, the SCM data were analyzed with the SCM 4.0 computer program (Leung 1996), following the procedures outlined by Cairns et al. (1996). This analysis generates classroom peer groups from the aggregation of students' responses to the aforementioned probe. This program constructs three matrices. First, a recall matrix is generated by listing all the groups named by each respondent. From the recall matrix, a second matrix, the co-occurrence matrix, is generated. The co-occurrence matrix lists the number of times that each student is named to a peer group with every other student. This matrix provides an affiliative profile for each student. It is expected that students who are in the same peer group will have similar profiles, that is, they affiliate with the same people. Therefore, a third matrix, the correlational matrix, is generated that correlates the affiliative profiles of each student with the profiles of every other student. Students whose profiles were significantly correlated with at least 50% of the members of a group are considered to be in the same group (Cairns et al. 1995a). This similarity is assessed by the Pearson correlation.

As previously mentioned, the SCM procedure is based on the aggregated perceptions of all participants. There is high consistency in students' responses to the SCM probes (Cairns et al. 1995a). Thus, this procedure yields robust results even with low participation rates. To ensure reliability and validity, a 50% participation rate has been established as the standard (Cairns et al. 1995a). The participation rate for this study was consistent with these guidelines.

2.3.2 Social prominence

Peer interpersonal assessments were used to determine classmates' perceptions of peers' social and behavioral characteristics. Students were asked to nominate, from free recall, up to three peers who best fit descriptors for sixteen items. Participants were told that they may nominate themselves and that they may nominate the same person for more than one item. The peer nomination items were identical with or similar to peer assessments used by other investigators (e.g., Cantrell and Prinz 1985; Coie et al. 1982; Masten et al. 1985) and three-week test-retest reliability with individual items ranged from .72–.93. The total number of nominations participants received on each item was divided by the total number of possible nominators (i.e., all participants in their class).

A factor analysis was conducted which yielded four factors including one pertaining to social prominence ($\alpha = .83$; consists of "leader," "athletic," "cool," and "popular").

Descriptors for these four items were *Leader* (This person gets chosen by the others as the leader. Other people like to have this person in charge); *Athletic* (This person is very good at many outdoor games and sports); *Cool* (This person is really cool. Just about everybody in school knows this person); and *Popular* (Some kids are very popular with their peers. That is, many classmates like to play with them or do things with them).

2.3.3 Social preference

Participants were asked "name the three classmates you like most" and "name the three classmates you like least" (Coie et al. 1982). Following the methodology described by Coie et al. (1982), each participant's social preference score was defined by their standardized number of nominations received for being liked most minus their standardized number of nominations received for being least liked.

2.3.4 Teacher ratings of aggression, popularity, and academic

Teachers completed the Interpersonal Competence Scale-Teacher (ICS-T) for each participant in their class (Cairns et al. 1995b). The ICS-T is an 18-item questionnaire consisting of seven-point Likert scales. The ICS-T yields composite scores on six primary sub-scales: *aggressive* (AGG, composed of "always argues," "gets in trouble," and "always fights"), *popularity* (POP, composed of "popular with boys," "popular with girls," "and "lots of friends"), *academic* (ACA, composed of "good at math" and "good at spelling"), *affiliative* (AFF, composed of "always smiles" and "always friendly"), *olympian* (composed of "good at sports," "good-looking," and "wins a lot"), and *internalizing* (INT, composed of "worries a lot," "cries a lot," "shy," and "always sad"). The aggressive, popularity, and academic sub-scales were, as described later, employed in the current investigation.

Three-week test-retest reliability coefficients are moderately high (i.e., .80–.92) (Cairns et al. 1995b). Additionally, median test-retest reliabilities across the factors are .81 for girls and .87 for boys. One-year coefficients are also moderately strong (i.e., .40–.50). The ICS-T has convergent validity with direct observation, student records (i.e., grades, discipline reports), and peer nomination measures (Cairns and Cairns 1994; Cairns et al. 1995b; Leung 1996; Rodkin et al. 2006). The ICS-T also has predictive validity for adult adjustment over an eight-year period (Cairns and Cairns 1994).

2.4 Data reduction procedures

2.4.1 Social cognitive map analyses

The SCM procedure identified a total of 80 boy groups. The mean group size for boys was 4.91. A total of 98 girl groups were identified. The mean group size for girls was 4.31.

2.4.2 Peer-group types

Participants were classified according to their ICS-T (i.e., teacher-assessed) scores on aggression, popularity, and academic in order to determine peer-group types as a function of the proportion of aggressive or popular members in the group. The ICS-T scores were standardized in two ways: (a) within gender, and (b) within gender and rater. Each participant was classified as aggressive, popular, or academic if their gender Z-score was greater than or equal to +.50, and their gender/classroom Z-score was greater than or equal to +.0. While particular raters might have tendencies toward one end of the scale or the other, simply standardizing within rater may mask genuine differences across classrooms. The goal of this classification scheme was to retain between-rater differences in aggression, popularity, and academics while taking into consideration within-rater biases.

Peer groups, identified via the SCM procedure, were classified according to the aggression, popularity, and academic level of their constituent members. Following procedures developed by Farmer and colleagues (e.g., Farmer et al. 2003a,b, 2002), these classifications were made independently on each of these behavioral characteristics. For each behavioral domain of interest, groups were dichotomously classified as *few* (less than half of the group members were .5 SD or higher on the characteristic of interest) and *many* (50% or more of the group members were .5 SD or higher on the characteristic of interest). This was undertaken because a focus of this study was to examine social prominence and social preference in relation to the proportion of peer group members or associates who were high on a specific characteristic.

2.4.3 Peer affiliation configurations

The above procedures focused on characterizing peer groups according to a single behavioral dimension. However, as previous research has shown (e.g., Estell et al. 2002a,b, 2003; Xie et al. 1999), the behavioral dimensions of aggression, popularity, and academic competence tend not to be orthogonal and it is possible to characterize their relationships at the peer affiliation level by using cluster analytic techniques.

Consequently, peer affiliation configurations were derived to determine subtypes or profiles of students' peer affiliations across these three behavioral dimensions. Configurations were found using Ward's (1963) clustering algorithm based on the same three ICS-T factors that were used to determine peer group types: aggressive, popular, and academic. Characteristics of participants' peer affiliations were determined by obtaining the average ICS-T ratings of each participant's peers affiliates (i.e., members of their SCM identified peer group) while excluding the participants' own scores. Subsequently, these averages were standardized by sex, and configurations were determined separately for boys and girls. With this method, the similarity between ICS-T profiles was measured by squared Euclidean differences to determine homogeneous subgroups or profiles of participants' peer affiliations. The number of configurations to retain was determined by examining a scree plot of distance coefficients as a function of the number of configurations at each agglomerative step (c.f. Aldenderfer and Blashfield 1984).

Table 1 Means on ICS-T factors by peer affiliation configurations

Cluster	N	ICS-T Factor		
		AGG	POP	ACA
(a) Girls				
Model	40	−.36 (.32)	1.20 (.18)	1.44 (.33)
Tough	52	1.66 (.87)	.80 (.68)	.18 (.51)
Average	83	−.42 (.41)	.25 (.61)	.50 (.57)
Below average	55	−.94 (.43)	−1.25 (.53)	−1.20 (.65)
Unpopular-low academic	65	.21 (.46)	−.66 (.43)	−.67 (.46)
(b) Boys				
Model	40	.17 (.71)	1.36 (.49)	1.39 (.45)
Tough	28	1.91 (.58)	.87 (.37)	.14 (.69)
Average	73	−.23 (.66)	−.29 (.32)	−.20 (.48)
Below average	59	−.90 (.49)	−1.13 (.61)	−1.24 (.46)
Good students	35	.28 (.25)	.64 (.36)	.43 (.31)

Note: Means are z-scores. Standard deviation in parentheses

Analyses of the dendrograms and explained error sums of squares indicated that five clusters were the optimum for both boys and girls. The inclusion of more clusters did not increase explanatory power more than a minimal amount for either gender. The clusters are shown in Table 1a (girls) and b (boys).

The clusters of peer affiliations which emerged in girls were:

1. Model: Above average scores on academics and popularity; average scores on aggression.
2. Tough: Above average scores on aggression and popularity; average scores on academic.
3. Average: Average scores on aggression, popularity, and academics.
4. Below average: Below average scores on aggression, popularity, and academics.
5. Unpopular-low academic: Below average scores on popularity and academics; average scores on aggression.

The clusters of peer affiliations which emerged for boys were:

1. Model: Above average scores on academic and popularity; average scores on aggression.
2. Tough: Above average scores on aggression and popularity; average scores on academic.
3. Average: Average scores on aggression, popularity, and academics.
4. Below average: Below average scores on aggression, popularity, and academics.
5. Good students: Above average scores on academic; average scores on aggression and popularity.

Although there were some similarities in the clusters across gender, the labels are used only for descriptive purposes and are not intended to imply specific behavioral traits. Therefore, while the *Model peers* label is used to describe configurations of peer

affiliations for both girls and boys, they should not be viewed as being direct parallels. Nonetheless, these labels provide a helpful heuristic for understanding differences in the profiles of peer affiliations relative to other configurations within the same gender.

3 Results

The results presented below follow the research questions that guide this study. First, we determined the proportion of students who had few and many affiliates within each of the three behavioral domains (i.e., academic, aggressive, popular). Second, we focused on the relationship among the patterns of the peer group types. Third, we examined social prominence and social preference in relation to peer-group types. Fourth, we investigated social prominence and social preference in relation to peer affiliation configurations.

3.1 Proportions of students within each peer group type

The resultant distribution of participants across the peer group types is summarized in Table 2. For aggressive group type, 81% (253/311) of girls associated with few aggressive peers and 19% (58/311) were in groups that contained many aggressive members. For popular group type, 64% (201/314) of girls associated with few popular peers while 36% (113/314) were in groups that contained many popular members. Finally, 61% (180/294) of girls affiliated with few high academic peers and 39% (114/294) were in groups that had many high academic members. A chi-square test indicated that the distribution of participants (i.e. associated with many vs. few peers with a particular characteristic) was different across the three peer group types $(\chi^2(2) = 34.13, p < .01)$. The number of girls who associated with many aggressive peers was lower than expected (partial $\chi^2 = 15.30, p < .01$) while the number of girls who associated with few aggressive peers was higher than expected (partial $\chi^2 = 6.87, p < .01$). The number of girls who associated with many high academic peers was also higher than expected (partial $\chi^2 = 5.70, p < .05$).

Similar results were found for boys. For aggressive group type, 76% (218/287) of boys affiliated with few aggressive peers while 24% (69/287) were in groups that contained many aggressive members. For popular group type, 76% (223/293) of boys were in groups with few popular peers and 24% (70/293) were in peer groups with many popular members. For academic group type, 68% (197/292) of boys associated with few high academic peers while 32% (95/292) were in groups with many members who were high in academics. The difference in the distribution of participants (i.e. associated with many vs. few peers with a particular characteristic) across the three group types was statistically significant $(\chi^2(2) = 7.27, p < .05)$. However, none of the partial chi-square tests, which compared the observed and the expected frequencies, reached the significance level.

At the group level, 22% (17/79) of female groups had many aggressive members; 30% (24/80) of female groups had many popular members; 37% (26/71) of female groups had many high academic members. The difference in the distribution of groups (i.e. with many vs. few members with a particular characteristic) across the three group

Table 2 Distribution of participants across peer group types

	Gender	
	Girls	Boys
Aggressive peer group type		
Few aggressive associates	81.4% (253/311)	76.0 (218/287)
Many aggressive associates	18.6% (58/311)	24.0% (69/287)
Popular peer group type		
Few popular associates	64.0% (201/314)	76.1% (223/293)
Many popular associates	36.0% (113/314)	23.9% (70/293)
Academic peer group type		
Few high academic associates	61.2% (180/294)	67.5% (197/292)
Many high academic associates	38.8% (114/294)	32.5% (95/292)

types was not statistically significant. For boys, 24% (16/68) of male groups had many aggressive members; 19% (13/70) of male groups had many popular members; 29% (20/69) of male groups had many high academic members. The difference in the distribution of groups (i.e. with many vs. few members with a particular characteristic) across the three group types was not statistically significant.

3.2 Relationship among peer group types

To examine the second research question, the relationship across peer group composition was investigated for the three teacher-assessed behavioral dimensions (i.e., academic, aggressive, popular). The aim was to determine whether these dimensions were correlated within peer groups. Aggressive peer group type was negatively related to academic group type for girls ($r = -.19$, $p < .01$) but not boys. Aggressive peer group type was positively related to popular peer group type for boys ($r = .31$, $p < .001$) but not girls. Popular peer group type related to peer group academic type for both girls ($r = .43$, $p < .001$) and boys ($r = .42$, $p < .001$).

Some groups had high concentration in multiple characteristics. Twelve female groups (17%) had many popular members and many high academic members. Three female groups (4%) had many aggressive members and many high academic members. One female group (1%) had many aggressive members and many popular members. Two female groups (3%) had many members in all three categories. Four male groups (6%) had many popular members and many high academic members. Two male groups (3%) had many aggressive members and many high academic members. One male group (1%) had many aggressive members and many popular members. Four male groups (6%) had many members in all three categories.

3.3 Social prominence, social preference, and peer-group types

The third research question investigated whether peer nomination indices for social prominence and social preference were related to peer-group types (see Table 3). It

Table 3 Means on social prominence and social preference by peer-group types

	Gender					
	Girls			Boys		
	Few	Many	F	Few	Many	F
Aggressive peer-group type						
Social prominence	.03 (.97)	.47 (1.39)	8.17**	−.02 (1.09)	.33 (1.02)	5.29*
Social preference	.35 (1.40)	.10 (1.75)	1.38	−.12 (1.55)	.12 (1.54)	1.15
Popular peer-group type						
Social prominence	−.12 (.97)	.57 (1.17)	31.18***	−.05 (1.03)	.46 (1.15)	12.68***
Social preference	.05 (1.48)	.69 (1.46)	13.61***	−.25 (1.56)	.49 (1.36)	12.56***
Academic peer-group type						
Social prominence	.01 (1.03)	.36 (1.20)	7.12**	.03 (1.11)	.18 (1.01)	1.17
Social preference	.05 (1.48)	.65 (1.42)	11.63**	−.26 (1.56)	.32 (1.42)	9.29**

Note: Means are z-scores. Standard deviation in parentheses
* $p < .05$; ** $p < .01$; *** $p < .001$

was expected that both social preference and social prominence would be related to peer-group type for the teacher-assessed dimension of popularity. It was also expected that social preference and social prominence would be differentially related to peer group-type for the teacher-assessed dimensions of high academics and aggression.

3.3.1 Popular peer-group type

Social prominence was related to popular peer-group type for both girls, $F(1, 311) = 31.18$, $p < .001$; and boys, $F(1, 285) = 12.68$, $p < .001$. Girls and boys who were in groups with many popular members had higher social prominence than those who associated with few popular peers. In addition, social preference related to popular peer-group type for both girls [$F(1, 308) = 13.61$, $p < .001$] and boys [$F(1, 281) = 12.56$, $p < .001$]. Girls and boys who were in groups with many popular members had higher social preference than those who associated with few popular peers.

3.3.2 Academic peer-group type

Social prominence was not related to academic peer group type for boys, but was for girls, $F(1, 292) = 7.12$, $p < .01$. Girls who were in peer groups with many high academic members were more socially prominent than girls who associated with few high academic peers. Social preference related to academic peer-group type for both girls, $F(1, 289) = 11.63$, $p < .01$; and boys, $F(1, 280) = 9.29$, $p < .01$. Girls and boys who were members of peer groups with many high academic members had higher ratings of social preference than those who associated with few high academic peers.

3.3.3 Aggressive peer-group type

Social prominence was related to aggressive peer-group type for both girls, $F(1, 308) = 8.17$, $p < .01$; and boys, $F(1, 279) = 5.29$, $p < .05$. As is evident in Table 3, girls and boys who were in peer groups with many high aggressive members had higher social prominence than those who associated with few aggressive peers. In contrast, social preference was not related to aggressive peer-group type for girls or boys.

3.4 Social prominence, social preference, and peer affiliation configurations

The fourth research question investigated whether social prominence and social preference were related to youths' peer affiliations when the teacher-assessed dimensions (i.e., academic, aggression, popularity) were combined in distinct configurations. Because peer group composition is most likely to involve the collective contributions of these three dimensions, this analysis was expected to yield a more complex view of the role of social prominence and social preference in the formation of peer groups.

Social prominence was related to peer affiliation configurations for both girls, $F(4, 289) = 7.19$, $p < .001$; and boys, $F(4, 230) = 3.94$, $p < .01$. As shown in Table 4, post-hoc comparisons indicated that girls whose peer affiliates were characterized as Tough had higher social prominence than girls whose peer affiliates were characterized as Average, Below Average, and Unpopular-Low Academic. Furthermore, girls in the Tough peer affiliation configuration had similar social prominence to that of girls in the Model peer affiliation configuration. Post-hoc analyses revealed that boys whose peer affiliate profiles were characterized as Good Students had higher social prominence than boys whose peer affiliates were characterized as Below Average. Also, boys in the Tough peer affiliate configuration were similar in social prominence to boys in the Model peer affiliate configuration. Social preference was not related to peer affiliation configurations for girls or boys.

4 Discussion

In the past decade, peer relation researchers have distinguished between sociometric popularity (i.e., being liked or socially preferred), perceived popularity (i.e., being perceived as socially prominent), and peer group membership (Babad 2001; Gifford-Smith and Brownell 2003). While it has been acknowledge that these constructs are distinct indices of children's peer relations and are differentially related to children's school adjustment and academic achievement (Farmer et al. 2009; Gest et al. 2001; Kindermann et al. 1996; Wentzel and Caldwell 1997), relatively little work has examined how sociometric popularity, perceived popularity, and peer group membership are related to each other. Such information is important because it may provide valuable insight into the processes and factors that impact the organization of classroom social structures and their subsequent contributions to children's school engagement and educational outcomes, particularly during early adolescence (Adler and Adler 1996; Eder and Parker 1987; Hamm and Faircloth 2005). Accordingly, the current investi-

Table 4 Means on social prominence and social preference by peer affiliation configurations

	Configuration					
	Model	Tough	Average	Below average	Unpopular-low academic	F
Girls						
Social prominence	.37 (1.14)	.82 (1.46)	.03 (.93)[a]	−.05 (.98)[a]	−.05 (.72)[a]	7.19***
Social preference	.66 (1.53)	.76 (1.24)	.39 (1.39)	.27 (1.51)	.04 (1.58)	2.22
Boys						
Social prominence	.19 (1.13)	.49 (1.11)	.09 (.89)	−.09 (.81)[b]	.69 (1.38)	3.94**
Social preference	.06 (1.61)	.03 (1.43)	.23 (1.33)	−.01 (1.46)	.47 (1.76)	.73

Note: Means are z-scores. Standard deviation in parentheses
[a] Significantly different from tough
[b] Significantly different from good students
* $p < .05$; ** $p < .01$; *** $p < .001$

gation provides new views of the social organization in late elementary classrooms by classifying peer groups in terms of homophilic concentration and interpersonal configurations and exploring how these different peer group types are related to social preference and social prominence.

How are classroom social structures organized in late elementary school? The present findings reflect and extend previous research on classroom social dynamics. Consistent with other studies (e.g., Cairns et al. 1988; Espelage et al. 2008; Estell et al. 2002a,b; Kinderman 2007), children in this investigation tended to sort themselves into peer groups with classmates who were similar to them on key academic and behavioral characteristics. However, selective affiliation appears to extend beyond these similarities. By examining the relationship between homophilic concentration and social preference and social prominence, the current work suggests that the social organization of peer groups may involve the contributions of both interpersonal attraction (i.e., social preference) and the pursuit of high social status (i.e., social prominence).

As suggested by the ethnographic work of Adler and Adler (1995, 1996), children who get along well with peers (i.e., high social preference) and children who are perceived as being cool or popular (i.e., high social prominence) may have distinct social goals that are reflected by their peer affiliations. Children with high social preference may be more socially responsible and academically oriented and develop peer associations with classmates who support their achievement oriented goals (see also Kindermann et al. 1996; Wentzel and Caldwell 1997). In contrast, children with high social prominence may be focused on consolidating their social power and being perceived as cool by their classmates (see de Bruyn and Cillessen 2006; Rodkin et al. 2006; Vaillancourt and Hymel 2006). These socially prominent youth tend to affiliate with peers who have elevated levels of aggression and perceived popularity (e.g., athletes, cheer leaders), but who are also at increased risk for disengagement in academic activities (Eder and Parker 1987; Farmer et al. 2003a; Schwartz et al. 2006).

Why are these findings important to education researchers? The importance of clarifying the differential linkages between classroom peer group characteristics and social preference and social prominence comes to light when considering the role of the peer group in educational achievement and high school completion. For several decades, researchers have viewed popularity as a protective factor that promotes school adjustment and engagement in educational activities (Gifford-Smith and Brownell 2003; Rubin et al. 1998). This appears to be the case when popularity is defined in terms of social preference (i.e., popular sociometric status) and it promotes affiliations with peers who value and support academic achievement (Kindermann et al. 1996; Wentzel and Caldwell 1997). However, when popularity is defined in terms of being perceived by peers as being "cool" or socially prominent it may actually be a risk factor for school adjustment problems. It is possible that the pursuit of social prominence promotes a pattern of behaviors and peer affiliations that lead to an increasing disinterest in academic achievement across the early adolescent years and may eventually place youth at-risk for school dropout or truncated levels of educational attainment (de Bruyn and Cillessen 2006; Farmer et al. 2003b; Hamm and Faircloth 2005; Ream and Rumberger 2008; Staff and Kreager 2008). Thus, as educational researchers work to clarify patterns and pathways to school completion or dropout, the current findings emphasize that there is a need to include a focus on elucidating how distinct processes of attaining status in the classroom peer system may contribute to social stratification that channels some students into peer groups that support the decline of their academic growth.

Work along these lines is particularly germane to the social psychology of education. As Baldwin (1897: p. 30) observed "the development of the child's personality could not go on at all without the constant modification of his sense of himself by suggestions from others. So, he himself, at every stage, is really in part someone else, even in his own thoughts of himself." Thus, from a social psychological perspective, when individuals are embedded within a social network, her or his immediate peer group serves as a conduit for transmitting norms, values, and personal identity (Abrams and Hoggz 1990; Oetting and Beauvais 1986). As youth pursue social prominence and establish affiliations with peers who share this pursuit, they co-construct a peer culture and value system that contributes to their own identity in ways that may preclude academic interests and goals (Eder and Parker 1987; Schwartz et al. 2006). To the degree that youth may look to their immediate peer group and not the broader classroom social context to evaluate and guide their own behaviors, they may experience "norm narrowing" (Killeya-Jones et al. 2007). That is, their reference for their own behaviors and values is not classmates in general, but instead the peers that they associate with. Thus, the norms that youth develop for academic effort and achievement is likely to mirror that of their peer group (Kinderman 2007). Additional research in the social psychology of education is needed to examine linkages between social preference, social prominence, peer group membership, and students' academic self-concepts and values.

Why are these findings important to educational practitioners? For years, teachers, school psychologists, counselors, and other educational professionals have been trained that children who are unpopular are at-risk for school adjustment problems and poor educational outcomes. Clearly such concerns are warranted. However, recent research suggests that some socially prominent children are also at-risk for a lack of

academic motivation and corresponding problems in educational attainment includ-
ing school dropout (e.g., Farmer et al. 2003b; Ream and Rumberger 2008; Staff and
Kreager 2008). The current findings enhance our understanding of this issue by sug-
gesting that social preference and social prominence differentially contribute to social
stratification in the classroom. In particular, social prominence is linked to affiliations
with peers who are also socially prominent or aggressive, while social preference
is associated with affiliating with peers who have high levels of academic achieve-
ment.

Further, the current study suggests that social prominence is linked to peer affilia-
tion configurations that are characterized as Tough (see also Kwon and Lease 2007).
Youth in this configuration tend to affiliate with peers who had relatively high levels of
teacher assessed popularity and aggression and are similar to Model youth (i.e., high
prosocial characteristics and few antisocial characteristics) in terms of their social
prominence. This finding highlights the complexity of the social dynamics in the
classroom. Teachers are in the position of juggling between strong social forces that
support academic engagement and equally compelling social influences that inhibit
academic effort and success.

There is a need to help teachers learn how to manage these classroom social dynam-
ics and to develop strategies that promote productive peer influences and group affilia-
tions in the classroom. Further, there is a need to examine how instructional practices,
grouping strategies, and the composition of classrooms impact classroom affiliation
patterns and students' corresponding academic adaptation. While social preference
research has lead to a focus on individually oriented interventions, there is a need
for additional research that bridges a focus on social prominence and the hierarchy
of classroom social groups. Such work is necessary to promote the development of
classroom management strategies that are responsive to group processes and naturally
occurring social dynamics.

4.1 Limitations and future research needs

Although this study provides new perspectives on the relationship between students'
social positions and peer group characteristics, there are three limitations that must be
considered. First, this investigation focused only on fifth grade students. There is a need
for additional research to examine these relationships between these variables in both
younger and older students. It is possible that the linkages between peer group dynam-
ics and social status are different in early elementary, middle, and high school settings.
Therefore, without additional research, it is not possible to generalize these findings to
a broader sample. Second, this study examined a single time point. Longitudinal work
is needed to investigate patterns of sociometric popularity, social prominence, and
group membership across time. Work along these lines is needed to examine how peer
affiliations and social positions contribute to each other across time. Clarifying such
patterns should yield new insights into behavioral development and provide critical
information for school based social interventions. Third, this study focused only on
cognitively derived measures of social networks. As others have shown (i.e., Pittinsky
and Carolan 2008) cognitive and behaviorally derived networks can yield somewhat

different views of the social networks in classrooms. Future research on the role of social preference and social prominence in the formation of children's peer groups can be enhanced by including observational measures of behavioral interaction.

In sum, the findings of this investigation suggest that the organization of peer groups in late elementary school involves a complex array of factors. Consistent with previous studies of peer clique homophily (e.g., Cairns et al. 1988; Espelage et al. 2008; Kwon and Lease 2007), children tend to sort themselves into groups that contain others who are similar to them on key social dimensions including academic competence, aggression, and popularity. The current investigation extends this work by demonstrating that when peer group composition is characterized by a single dimension (i.e., academic, aggression, popularity) it tends to be related to indices of social preference (how well a student is liked by classmates) and social prominence (peers' perceptions of who is popular and influential). However, when groups are characterized by configurations of multiple domains (i.e., distinct combinations of academic competence, aggression, popularity), they tend to be related to social prominence and not social preference. In accordance with ethnographic and sociological studies of peer group dynamics and social structures in late elementary school (Adler and Adler 1995, 1996), these results suggest that social prominence as well as social preference may play a role in the organization of peer groups. While children tend to sort themselves according to similarity on key social characteristics, their peer affiliations appear to be strongly related to their social prominence. It is likely that multiple dimensions of attraction may counteract each other in some instances. As the results of the correlations between the different group-type patterns indicate, there is at best moderate overlap between the different dimensions. Therefore, although homophily on characteristics such as academic competence and aggression may help to bring children together, it appears that social preference and social prominence differentially contribute to classroom social dynamics.

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Author Biographies

Thomas W. Farmer is an associate professor of Special Education at Pennsylvania State University and Director of the National Research Center on Rural Education Support. His research interests include classroom social dynamics, the social context of bullying, and the development of intervention programs to prevent aggression and school violence.

Matthew J. Irvin is a research scientist with the Center for Developmental Science and a Clinical Assistant Professor in the School of Education at the University of North Carolina. His research interests include risk and resilience, student engagement, and educational attainment.

Man-Chi Leung is a senior research scientist at Center for Developmental Science in University of North Carolina at Chapel Hill. His research interests focus on social relationships of children and adolescents.

Cristin M. Hall is a doctoral candidate in School Psychology at The Pennsylvania State University. Her research interests include the social dynamics of aggression, emotional and behavioral disorders, and at-risk youth.

Bryan C. Hutchins is a doctoral candidate in Educational Psychology at the University of North Carolina at Chapel Hill. His research interests include classroom social networks and rural education.

Erin McDonough recently completed her graduate degree in School Psychology and is working as a psychologist with children and adolescents in a private practice. Her research interests include the mental health issues experienced by underprivileged and traumatized youth.