

CONTINUITY AND CHANGE IN MIDDLE ELEMENTARY STUDENTS'  
POPULARITY AND SOCIAL PREFERENCE

Sara R. Marcus

A dissertation submitted to the faculty of the University of North Carolina at Chapel Hill in partial fulfillment of the requirements for the degree of Doctor of Philosophy in the School of Education (School Psychology).

Chapel Hill  
2006

Approved by  
Chairperson: Rune J. Simeonsson, Ph.D.  
Advisor: Melissa E. DeRosier, Ph.D.  
Reader: Thomas Farmer, Ph.D.  
Reader: Janey S. McMillen, Ph.D.  
Reader: Mitch Prinstein, Ph.D.  
Reader: Barbara H. Wasik, Ph.D.

© 2006  
Sara R. Marcus  
ALL RIGHTS RESERVED

## ABSTRACT

SARA R. MARCUS: Continuity and Change in Middle Elementary Students'  
Popularity and Social Preference  
(Under the direction of Melissa E. DeRosier)

Within the sociometric tradition, popularity has been defined as being widely well-liked by peers. Sociometrically popular students display a host of prosocial behaviors that contribute to typically positive developmental outcomes. Recently, researchers have begun to challenge this notion and have suggested that students who are named as popular by their peers are not necessarily well-liked and friendly, cooperative, and helpful. Instead, they demonstrate a blend of positive social conduct coupled with elevated levels of social aggression, bullying, and risk-taking behaviors. This group has been termed 'perceived popular'.

The present study examined 3<sup>rd</sup> and 4<sup>th</sup> grade students (n=1,359) based on popular group membership assigned through sociometric techniques. Students were assigned to one of four popular groups: 1) Sociometrically Popular; 2) Perceived Popular; 3) Both Perceived and Sociometrically Popular; or 4) Not Popular. Social self-perceptions, self-concept, and peer-reported social behaviors were investigated over two data collection time points spanning an academic year. Significant between-group differences existed on all measures at the outset of the study. Stability versus change in popularity over the school year differentially influenced peer-reported social behaviors but not social self-perceptions or self-concept depending on popular group assignment at Time 1. Peer-reported leadership was shown to have a mediating effect on the relationship between prosocial and Machiavellian social success,

while bullying appeared to strongly influence students' social acceptance. Implications for intervention development and future research agendas are discussed.

## ACKNOWLEDGEMENTS

Likely my greatest experience and biggest success as a graduate student has been my work on this project and the original study that the data was collected for. I am eternally indebted to Dr. Melissa DeRosier for her support, guidance, and knowledge as she taught me how to be a competent researcher over the course of this journey.

A sincere thank you to my entire committee for working with me as I drafted, ironed out the kinks, and eventually produced a piece of research that I am very proud of.

Finally, much gratitude is owed to my family, dear friends, and four-legged children for their patience and ever-available ears when I needed to think out loud during this process.

## TABLE OF CONTENTS

	Page
LIST OF TABLES.....	viii
LIST OF FIGURES.....	ix
Chapter	
I INTRODUCTION.....	1
II LITERATURE REVIEW.....	5
Influence of peer relationships on adjustment, social behavior, and self-concept.....	5
Using sociometrics to measure peer status and social behavior.....	9
Opposing views of popularity: Sociometry versus sociology.....	16
Perceived popularity: An alternative model of high status.....	22
School social climate: Impact on student adjustment.....	26
Conclusion.....	28
III METHODOLOGY.....	32
Participants.....	32
Procedure.....	32
Measures.....	33
Design and Data Analysis.....	38
Research Questions and Plans of Analysis.....	39

IV	RESULTS.....	50
	Overview.....	50
	Preliminary Analyses.....	50
	Attrition Analyses.....	62
	Research Question #1.....	65
	Research Question #2.....	65
	Research Question #3.....	67
	Research Question #4.....	68
V	DISCUSSION.....	79
	Overview.....	79
	Discussion of Findings.....	79
	Limitations of the Research.....	89
	Future Directions.....	90
	APPENDIX.....	93
	REFERENCES.....	97

## LIST OF TABLES

Table	Page
1. Time 1 correlations between sociometric items.....	55
2. Popular group assignment at Time 1 as a function of ethnicity.....	59
3. Means and standard deviations of self-reported social self-perceptions and self-concept as a function of Time 1 popular status.....	61
4. Means and standard deviations of peer-reported social behaviors as a function of Time 1 popular status.....	63
5. Stability of popular group membership between Time 1 and Time 2.....	66
6. Means and standard deviations of peer-reported social behaviors as a function of stability in popular status.....	77



## LIST OF FIGURES

Figure	Page
1. Percentage of students in each popular category at Time 1 .....	52
2. Percentage of students classified as perceived popular from the traditional social status classifications.....	53
3. Peer-reported social behaviors as a function of Time2 popular group membership among Time1 Sociometrically P opular students.....	72
4. Peer-reported social behaviors as a function of Time2 popular group membership among Time1 Pe rceived Popular students.....	73
5. Peer-reported social behaviors as a function of Time2 popular group membership among Time1 Combined P opular students.....	75
6. Peer-reported social behaviors as a function of Time2 popular group membership among Time1 Not P opular students.....	78

## CHAPTER I

### INTRODUCTION

The importance of healthy peer relationships for positive child development is undeniable. A rich literature spanning numerous decades has shown that children who experience peer rejection are at increased risk for a variety of negative outcomes ranging from behavioral difficulties and delinquency to academic underachievement and mental health problems (Parker, Rubin, Price, & DeRosier, 1995). Conversely, positive peer relationships are a demonstrated protective factor that can buffer children against the negative consequences of other environmental adversities (Cicchetti, Toth, & Bush, 1988; Kazdin, 1991).

One of the most widely implemented methods for examining children's peer relationships is to collect sociometric nominations from entire classes or grade levels (Cillessen & Bukowski, 2000). Students are asked to circle the names of all of the students within their class or grade that fit a particular behavioral descriptor. Coie, Dodge, and Coppotelli (1982) devised an algorithm for converting the number of votes a child receives for each descriptor to assign him or her to a social status group: popular, rejected, controversial, neglected, or average. Sociometrically popular children receive many like most votes, few like least votes and score high on social preference (which is derived by subtracting like least votes from like most votes). Within the sociometric tradition, children nominated by their peers as popular

have been described as prosocial ‘good kids’ and on a typically positive developmental trajectory (Newcomb, Bukowski, & Pattee, 1993). Limited research has examined popular children’s adjustment and outcomes, as they have been understood to demonstrate academically positive and emotionally healthy behaviors and to be at little risk for negative outcomes.

In contrast, sociologists of education have long defined ‘popular’ children quite differently than the sociometric conception of the prosocial, liked-by-most student (Adler & Adler, 1997). This tradition views popular children as more Machiavellian than void of unpleasant behaviors, and to have attained their high status through involvement in socially visible activities and by possessing attributes that contribute to glamour, social prestige, and prominence (Adler, Kless, & Adler, 1992). What is especially compelling about this perspective is the concept of social salience central to the sociologist of education’s ‘popular’ student. These highly socially visible students exert considerable influence on not only their own peers, but on the larger social ecology within the school.

The literatures of sociometry and of the sociology of education have remained relatively distinct from each other and have seldom used each other’s knowledge to inform existing research or future areas of study. However, a growing body of inquiry has begun to join together these traditions and has identified a subgroup of socially visible children, termed ‘perceived popular’. These children evidence many of the prosocial behaviors typically reported of sociometrically popular children (e.g., leadership skills, entertaining qualities), but also demonstrate behaviors typically reported of peer-rejected children (picking fights, bullying, not being kind or trustworthy) (Parkhurst & Hopmeyer, 1998). This small available body of research suggests that this group of students exerts a high degree of social influence

on the larger peer milieu of the school setting. Other students imitate their behavior and desire to be accepted by the perceived popular students. Research shows that these students frequently engage in exclusive and relationally aggressive social relationships that promote a school environment of social hostility and ostracism (LaFontana & Cillessen, 2002). In addition, several studies have identified high status students as purveyors of delinquent and risk taking behaviors (Dolcini & Adler, 1994; Rodkin, Farmer, Pearl, & Van Acker, 2000)

Social status hierarchies are a reality in American schools, with high status students achieving prestige, admiration, and dominance over their peers, while unpopular students are intimidated and rejected by the broader peer system (LaFontana & Cillessen, 1999). Popular students set the trends within schools and determine what is acceptable and ‘cool’ (Adler & Adler, 1997). These students often engage in social exclusion (Merten, 1987), bullying (Eder, 1985), risk-taking behaviors (Dolcini & Adler, 1994), and negative attitudes toward school success (Adler, Kless, & Adler, 1992), and their peers are likely to follow. With the current emphasis on success for every student, it is important that the undercurrents of the school social environment are understood and addressed. Greater insight into the adjustment of popular students is an important step toward this goal.

The available research on perceived popular students has been conducted almost entirely with middle and high school students (Parkhurst & Hopmeyer, 1998; LaFontana & Cillessen, 2002, Cillessen & Mayeux, 2004) to the exclusion of younger children. Given the nature of the traits and behavioral characteristics associated with perceived popularity (social manipulation, participation in high status activities, physical attractiveness), it is not surprising that research has focused on older children, as these characteristics become more developed (social manipulation) and more salient (participation in high status activities,

physical attractiveness) as children mature. Given the high status and social influence these children achieve, there is a need to understand the establishment and maintenance of more Machiavellian forms of social prestige. In an effort to contribute to the understanding of the emergence of perceived popularity, this research examines the social behaviors, social self-perceptions, and self-concept of elementary-age high status students. Specifically, the following questions will be addressed: (1) How are popular subgroups differentially stable over the course of the school year?; (2) how do the patterns of stability among the popular subgroups differ as a function of gender and grade level?; and (3) how do continuity and change in popular status impact children's social self-perceptions, self-concept, and social behaviors? What impact do gender and grade level have on these relationships?

## CHAPTER II

### LITERATURE REVIEW

#### Influence of peer relationships on adjustment, social behavior, and self-concept

A rich research tradition demonstrates the importance of positive peer relationships for healthy child development (Parker et al., 1995). A large body of literature has demonstrated the negative effects of poor peer relationships during childhood (Kupersmidt & DeRosier, 2004) and the observation that positive peer experiences can act as a buffer to negative outcomes in the face of other environmental adversities (Cicchetti et al., 1988; Kazdin, 1991).

Poor relationships with peers during childhood have been consistently recognized as detrimental to children's academic, social, and emotional adjustment (Kupersmidt, Coie, & Dodge, 1990; Gifford-Smith & Brownell, 2003). Children who experience rejection by their peer group, are chronically bullied, or socially isolated are at significantly increased risk for a variety of negative outcomes spanning functioning domains (Kupersmidt & DeRosier, 2004). Academically, children with peer problems demonstrate poor achievement (Woodward & Fergusson, 2000), higher rates of absenteeism and school drop-out (Kupersmidt & Coie, 1990), and negative attitudes towards school (Kindermann, 1993). Poor peer relationships have also been shown to be associated with a range of negative behavioral and emotional sequelae, including heightened risk of delinquency and criminality (Kupersmidt & Coie, 1990), increased prevalence of affective disorders (Boivin, Poulin, & Vitaro, 1994; Hecht, Inderbitzen, & Bukowski, 1998) and suicide (Carney, 2000), greater need for mental health

services (Parker & Asher, 1987), and increased incidence of health-risk behaviors (Prinstein & LaGreca, 2004).

The character of a child's social behavior is largely influenced by his history of social interactions with parents, siblings, and early playmates. When a child consistently fails to develop positive relations with others, his subsequent cognitive, affective, and behavioral reactions are impacted, and he internalizes an inability to cope with future stressful events (Coie, 1990). The experience of chronic rejection by peers has a more significant and negative effect on children's adjustment than transient rejection (DeRosier, Kupersmidt, & Patterson, 1994) and prolonged social isolation has been shown to be correlated with loneliness, depression, and low self-esteem (Cillesen, van Ijzendoorn, & van Lieshout, 1992).

Conversely, children who experience positive relationships with their peers benefit from their felt success in a variety of ways. Academically, socially successful children find school a more positive place, they are more motivated for success by supportive and mutually striving peers, and are present at school more consistently (Gifford-Smith & Brownell, 2003). Socially accepted children engage in affiliative interactions more frequently (Newcomb et al., 1993) and manifest social information processing patterns that support the maintenance of friendships and the ability to generate prosocial solutions to interpersonal conflict (Nelson & Crick, 1999).

Research has examined peer problems using a directionality model, questioning whether peer rejection exerts an independent influence on the prediction of negative outcomes, or whether rejection is simply a marker of other underlying deficits (Parker & Asher, 1987). Repeatedly, peer rejection has been shown to make a significant contribution to negative outcomes, even after controlling for other problem behavior (DeRosier et al., 1994).

However, inherent child characteristics may also contribute to the chronicity of rejection, which suggests that peer group membership may indeed serve as a marker variable for underlying competencies or difficulties (Cillessen, Bukowski, & Haselager, 2000).

The quality of a child's peer relationships influences his subsequent adjustment, while his present level of adjustment influences his relationships with peers (DeRosier et al., 1994).

While socially accepted children receive frequent feedback about their behavior and are able to adjust their interactions accordingly, rejected children have limited access to social feedback, and are unable to benefit from such experiences (Cillessen et al., 2000).

A robust literature has demonstrated discrepancies in social behaviors between children experiencing positive versus negative peer relationships (Coie et al., 1982; Newcomb et al., 1993). Typically, children who are well-liked by their peers are seen as supportive of their cohort, cooperative, and possessing leadership qualities (Coie, Dodge, & Kupersmidt, 1990). Accepted children demonstrate low levels of aggression and tend to be socially outgoing (Coie & Dodge, 1988). On the other hand, disliked children are described as disruptive, indirectly aggressive, bullies, and stuck-up (Coie & Kupersmidt, 1983; Gifford-Smith & Brownell, 2003) and are frequently in trouble with teachers (Dodge, 1983). These children may be socially withdrawn and are seldom seen as sociable (Rubin, LeMare, & Lollis, 1990). Peer rejected children are often described as harboring a negative attribution bias (Crick & Dodge, 1994) that contributes to the maintenance of negative interactions with their peers. Often times, low accepted children misunderstand others' actions as hostile (Coie, 1990), and subsequently respond in a negative and/or defensive manner.

Variations in social behaviors have been repeatedly linked to discrepancies in self-perceptions (Parkhurst & Asher, 1992; Patterson, Kupersmidt, & Griesler, 1990). As children



develop, peer relationships become increasingly important (Furman & Buhrmester, 1985). By middle childhood, children exist in a social world beyond their family of origin, and peer relationships become an important context within which children form their self-perceptions (Patterson et al., 1990), while a child's social perceptions also concurrently influence their peer relationships (Boivin & Hymel, 1997). During adolescence, peer group affiliation becomes critical to maintaining a positive self-concept (Erikson, 1968). Current theories of self-concept development emphasize the influence of social experiences in the development of sense-of-self (Bandura, 1986). Positive social experiences promote healthy self-concept, while lack of acceptance undermines the emergence of positive self-beliefs (Harter, 1993). While children who are socially successful develop positive expectations for social situations and demonstrate high levels of social competence (Ollendick & Schmidt, 1987), research has shown that the self-concept of low accepted children is significantly compromised (Olweus, 1992; Brown & Lohr, 1987).

Peer groups contribute to self-concept development through social comparison and symbolic appraisal (Brown & Lohr, 1987). Research on peer group affiliation has examined differences in self-perceptions between children who are members of high status cliques versus low-status children and social isolates. Overwhelmingly, members of socially successful groups report the highest self-esteem, while unaffiliated students demonstrate compromised self concepts (Brown & Lohr, 1987; Dolcini & Adler, 1994; Prinstein & LaGreca, 2002). Boivin and Begin (1989) found that differences in self-perceptions between nine to 11 year-old students were related to being well-liked by their peers. Popular students in their study demonstrated higher ratings across a variety of domains as well as evidencing elevated self-esteem when compared to their average accepted peers. In a study examining

the relationship between social status and self-concept among middle school students, Jackson and Bracken (1998) found that on a global level, sociometrically popular students evidenced stronger self-concepts than their rejected or average peers. On domain-specific measures of self-concept, the researchers demonstrated that social self-concept most clearly delineated popular students from their peers, while rejected students had the lowest scores on items regarding their physical self-concept. This difference was the only factor that discriminated between rejected and average status students.

The overlap between peer rejection and victimization is strong (Olweus, 1992), and several papers have examined self-concept as a moderating factor in the relationship between peer relationships and social experiences. Egan and Perry (1998) investigated the association between children's global and domain-specific self-concept and the experience of being bullied. They found that children who harbor a sense of social failure were at increased risk of victimization over time, and that social confidence protected children from the experience of being bullied. O'Moore and Kirkham (2001) found that victims of bullying evidence poorer global and domain-specific self-esteem (related to behavior, intellectual ability, physical appearance, popularity, and overall life satisfaction) than their non-victimized peers. Since peer relationships and self-concept appear to influence each other in a bidirectional relationship, further research in this vein will provide greater understanding of the nature of this association.

#### Using sociometrics to measure peer status and social behavior

The nature of children's peer relations has traditionally been assessed through four main methodologies: (1) asking the child individually about elements of their peer relations and

friendships; (2) asking groups of children about their perceptions of others within the social milieu; (3) asking adults (i.e. parents and teachers) about the peer relationships of children in their care; and (4) directly observing children during interactions with their peers (Terry, 2000). Sociometric techniques are considered to fall within the second domain: asking groups of children to provide impressions of their peers. The use of sociometrics to measure children's relationships with their peers holds a prominent place in child social development literature (Bukowski, Sippola, Hoza, & Newcomb, 2000). Classification of social status through sociometric procedures has consistently proven to be a reliable and valid means for identifying children at risk for negative outcomes (DeRosier et al., 1994).

Using sociometry as a means for collecting information about children's peer relationships has a long history dating back to the 1930's (Cillessen & Bukowski, 2000). Moreno's (1934) early model of sociometric judgement presented the notions of attraction (the forces that bring people together) and repulsion (those that keep them apart). Moreno did not see these constructs as polar, but instead as two sides of a triangular model, for which the third side demonstrated indifference. He was interested in how these interrelated constructs defined the nature of an individual's social experience. Not only did he emphasize the peer group's evaluation of the individual, but he placed great importance on the individual's view of the group as well.

Initial investigations of peer relations utilized a unidimensional classification scheme that defined sociometric status by the number of nominations received that endorsed friendship (Newcomb et al., 1993). Moreno's consideration of the individual's evaluation of the group disappeared, and only the group's impression of the individual was recognized (Cillessen & Bukowski, 2000). Inherent theoretical and statistical difficulties existed within this system,

and researchers began to explore ways to further delineate groups of children based on their social likeability. Bronfenbrenner (1943) suggested that attractiveness be considered only when an individual was rated as attractive by a 'greater than chance' number of peers, while Lemann and Solomon (1952) underscored the limitations presented by employing a unilateral (only positive) rating system: using only positive nominations could not differentiate between rejection and indifference.

Lemann and Solomon (1952) introduced a triangular model of classification consisting of three groups: high-status, low-status, and middle-status. However, their model lacked a measure of social visibility as a determinant of social position, so Dunnington (1957, as cited in Newcomb et al., 1993) addressed this flaw by adding a 'notice score' derived by adding liked and disliked nominations together. In 1979, Peery added a child's liking score to his dislike score to arrive at 'social impact', and by subtracting the child's dislike score from his like score, defined 'social preference'. Peery's model initiated the use of a two-dimensional classification scheme for understanding peer relations (Newcomb et al., 1993).

The addition of a negative nomination component gave children the opportunity to recognize other children whom they did not like. Since acceptance and rejection are only minimally negatively correlated (Coie et al., 1982), information that could be drawn from nominations varied significantly depending on whether the acceptance and rejection scores were taken together or used separately to define social status. Researchers found that both types of nominations must be used in order to separate actively disliked children (termed 'rejected') from their socially isolated counterparts (termed 'neglected') (Coie et al., 1982). Combining positive and negative votes also provided a stage for differentiating between social preference (likeability) and social impact (visibility within the peer group).

Coie, Dodge, and Coppotelli's (1982) model of sociometric classification is the current gold standard for measuring children's relationships with their peers (Hecht et al., 1998). Acceptance and rejection are operationally defined by the number of liked most and liked-least nominations received by a child that are standardized by grade level (Newcomb et al., 1993). In addition to identifying popular, rejected, neglected, and average children, Coie and colleagues' method offers a fifth status group (termed 'controversial') that recognizes children who receive high numbers of both positive *and* negative nominations. They utilize Peery's (1979) model for arriving at social impact and social preference scores, and employ the following standard score approach (mean = 0, SD= 1) to define a child's social status: popular children receive a standardized preference score greater than 1, a liked most (LM) score higher than zero, and a liked least (LL) score lower than zero; rejected children obtain a preference score less than 1, a LM score less than zero, and a LL score greater than zero. Neglected children receive social impact scores of less than -1, and LM and LL scores less than zero, while controversial status children receive social impact scores greater than 1, and both LM and LL scores higher than zero. 'Average' status children serve as a comparison group, and all other children are Unclassified (Coie et al., 1982). Using this classification system, children in the popular, controversial, and rejected status groups can all obtain high social impact scores, but only popular children can also receive a high social preference score.

The results of Coie and colleagues' (1982) analyses of this sociometric classification scheme suggested that each status group has distinct behavioral repertoires that impact their relationships with peers. The authors found that children have clearer ideas about the characteristics of peers whom they dislike than those they like, and they discussed the major

behavioral descriptors endorsed according to status group. Children that received high numbers of liked most votes were viewed as supportive of peers, physically attractive, cooperative, and possessing leadership qualities. Conversely, children who received many disliked nominations were described as disruptive to the group, indirectly aggressive, fight starters, frequently in trouble with teachers, and snobbish. Controversial status children were the true polar extreme from neglected children, since all but one item were at opposite ends of the distribution of group means. Although controversial children were reported to engage in antisocial behavior, they also were viewed as leaders among their peers.

Based on Coie and colleagues' (1982) classification scheme, Newcomb et al. (1993) observed that three global categories of interpersonal style can distinguish between status groups: sociability, aggression, and withdrawal. Popular and neglected children are the least aggressive, while controversial children are the most aggressive. On measures of withdrawal, rejected children obtain the highest rating, while neglected and controversial status children receive moderate ratings, and popular children have the lowest withdrawal scores of any group. Popular and controversial children are rated highest on sociability, while rejected children score the lowest in this domain.

Within the peer relations literature, rejected children are often described as unpleasant, nasty, and actively avoided by their peers (DeRosier et al., 1994). Whereas popular children's behavior seems to facilitate and augment the goals of their peers, rejected children's actions and social style appear to inhibit the objectives of others (Newcomb et al., 1993). Popular children are consistently rated as having stronger cognitive abilities than their less-accepted peers, while rejected children are rated as having the weakest intellectual skills as a status group (Coie et al., 1982). Physical attractiveness is generally a strong correlate of

liking (Coie, 1990), while shyness and social withdrawal contribute to peer rejection (Cillessen et al., 1992).

Neglected status children appear to engage in more isolated activity, and demonstrate weaker problem-solving and social cue reading skills than their more well-accepted peers (Bell-Dolan, Foster, & Christopher, 1995). The social isolation often experienced by neglected children has been shown to undermine perceived social competence (Patterson et al., 1990). Peer descriptions of controversial children tend to blend characteristics of popular and rejected children. It has been suggested that the positive qualities, including leadership ability, evidenced by many controversial (but not rejected) children serve as a mechanism for the differences in long-term adjustment problems observed between these groups (Coie et al., 1982).

Stability of social status classification varies by age, extremity of classification, and status category (DeRosier & Thomas, 2004). Research suggests that sociometric status remains more stable with age. Across all status classifications, only 23 percent of elementary school children maintain their status from one year to the next, while stability of status group membership increases dramatically to 60 percent among high school students (Cillessen, Bukowski, & Haselager, 2000). Children with the most extreme social behavior scores evidence the greatest stability in status classification (Newcomb et al., 1993). However, when separating the status groups for assessing long-term stability, different patterns emerge. Cillessen and colleagues (2000) performed a meta-analysis of studies measuring stability of status groups over periods longer than three months. Their results showed that children classified as average are the most stable in their status grouping (65%), followed by rejected

children (45%), popular children (35%), controversial children (28%), and the least stable classification of neglected (23%).

In general, sociometric procedures involve four broad categories of questioning: friendship (e.g., who are your [best] friends?), direct preference (e.g., who do you like the most [least]), acquaintance (e.g., who do you hang around with?), and task-specific choice or individual preference (e.g., who is a good leader, gets picked on, etc.) (Terry, 2000). Asking a child to choose the peers whom they like the most and least invokes some degree of affect, which naturally affects the information collected when aggregated across informants. Similarly, children's conceptualization of friendship varies, and because individuals have different understandings of the meaning of friendship, it is often a conglomeration of multiple criteria, making the delineation of a 'friendship' construct a heterogeneous composite (Moreno, 1943). Researchers also use task-specific questions for the measurement of more concrete interpersonal behaviors and styles that are based more on reputation than individual preference. Examples of these include, 'who acts like a bully?' and 'who is a good leader?' This type of sociometric item may produce more valid responses devoid of individual interpretation (Terry, 2000).

The peer nomination technique of collecting sociometric data is widely used for obtaining information about children's social relationships within schools. While some controversy exists over the ethical considerations of asking children to nominate peers as disliked and as demonstrating maladaptive behaviors, available research has shown that children suffer no lasting negative consequences from participating in this type of data gathering (Bell-Dolan, Foster, & Sikora, 1989) and that the information gained through sociometrics is both cost-effective and revealing (Bell-Dolan, Foster, & Christopher, 1992).



## Opposing views of popularity: Sociometry versus sociology

The most widely-used and highly valid means for assessing children's social relationships is through sociometric data (Cillessen & Bellmore, 2002). The benefits of having multiple informants on children's behavior have been well-documented (Cillessen, Terry, Coie, & Lochman, 1992). Because children are developmentally self-interested and lack insight into their own behavior well into adolescence (Elkind, 1967; Erickson, 1968), obtaining the impressions of many others who observe the child of interest enhances the validity of the information collected (Terry & Coie, 1991). Although teachers and other adults may be privy to some of the social dynamics among children, it is typically only the most extreme behaviors and relationships of which they are aware (French & Waas, 1985; Leff, Kupersmidt, Patterson, & Power, 1999). In short, it is children who are the most accurate reporters of the social behavior of their peers.

According to Coie et al.'s (1982) algorithm, children nominated as Popular obtain many votes of Liked Most, few of Liked Least, and have high social preference scores. In other words, assignment to this status group is based solely on a child's *acceptance* within the broader peer group, but does not consider social visibility. An emphasis on *likeability* supercedes the consideration of social dominance in the definition of sociometric popularity.

Sociometrically popular children have typically been described as prosocial and cooperative children who demonstrate leadership qualities and are generally well-adjusted (Coie et al., 1982). They are polite and have good manners (Lease, Kennedy, & Axelrod, 2002) and do not behave in ways that disrupt their surroundings or the social goals of others (Asher & Coie, 1990). Sociometrically popular children evidence socially competent behaviors (Newcomb et al., 1993) and are largely accurate and positive in their social

cognitions (Crick & Dodge, 1994). They tend to have stronger cognitive abilities and to exhibit less aggressive and negative behavior and social withdrawal than children in other social status categories (Newcomb et al., 1993).

Due to sociometrically popular children's seemingly positive adjustment and absence of risk factors associated with future negative outcomes, little research has examined the long-term adjustment of this group. However, considerable research has been conducted on the comparison between Popular and Rejected children. Rejection has been described as the inverse of popularity, as peer rejected children are actively disliked by many of their peers and receive low social preference scores. In stark contrast to popular children, rejected children evidence an array of poor social behaviors and are at increased risk for a diverse range of negative outcomes spanning functioning domains (Parker et al., 1995).

A tradition of research within the sociological literature has provided ethnographic accounts of children's social experiences in schools. Contrary to sociometrists' conceptualization of popularity, sociologists of education discuss popular students as evidencing a host of both positive and negative social behaviors and often using their social visibility to assert dominance and gain access to highly-desired tangibles (Adler & Adler, 1997). In vivo accounts of school social stratifications have provided the social science fields with significant insight into the development and maintenance of clique structures within schools.

From an organizational perspective, ethnographic research has shown that social systems within schools are composed of four main status hierarchies: popular, popular wannabes, middle rank, and low status students (Adler & Adler, 1997). Eder's (1985) observational work during the 1980's provided an early examination of social clique structures in schools.

Her study focused on middle school girls and offered a vivid account of interpersonal relationships among early adolescent females. Eder found that popularity held different meanings for students belonging to lower status groups than that of high status, and that conceptions of popularity changed as children matured from the 6<sup>th</sup> through 8<sup>th</sup> grade. While this research was predicated on the notion that all popular students were well-liked, Eder's observations clearly indicated that social preference and children's constructions of popularity were not one and the same. Eder described significant changes in behavior demonstrated by girls in an effort to gain and maintain social dominance and achieve 'popularity'. Popular students were observed to sit in common areas of the cafeteria at lunch, excluding lower status students. As girls gained greater popularity, they were less inclined to interact with their lower status peers, often earning them the reputation of being snobby as opposed to nice and friendly.

Adler, Kless, and Adler (1992) drew on Eder's (1985) research to make observations of popularity and social dominance among middle elementary-age children. The authors found significant differences in the behaviors and abilities associated with popularity for boys and girls. The most salient predictor of high peer status for males was athletic ability. In their sample, the boys who were the best athletes in their school also garnered the top social positions. Among males, fighting (both playful and aggressive) was a means of establishing the social order, and being 'cool' was an important factor in maintaining social visibility. Increasingly with age, the popular boys were observed to defy authority, challenge rules, and receive disciplinary referrals. Boys who were at either end of the academic continuum fared socially more poorly than boys who were average achievers. This relationship between popularity and modest academic achievement was observed to emerge over the course of the

elementary school years, as younger boys took much pride and interest in their schoolwork, but this academic focus dissipated during middle elementary school.

Popularity among elementary school girls in Adler et al.'s (1992) sample was based on different factors than for boys. Girls who came from well-to-do families and had parents who were more permissive garnered social prestige. Expensive clothes, opportunities for travel, and living in a nice neighborhood all contributed to a girl's popularity. Physical appearance played a major role in girls' social status. Attractive looks and being well-groomed placed girls at the top of the social hierarchy. Social promiscuity and the ability to manipulate their social surroundings gave girls another edge in the quest for popularity. Popular girls were observed to be socially exclusive and intentionally bossy. Contrary to boys, girls did not suffer socially as a function of high academic achievement, and girls were observed to continue to strive for academic success and teacher approval as they matured.

Adler and Adler (1997) described the social status stratification observed in their ethnographic study of preadolescent school children. In their sample, there were clear hierarchical delineations between popular students and those of lower status, and even significant stratification within the popular group itself. The popular group comprised the largest friendship circle, and by late elementary school, the popular clique comprised almost one-third of the students in the grade. Popular group members were observed to enjoy the most 'fun', receive the most attention from their peers, and engage in the highest degree of male-female interaction. Adler and Adler (1997) noted that this group of students exerted considerable influence over their grade-mates, setting standards for classroom, social, and cross-gender behavior.

Several components of prominent social status have been examined by sociologists in an attempt to understand the establishment and maintenance factors associated with popularity. Extra-curricular activities (ECA) have been a topic of interest, as clear clique stratification has been observed across types of ECAs. Highly visible ECAs have been found to be strongly associated with popularity and peer status (Eder, 1985; Eder & Kinney, 1995; Merten, 1997). Eder (1985) found that being a member of the cheerleading team was a significant source of social visibility for preadolescent girls, and that this visibility largely contributed to girls' popularity amongst their peers. Sports team involvement has repeatedly been shown to be associated with popularity for boys (Adler et al., 1992; Eder & Kinney, 1995).

In addition to studying more overt aspects of high social status, researchers in the sociological tradition have examined 'being mean' and using relationally aggressive strategies to promote one's own social standing among popular children. As previously discussed, popular girls engage in socially exclusive behavior and leave less popular girls out of their social circles. While these behaviors become more consolidated and prominent over the middle school years, even elementary age girls have been observed to engage in socially exclusive and reputationally aggressive relationships (Eder, 1985).

In a three-year longitudinal study of junior high school students, Merten (1997) described the use of reputationally aggressive and socially exclusive behaviors amongst girls of similarly high status. Popular girls competed with one another to both establish and maintain their prominent social positions, and despite the high level of collegiality observed outwardly amongst the popular girls, there was also a significant degree of rumor spreading, self-promotive behavior, and social paybacks conducted in a covert manner. A girls' effectiveness

at being mean influenced her status in the clique and as a result, the girls who were able to conduct socially manipulative behaviors without ‘getting caught’ maintained the highest degree of status. Adler and Adler (1997) noted similar within-group dynamics that served to maintain or realign the social status hierarchy. They observed children acting in different ways toward different people, attempting to realign friendships through threatening the removal of support, and using disagreements between others to divide their loyalty and as a method of gaining power.

While obtaining prominent social status is an important developmental objective for children (especially girls), popularity comes with inherent costs. Eder (1985) describes the increasing dislike experienced by high status girls as a major disadvantage to being popular. Obtaining popularity means accepting a reputation of being mean, stuck-up, and snobby. A cycle of popularity emerges, whereby high status girls become increasingly disliked by lower status peers, but more socially powerful over time through their relationally aggressive behavior.

Membership in the popular clique is both fragile and uncertain (Adler & Adler, 1997). Popular group members were seemingly indebted to act like other high status peers, for risk of being socially ostracized (Adler & Adler, 1997). The possibility of losing popularity is worse than never achieving popularity in the first place, as the ensuing rejection as a cast-off is even more brutal and humiliating (Merten, 1997). Being cast-out of the popular group has multiple negative implications for children including the way they view themselves, their appearance, and identity (Adler & Adler, 1997).

As this review has shown, the definition of popularity used in research by sociometrists is in contrast to that advanced by sociologists. To approach the study of high social status

among children, a comprehensive model is needed that considers being well-liked as distinct from, and in addition to, being socially powerful. Although prosocial characteristics such as friendliness, cooperation, and leadership abilities are indeed important components of social success, the characteristics that contribute to the conception of popularity held by children include a significant degree of negative behavior as well.

#### Perceived popularity: An alternative model of high status

Recently, sociometrists have begun expanding their conceptualization of popularity to include a consideration of children's social influence in addition to their social acceptance. Parkhurst and Hopmeyer (1998) first identified a distinct group of highly visible, socially salient students they called "perceived popular" using sociometric methods. Perceived popular students differed from sociometrically popular students on a number of behavioral descriptors. While sociometrically popular students were described by their peers as cooperative, sociable, and kind, perceived popular students were seen as dominant, aggressive, and stuck-up. In their sample, the relationship between perceived popularity and social preference was  $r=.28$ , while its correlation with social impact was significantly stronger ( $r=.41$ ). Their data suggested that perceived popular students were more likely to be classified as sociometrically controversial (receiving many liked most *and* many liked least votes) than as sociometrically popular. Of note, a significant number of students nominated as perceived popular in their sample fell into the Rejected and Average groups using the traditional sociometric classification scheme.

Since Parkhurst and Hopmeyer's (1998) paper, other sociometric researchers have continued to explore this alternative consideration of high status. Available research has

shown that perceived popular children evidence a host of both positive and negative behaviors, and seem to be especially skilled at manipulating social dynamics in order to maintain their high status (LaFontana & Cillessen, 2002). While sometimes acting friendly, socially salient students are also described by their peers as being snobbish and domineering (Gorman, Kim, & Schimmelbusch, 2002). It has been proposed that these students obtain their central social roles through participation in high-status activities (e.g., cheerleading, football), access to expendable desirables (e.g., 'cool' clothing and valuables), and physical attractiveness (LaFontana & Cillessen, 1998). Additionally, perceived popular children seem to use aggression (both physical and relational) as a means of asserting and maintaining their social power (Cillessen & Mayeux, 2004; Farmer, Estell, Bishop, O'Neal, & Cairns, 2003).

In an effort to identify the behavioral correlates associated with perceived popularity, LaFontana & Cillessen (2002) interviewed children about their perceptions of popular and unpopular peers. Their results suggested that perceived popularity is associated with attractiveness, athletic ability, and abundant social interactions. Also aligned with popularity was a willingness to act aggressively or antisocially in order to have needs met. Conversely, unpopular students were seen as unattractive, socially isolated, lacking competencies, and grooming themselves and behaving in ways that hindered social acceptance. In a study of elementary school males, Rodkin and colleagues (2000) observed two distinct groups of boys considered popular by their peers: the 'tough' boys and the 'model' boys. While both groups were seen as 'cool' and athletic, they differed in their display of prosocial behavior: the 'tough' boys engaged in antisocial acts, while the 'model' boys were cooperative and responsive to authority.



In a study aimed at identifying correlates of perceived popularity in elementary school, Lease and colleagues (2002) found that girls named as popular by their peers were highly socially visible, exclusive, bullying, and behaviorally disruptive. Unpopular girls were seen as unattractive and socially withdrawn. Popular boys in this sample were described by their peers as highly socially visible and aggressive, attractive, and wealthy. The significant antisocial component observed among perceived popular children in these studies differs considerably from the prosocial, ‘good kid’ presented by traditional conceptions of popularity.

In a study examining children’s interpersonal perceptions as a function of popularity, LaFontana and Cillessen (1999) found that measuring the perceived status of peers (rather than sociometric status) may provide greater insight into children’s social cognitions, and that perceived popularity is more strongly related to the social impact dimension of Coie et al.’s (1982) sociometric algorithm than to social preference. They observed that while a sociometrically popular child is not necessarily a member of the ‘popular’ group, a perceived popular child is not necessarily well-liked by many of their grade-mates. Taken together, these findings provide further support for the notion that children’s perceptions of popularity may be different from that as assessed by social development researchers.

LaFontana and Cillessen (2002) examined the stability of the correlation between sociometric and perceived popularity from middle childhood through high school. They found the correlation between these two indices of high peer status to be strong and positive during elementary school and to decrease steadily (especially for girls) over development. Cillessen and Mayeux (2004) found perceived popularity to be overall more stable than social preference, but perceived popularity is more stable for girls, while social preference is

more consistent over time for boys. Kosir and Pecjak (2005) examined differences in the relationship between sociometric and perceived popularity among elementary and secondary school students. The researchers found that most students who were considered to be perceived popular were also sociometrically popular, and that perceived popularity was highly correlated with social preference but negatively associated with social impact in elementary school.

A number of studies have examined the role of aggression in the development of high status. Although aggression has typically been linked with rejection within the peer relations literature, current research suggests that some forms of aggression may help children garner social success (Hawley, 2003). It has been suggested that almost 50% of children who display aggressive behaviors are not rejected by their peers (Coie & Dodge, 1998), and Farmer and Rodkin (1996) found that some aggressive children are actually viewed as popular and high up in the social hierarchy of their grade. Other researchers have found that over development, physical, but not relational aggression decreases a child's social preference as well as perceived popularity (Cillessen & Mayeux, 2004).

The role of relational aggression in the attainment and maintenance of perceived popularity has been an area of inquiry in several investigations. Children who are able to socially manage their environment in ways that secure their social position have enjoyed the greatest success and dominance over their peers (Hawley, 2003). Research suggests that relational aggression is increasingly associated with perceived popularity rather than unpopularity (LaFontana & Cillessen, 2002) and as children mature, the link between relational aggression and perceived popularity strengthens, especially for girls (Cillessen & Mayeux, 2004). Notably, while relational aggression negatively affects children's social

preference over time, a corresponding increase in perceived popularity is observed. The link between relational aggression and high status has been confirmed by several other studies that have shown a positive association between relational aggression and popularity (Prinstein & Cillessen, 2003; Rose, Swenson, & Waller, 2004).

The emerging literature on perceived popularity is much in line with sociological research that has provided accounts of a more Machiavellian popular student, one who uses his or her social salience in negative ways (e.g., social exclusion, promoting antisocial behavior) (Eder, 1985; Merten, 1997). According to sociologists of education, popular children are not necessarily *well-liked* by most other students (social acceptance), but do exert a significant degree of social influence within the broader peer milieu (social visibility) (Adler et al., 1992). Available research on perceived popularity supports this view, and has begun to investigate the positive and negative behaviors associated with high peer status.

#### School social climate: Impact on student adjustment

Over the past decade, increasing attention has been focused on the social climate of American schools. Devastating incidences of school violence have garnered the public spotlight during the late 1990's and early 21<sup>st</sup> century. Investigations into the emotional lives of the children who have committed acts of violence in their schools have revealed a remarkable similarity linking these disturbed students: each one of them was victim to chronic and extreme bullying by their peers (Vossekuil, Reddy, & Fein, 2002). These students were severely rejected by their classmates, and they felt their only recourse was violence. In response to these alarming cases of extreme victimization, school officials and national education leaders have called for an increase and improvement in social and

emotional learning programs within schools. The relationships students have with one another have become increasingly scrutinized, and improving social cohesion in schools has received renewed attention.

School social climate has tremendous impact on student academic attainment and behavioral functioning (Gifford-Smith & Brownell, 2003). The overlap between victimization and peer rejection is large, and is significantly stronger than that observed with other social status groups (Schuster, 2001). Students who are socially unsuccessful or who are bullied by their peers experience school as a negative place, and the resulting negative consequences to their school adjustment and performance are significant (DeRosier et al., 1994).

The existing literature on Machiavellian popularity has consistently called for increased attention to this subgroup of socially influential students. Perceived popular children are often the “most cool, influential, and admired members of the group...to have a great deal of social control, and to be those most likely chosen by peers for leadership roles” (Lease et al., 2002, p.526). As such, these students have significant potential for influencing the broader social milieu of the school. Individuals with high perceived popularity are likely to contribute to the diffusion of negative social behavior and deviant health risk behaviors (LaFontana & Cillessen, 1999). On the other hand, popular students may be effective change agents, and employing their social influence to decrease problem behavior may be useful for intervention programs.

Our current understanding of socially visible students shows that this group is oftentimes the perpetrator of bullying and social exclusion. Popular students go along with bullying, as they have become accepting of the notion that power dynamics can be hurtful (Adler &

Adler, 1997). Due to their significant social influence, other students are unlikely to challenge these negative behaviors for fear of being themselves victimized, or in an effort to attain high status (Rose et al., 2004). Such an environment supports the maintenance of a social hierarchy, and does little to extinguish bullying amongst students. As some researchers have suggested, it may be important to address the behavior of students who support antisocial behavior even if they are not themselves directly aggressive (Farmer, Leung, Pearl, Rodkin, Cadwallar, & Van Acker, 2002).

As this review has documented, social status hierarchies are a prominent fixture in American schools. Unlike traditional prosocial conceptions of popularity, the peers whom children name as popular are often socially manipulative, antisocial, and dominant. Including an assessment of perceived popularity in the examination of children's peer relationships provides information about the power dynamics within the group (Lease, Musgrove, & Axelrod, 2002). Over development, children become increasingly concerned with peer acceptance and resultantly, more susceptible to social influence (O'Brien & Bierman, 1988). When perceived popular students engage in negative behavior, it is likely that their lower status peers will mimic their actions in an effort to be socially accepted. Understanding the mechanisms of influence in the occurrence of bullying, risk taking and negative academic behaviors is an important step toward improving child outcomes (Cillessen & Mayeux, 2004).

## Conclusion

The influence that popular students exert on school social climate, academic success norms, and risk taking behaviors among their peers underscores the importance of gaining

greater understanding of this group of high status children. Popular children seem to be skilled at balancing the use of prosocial and aggressive behaviors in order to dominate their social context (LaFontana & Cillessen, 2002). Because popular students exert significant positive *and* negative influence on both their immediate peers and the larger school ecology, a greater understanding of their social and emotional functioning has important implications for supporting educational and programmatic goals within schools. Enhanced knowledge of social dynamics within schools will aid policy makers and educators in their ability to utilize the positive influence of socially visible students to foster improvement of the social climate, educational success, and reduction in risk-taking behaviors among their students. From a prevention and intervention perspective, further development of the knowledge base on socially influential students is imperative. Education professionals will be better informed about how to identify and intervene with the negative influence popular students may exert (e.g., bullying, endorsement of risk behaviors), and how to capitalize on their social influence to promote healthy behaviors among all students.

In an era when student achievement and accountability are pressing issues, it is the responsibility of educators to support school environments in which students can optimally acquire academic and social skills and develop a love of learning. Social climate and the relationships students have with one another are major and direct influences on student adjustment and achievement; a negative social milieu significantly impacts many aspects of healthy child development. The promotion of positive social climates within schools is a direct contribution to enhancing student success in both academic achievement and social-emotional adjustment.

Despite the importance of knowledge about high status students, several significant limitations exist within the popularity literature. Most popularity research has examined others' (i.e., teachers, peers) perceptions of popular students at the exclusion of self-reports. The present study attempts to address this gap by considering children's own self-perceptions alongside their peers' reports of status and behavior as a function of popular group membership. An additional void in this research tradition is that the majority of inquiry has focused on middle and high school students, and less is known about the early surfacing of power dynamics and social hierarchies within schools using sociometric methods. The present study seeks to shed light on the emergence of high status and social influence among middle elementary students. While Boivin and Hymel (1997) purport that the relationship between social behaviors and self-perceptions is mediated by peer status, no research has investigated subgroups of popular children (i.e., sociometric versus perceived) in an effort to understand how differences in self-perceptions and self-concept may intersect with the demonstration of positive and negative social behaviors. Taken together, the findings from this study will help inform the identification of children at risk for negative social behaviors and self-concept and to aid intervention planning for enhancing school climate.

The following specific questions will be examined through this research: 1) What are the Time 1 and Time 2 relationships between popular group assignments?; 2) What are the patterns of stability among popular sub-groups as a function of gender and grade level?; 3) How do continuity and change in popular status impact change in children's self-reported social self-efficacy, outcome expectancy, and self-concept? What impact do gender and grade level have on this relationship? and 4) How do continuity and change in popular status

impact change in students' peer-reported social behaviors? What impact do gender and grade level have on this relationship?



## CHAPTER III

### METHODS

#### Participants

*Sample characteristics* The data for this study were drawn from an existing dataset collected by the 3-C Institute for Social Development in Cary, North Carolina. All public elementary schools from a central North Carolina school system participated in this research (n=9). As a component of the school system's bullying prevention initiative, all third and fourth grade students were eligible to take part in this study. Of the total pool of 1,579 third and fourth grade students, parental consent for data collection was obtained for 1,423 students (90%). The sample was approximately evenly distributed across genders (48.7 % female, 51.3 % male). The racial distribution was 61% Caucasian, 13% African American, 8% Latino/a, 13% Asian/Pacific Islander, .5% Native American and 4.5% mixed race. This school system serves children from families in the lower to upper middle socioeconomic classes. Approximately 15% of students receive free or reduced price lunch.

#### Procedure

In October of 2003, parent information letters describing the research project were sent home with every student in the third and fourth grades in the nine schools. On the consent forms, parents indicated whether their child could participate in data collection. Forms were returned to classroom teachers.

In November, paper and pencil questionnaires were group administered to children in their home classrooms by a trained staff member. A trained member of each school's student support staff aided the administration by reading the measures aloud to children who were having difficulty and helping with classroom management. Students were given packets containing all study instruments as well as manila folders to use as privacy shields. They were instructed in the importance of keeping their answers to themselves and the confidentiality of their responses was reviewed. Data collection sessions lasted approximately one hour, and students received a small prize (bouncy ball, colorful pencil) as a thank you for their participation.

The following June, identical measures were re-administered by classroom to all students with parental consent. The same procedures were employed, and students received a small prize (novelty erasers, removable tattoos) for their participation. In addition to student measures, information about gender and ethnicity was obtained through school records.

### Measures

*Peer-report (P-R).* Peer nominations were group-administered following traditional sociometric procedures outlined by Coie, Dodge, and Coppotelli (1982). Children were provided with rosters of every student in their grade and asked to nominate all of their peers across the grade who matched the following descriptions: children who (1) they like the most (LM), (2) they like the least (LL), (3) leave other kids out a lot (relational aggression), (4) act like bullies (bullying), (5) get picked on a lot (victimization), (6) are weird or odd (social immaturity-Spring data collection only) (7) are popular (perceived popularity), (8) are their friends (reciprocated friendships), and (9) are good leaders (leadership). Children were

permitted to nominate all of the students that fit a particular description. Unlimited nominations were employed (as opposed to asking the children to select three or five students who BEST fit the description), as research suggests that this method decreases error variance and improves the stability and reliability of the information obtained (Terry, 1994). Social behavioral differences between social status groups have long been identified (Cantrell & Prinz, 1985; Coie & Dodge, 1988) and sociometric data collection procedures frequently include a number of behavioral descriptor items in an effort to examine these differences based on social status assignment. Because relational aggression, bullying behaviors, leadership skills, and friendship have been previously reported to impact perceived popularity (Cillessen & Mayeux, 2004; Farmer et al., 2003; Parkhurst & Hopmeyer, 1998), they were of interest for the present study. The popularity item was included in order to provide an index of perceived popularity.

Children were assigned to social status groups according to Coie et al.'s (1982) algorithm. In order to determine sociometric popularity, three scores were considered: liked most (LM), liked least (LL), and social preference (SP). LM and LL scores were calculated by summing the raw number of nominations a child receives for each of the items and standardizing that raw score across the grade level to produce a z-score (mean=0, SD=1). Social preference was calculated by subtracting the liked least z-score from the liked most z-score and then restandardizing across the grade. Social impact (SI) was calculated by adding the child's zLM and zLL scores and then restandardizing the resulting score by grade. Standardized scores for the other sociometric items were created in a similar fashion. To derive z-scores for reciprocated friendships, the number of reciprocal nominations on the friendship sociometric was used. In other words, a child not only had to nominate a peer for this item,

but the same peer must have also nominated the child in order for the vote to be counted toward the reciprocated friendship z-score. In order to obtain z-scores for each behavioral descriptor, the raw number of votes a child received was summed. The raw scores were then standardized across the grade to produce z-scores (mean=0, SD=1).

A child was classified as sociometrically popular if s/he had a zLM greater than 0, a zLL of less than 0, and a zSP score greater than 1.0. For the purposes of this research, only students classified as popular were of interest, so the derivation of other sociometric status categories is not reported here.

*Self report (S-R).* Three self-report questionnaires were administered to children:

1. *Self-efficacy*. Self-Efficacy (the degree to which a child believes he/she could perform social tasks) was assessed using Ollendick and Schmidt's (1987) *Self-Efficacy Scale*. This measure was chosen because it evaluates a child's self-efficacy specifically for social situations. Research suggests that social behaviors may arise from the child's perceived social adequacies or inadequacies (Jackson & Bracken, 1998), so a measurement of students' beliefs of their own social abilities was of interest in the study of high peer status. Ten social tasks were presented, such as joining a group or asking a peer to stop an annoying activity. Children indicated, on a 5-point Likert scale from *Not sure at all* (1) to *Really sure* (5), how sure they were that they could perform each social task. A mean score was calculated by averaging across the 10 items with higher numbers (range between 1 and 5) indicating greater perceptions of self-efficacy. Ollendick and Schmidt (1987) reported good internal consistency ( $\alpha=.87$ ) and 3-month test-retest reliability (coefficient=.75) for this scale.

2. *Outcome expectancy*. Outcome expectancy (the degree to which children believe their social attempts will be successful) was assessed using Ollendick and Schmidt's (1987)

*Outcome Expectancy Scale.* This measure was chosen because it evaluates a child's outcome expectancy specifically for social situations. Children who experience peer difficulties tend to exhibit low expectations for social success and peer evaluations (Hymel & Franke, 1985), while the inverse is true for children who experience a high degree of social accomplishments; popular students have been shown to report stronger beliefs about their ability to be socially successful (DeRosier & Marcus, 2004). Ten social tasks, paralleling those of the Self-Efficacy Scale, were presented. On a 5-point Likert scale from *Not sure at all* (1) to *Really sure* (5), children indicated how sure they were that performing specific social tasks would result in the desired response. For example, if a child tried to start a conversation with a new peer, would that peer talk with him/her? A child's outcome expectancy score is obtained by calculating the mean score across the ten items, with a range between 1 and 5. Higher scores indicate a greater sense of outcome expectancy. Ollendick and Schmidt (1987) reported good internal consistency (Cronbach alpha=.85) and 3-month test-retest reliability (ICC=.78) for this scale.

3. *Self-concept.* The Piers-Harris Children's Self-Concept Scale-2 (Piers & Herzberg, 2002) was used to measure children's perceptions of themselves. This measure of self-concept was chosen due to its current norms, its ease and speed of completion for third and fourth grade students, and the availability of subscale scores that address questions specific to this research project (Byrne, 1996). Prior research has shown that domain-specific self-concept item clusters have more predictive utility than only measuring a child's global self-worth (Harter, 1983). Test items are simple descriptive statements, written at a third-grade reading level. Children indicated whether each item applies to them by selecting a yes (1) or no (0) response. The scale is comprised of 60 items forming six cluster scores: (1) Physical

Appearance and Attributes; (2) Behavioral Adjustment; (3) Happiness and Satisfaction; (4) Popularity, (5) Freedom From Anxiety, and (6) Intellectual and School Status. An overall self-concept score is also generated. All subscales and the total score demonstrate moderate to high internal consistency (Chronbach alphas ranging between .62 and .89). The original version of this measure, on which the current version is predicated has excellent test-retest reliability (ICC=.72).

More than half of the items on the Pier-Harris 2 are reverse scored. In order to obtain an overall self-concept score, those items had to first be reversed. A raw score was then produced by summing all completed items. Finally, a mean score was obtained by dividing the raw score by the number of items the child answered. The mean score has a range between 0 and 1. The six cluster scores were derived in a similar manner. After all reverse-scored items had been corrected, mean scores were obtained for each subscale using the same method. The Physical Appearance and Attributes subscale is comprised of 11 items addressing the child's feelings about his or her physical self. Sample items include, 'I am good looking' and 'I have nice hair'. The Behavioral Adjustment subscale is comprised of 14 items that address the child's feelings about his or her behavior. Sample items include, 'I am well behaved in school' and 'I get into a lot of fights'. The Happiness and Satisfaction subscale is comprised of 10 items asking about the child's overall satisfaction with him or herself. Sample items include, 'I wish I were different' and 'I am lucky'. The Popularity subscale is comprised of 12 items asking about the child's popularity with his or her peers. Sample items include, 'I feel left out of things' and 'I have many friends'. The Freedom from Anxiety subscale is comprised of 14 items assessing the degree to which a child experiences anxiety. Sample items include, 'I worry a lot' and 'My looks bother me'. The Intellectual and

School Status subscale is comprised of 16 items asking the child about his or her academic abilities. Sample items include, 'I am good in my schoolwork' and 'I am dumb about most things'.

### Design and Data Analysis

*Preliminary analyses.* The data for this study were drawn from a longitudinal investigation of children's peer relationships and school-based adjustment over two data collection time points. Identical measures were administered during both data collection periods, allowing for a longitudinal data analysis design to be employed. For the purposes of this research, the sample was first divided into four groups of students based on popular group membership. These groups were comprised of students who were (a) Perceived Popular (had a popularity z-score over 1.0 at Time 1), (b) Sociometrically Popular (met criteria proposed by Coie and colleagues {1982} for sociometric popularity at Time 1, (c) Combined (had a popularity z-score over 1.0 and met criteria for sociometric popularity at Time 1), and (d) Not Popular (had a popularity z-score of less than 1.0 and did not meet criteria for sociometric popularity at Time 1. Preliminary analyses addressed several objectives: (1) to examine the relationships between the dependent variables (e.g, sociometric items, social preference and social impact, gender, ethnicity, and grade level) within the dataset; (2) to examine Time 1 differences in popularity status on the basis of gender, ethnicity, and grade level; (3) to identify differences in self-concept and social self-perceptions at Time 1 as a function of popular status; and (4) to examine differences in social behaviors based on popular group membership at Time 1.

*Attrition analyses.* Between Time 1 and Time 2, 64 students with parental consent to participate in data collection had left the school system. Thus, the longitudinal dataset

included 1,359 students who had received parental consent and were enrolled in the school system at both data collection time points. In order to test for differential attrition, students who were present at both time points (stable) versus those who left the sample (transient) were compared across all variables. Chi-square analyses ~~were~~ used to test for between-group differences across all categorical variables, and multivariate analyses of variance (MANOVA) examined differences across all continuous variables between the stable versus transient groups. When significant differences were revealed, they were controlled for in subsequent analyses.

### Research Questions and Plans of Analysis

The overarching goal of the data analysis portion of this project was to examine continuity and change in popular status among elementary students, with a focus on the predictive utility of this information. This research serves as an initial step in examining the relationship between competing definitions of popularity and future adjustment. While considerable research has examined the relationship between low peer status and maladjustment, this study seeks to gain insight into the impact of changes in social acceptance and desirability on children's social self-perceptions, self-concept, and social behaviors in an effort to inform the identification of children at-risk for negative social and health behaviors and to aid intervention planning for enhancing school climate.

*Question #1: What are the Time 1 and Time 2 relationships between popular group assignments?*

In order to examine this question, a chi-square analysis was run between the four derived domains of popularity at Time 1 and at Time 2.



Hypothesis #1: It was expected that students within the Not Popular subgroup would be most consistent from Time 1 to Time 2. It was expected that the greatest variability would be present among the Perceived Popular and Combined only groups, as research suggests that social desirability is highly susceptible to temporal contingencies (Cillessen & Mayeux, 2004), and may be more likely to change over time than the status of less 'noticed' peers.

*Question #2: What are the patterns of stability among the popular sub-groups as a function of gender and grade level?*

In order to examine this question, three chi-square tests were used. Stability was coded dichotomously (e.g, stability in popular group membership was coded Y=stable or N=changed), and chi-squares were run by gender and by grade level.

Hypothesis #1 (Gender): It was expected that boys would evidence more stability in their status assignment over the course of the school year. Gender differences in social behavior and relationships have been widely documented (see Eder, 1985; Pellegrini, 2002), and girls typically develop more advanced social skills earlier than boys (O'Brien & Bierman, 1988). As a result, girls may be more likely to fluctuate in their status assignments based on the emergence of increasingly mature social behaviors over the study period.

Hypothesis #2: (Grade): Because children's conceptions of popularity consolidate as they mature (LaFontana & Cillessen, 2002), differences in the stability of popular status as a function of grade level were expected. Specifically, the Perceived Popular subgroup was expected to be more stable among fourth graders than third graders. Children begin to view negative behavior as increasingly acceptable over development (Bukowski et al.,

2000), and it is possible that older children will be more persuaded by the antisocial behavior displayed by Perceived Popular children. Sociometric popularity is also expected to show differential stability as a function of grade level. During this period of development, children become increasingly attentive to their status with their peers (O'Brien & Bierman, 1988). As a result, students may exhibit an increase in negative behavior and a decrease in the prosocial behaviors associated with sociometric popularity in an attempt to be perceived as popular.

*Question #3: How do continuity and change in popular status impact change in children's self-reported social self-efficacy, outcome expectancy, and self-concept? What impact do gender and grade level have on this relationship?*

In order to examine this question, residual scores were created through a series of regression analyses for each dependent variable that demonstrated differential attrition, in order to control for Time 1 values of each variable (Malgady & Colon-Malgady, 1991). Next, change scores were derived by subtracting the Time 1 residual scores from those at Time 2 for each adjustment indicator (Bonate, 2000). Change scores were then standardized by school and grade level in order to mirror the standardization done by the sociometric data analysis program (DeRosier & Thomas, 2003). A dummy variable was created that indicated whether each subject remained stable or changed in their popularity over the course of the school year. In order to investigate the relationship between adjustment at follow-up and stability versus change in popular status, three hierarchical 2 (Stability or Change in Popular Status at Time 2) X 2 (Grade Level) X 2 (Gender) MANOVAs were run, one for each of the remaining Time 1 popular subgroups. Due to very few students who were classified as Combined at Time 1 becoming Not Popular at Time 2 (n=5), this subgroup was excluded for

this set of analyses. For significant multivariate effects, univariate analyses were examined to determine for which areas of adjustment the effect held. For significant univariate effects, effect sizes were calculated and post-hoc mean comparison tests (Student-Newman Keuls) were conducted to determine the direction of effect.

Next, a MANOVA was run in an effort to illuminate differences in change in self-perceptions as a function of the specific popular group (e.g., Sociometric, Perceived, or Combined) that a student was assigned to at Time 2, based on their group assignment at Time 1. For this set of analyses, four MANOVAS were initiated (one for each Time 1 status group), using group assignment at Time 2 (e.g., Perceived, Sociometric, or Combined) as the independent variable and the social self-efficacy, outcome expectancy, and self-concept change scores as the dependent variables. For significant multivariate effects, univariate analyses were examined to determine for which areas of adjustment the effect held. For significant univariate effects, post-hoc means comparison tests using the Student-Newman Keuls procedure were conducted to determine the direction of effect.

Hypothesis #1: (Stability of popular status): It was expected that students who were popular at Time 1 and became unpopular over the course of the school year would experience differential change in their self-reported social self-efficacy, outcome expectancy, and self-concept at Time 2 when compared to those who remained popular. Current theories of individual social development stress the importance of social experiences in the formation of self perceptions across domains (Harter, 1993). These critical experiences include positive treatment by important others (including peers), the observation of the self as competent, and affirmative social comparisons. Research has demonstrated that children who experience a loss of centrality within their peer group

evidence concurrent declines in feelings of self-worth (Egan & Perry, 1998). Because children who experience poor acceptance within the peer group evidence a parallel impaired sense of social competence (Bandura, 1986), while the opposite is true for children who are well-regarded amongst their peers; children who are popular with their schoolmates evidence largely positive social self-perceptions (Jackson & Bracken, 1998).

It was expected that children who were perceived as popular at Time 1 but became unpopular at Time 2, would show significant declines in their scores on all self-report measures. For students who were Sociometrically Popular at Time 1 and Not Popular at Time 2, a similar pattern was hypothesized, however it was expected that change would be of lesser magnitude. Because sociometric popularity is an index of social preference as opposed to social impact (Coie et al., 1982), smaller changes in self-reported adjustment will parallel the feedback the child receives from his peer group. While decline in the degree to which a child is well-liked by the broader peer system is an insult to the sense of self, it may be less damaging than the significant exclusion associated with being 'expelled' from the popular group (Adler et al., 1992). Among students who were unpopular at Time 1 but became popular at Time 2, enhanced scores on all self-report measures were expected. These increases were assumed to reflect the parallel improvement in self attributions associated with gaining peer success, as social acceptance and recognition have been linked to heightened self perceptions (Boivin & Begin, 1989). With further examination of the variability of self-perceptions based on maintenance of group assignment versus movement into a different high status group, it was expected that among students who began the school year as Sociometrically Popular, those who obtained Perceived Popularity at follow-up would evidence more positive

change in their self-perceptions than those who remained stable in their group assignment. An inverse pattern was expected for students who were initially Perceived Popular but lost social dominance over the course of the school year. Due to their dismissal from the socially visible group, a correlated larger decline in self-perceptions was expected.

Hypothesis #2: (Gender): It was expected that change in popular status would have a significantly greater impact on female's Time 2 self-evaluations than for males. Girls are more concerned with their social status than boys (Adler et al., 1992; Eder, 1985), and appear to have more well-developed awareness of their own and other's social standing (Cillessen & Bellmore, 2002). Because self-esteem in females is closely linked to their interpersonal relationships (Eder, 1985) and peer reactions have greater impact on their feelings of self-worth (O'Brien & Bierman, 1988), it was hypothesized that females in this sample would evidence greater impact on their sense of self as a result of change in social acceptance and/or desirability.

Hypothesis #3: (Grade): It was expected that older students (e.g., 4<sup>th</sup> graders) would demonstrate more significant change in their self-perceptions as a function of stability of their popularity status than the 3<sup>rd</sup> grade students in this sample. As previously mentioned, late childhood is a developmental period in which social relationships take on increasing importance (Furman & Buhrmester, 1985). Research specifically examining social aspirations and correlated shifts in self-esteem during late childhood (Rosenberg & Simmons, 1975) have revealed that as children become increasingly concerned with their social standing, they demonstrate significantly more self-consciousness (Elkind & Bowen, 1979). It was hypothesized that 4<sup>th</sup> graders in this sample would be both more

aware of their position within the broader social structure, and more concerned with social recognition and acceptance. As a result, greater changes in their self-perceptions in response to the instability of their popularity with grade mates was expected compared to 3<sup>rd</sup> graders, who may be developmentally less aware of, and concerned with, their social standing.

*Research Question #4: How do continuity and change in popular status impact change in students' peer-reported social behaviors? What impact do gender and grade level have on this relationship?*

In order to examine this question, residual scores were created through a series of regression analyses for all dependent variables that demonstrated differential attrition, in order to control for Time 1 values of each variable (Malgady & Colon-Malgady, 1991). Next, change scores were derived by subtracting the Time 1 residual scores from those at Time 2 for each adjustment indicator (Bonate, 2000). Change scores were then standardized by school and grade level in order to mirror the standardization done by the sociometric data analysis program (DeRosier & Thomas, 2003). A dummy variable was created that indicated whether each subject remained stable or changed in their popularity over the course of the school year. In order to investigate the relationship between social behaviors at follow-up and stability versus change in popular status, three hierarchical 2 (Stability or Change in Popular Status at Time 2) X 2 (Grade Level) X 2 (Gender) MANOVAs were run, one for each of the remaining Time 1 popular subgroups. Due to very few students who were classified as Combined at Time 1 becoming Not Popular at Time 2 (n=5), this subgroup was excluded for this set of analyses. For significant multivariate effects, univariate analyses were examined to determine for which areas of adjustment the effect held. For significant univariate effects,

effect sizes were calculated, and post-hoc mean comparison tests (Student-Newman Keuls) were conducted to determine the direction of effect.

Next, a MANOVA was run in an effort to examine differences in change in social behaviors as a function of the specific popular group (e.g., Sociometric, Perceived, or Combined) that a student was assigned to at Time 2 based on their group assignment at Time 1. For this set of analyses, four MANOVAS were initiated (one for each Time 1 status group) using group assignment at Time 2 (e.g., Perceived, Sociometric, or Combined) as the independent variable and the social behavior change scores as the dependent variables. For significant multivariate effects, univariate analyses were examined to determine for which areas of adjustment the effect held. For significant univariate effects, post-hoc means comparison tests using the Student-Newman Keuls procedure were conducted to determine the direction of effect.

Hypothesis #1: (Stability of popularity): It was expected that students who evidenced inconsistency in their popular status over the course of the school year would experience differential change in their peer-reported social behaviors at Time 2. An abundant research literature has demonstrated differences in social behaviors between well-accepted and disliked students (Coie et al., 1990; Newcomb et al., 1993). Because peer acceptance has concurrent impact on children's social adjustment (Boivin & Hymel, 1997), it was expected that students who experienced a loss of centrality within the peer group would show correlated declines in their positive social behaviors and increases in their use of aggression.

As previous research has demonstrated strong associations between overt and indirect aggression and perceived popularity (Cillessen & Mayeux, 2004; Farmer et al., 2003), it

was expected that children who were perceived as popular at Time 1 but lost social visibility over the study period would show reductions in their use of bullying and relational aggression. For students who were sociometrically popular at Time 1 but had declined in social acceptance at follow-up, it was expected that reductions in peer liking and reciprocated friendships would be evident. Due to the inherent measurement constructs of sociometric popularity (Coie et al., 1982), it was also expected that these students would evidence substantial increases in their peer-reported dislike. Additionally, as sociometrically popular students lost social preference, it was expected that their peers' conception of them as leaders would also weaken, due to previous research that has pointed out the influence of perceived leadership skills on social centrality (Farmer et al., 2003). For students who gained social prestige over the school year by moving out of the Not Popular group, associated increases in their peer acceptance and reciprocated friendships were expected. Enhancement of their perception as leaders was also projected, based on available evidence that suggests that among elementary-age students, high social status is dependent on the demonstration of prosocial behaviors (Coie et al., 1990). Differential change in use of negative social behaviors was expected as a function of the specific popular group Time 1 Not Popular students moved into. Based upon the reported relationship between social dominance and aggression, it was expected that students who obtained Perceived Popularity at Time 2 (e.g., became Perceived or Combined Popular) would evidence inflated bullying and relationally aggressive mean change scores when compared to those who moved into the Sociometrically Popular group.



Hypothesis #2: (Gender): It was expected that stability or change in social status would differentially impact male and female Time 2 social behaviors. Specifically, since boys are more likely to be overtly aggressive towards their peers (Crick & Bigbee, 1998), it was expected that males who became unpopular over the study period would demonstrate a correlated increase in bullying behaviors as compared to their female counterparts. Conversely, because previous research has shown that females who are popular with their peers are commonly viewed as class leaders (Adler et al., 1992; Eder, 1985), it was expected that among students who were unpopular at Time 1 but achieved high status over the course of the school year, girls would evidence stronger gains in their peer-perceived leadership skills than boys.

Hypothesis #3: (Grade): It was expected that older students (e.g., 4<sup>th</sup> graders) would demonstrate more differential change in their social behaviors as a function of the stability of their popularity status than the 3<sup>rd</sup> grade students in this sample. Because social awareness increases over development (Selman, 1980), 4<sup>th</sup> grade students were expected to be more behaviorally responsive to their social position. Since leadership is increasingly related to social influence as children get older (Pettit, Bakshi, Dodge, & Coie, 1990), it was expected that 4<sup>th</sup> grade students who had gained social prestige at Time 2 would evidence stronger increases in their positive social behaviors (e.g., leadership). Additionally, their mean number of reciprocated friendships was expected to be higher when compared to their younger peers. Considering available research that has demonstrated reduced peer acceptance of overt aggression as children mature (Rose et al., 2004), it was expected that older students who gained high social status over the course of the school year would demonstrate larger reductions in their bullying behaviors than

their younger peers. The inverse was anticipated for 4<sup>th</sup> grade students who lost social centrality over the school year. Due to their peers' lower tolerance for aggressive behavior, it was expected that older students would have inflated mean bullying scores that may have contributed to their loss of high social status.

## CHAPTER IV

### RESULTS

#### Overview

The results are presented in six sections following the order of the analyses proposed in the Methods section of this paper. The first section reports the preliminary analyses run on the dataset. The second section is the attrition analyses. Between Time 1 and Time 2, 64 students with parental consent to participate in data collection had left the school system. Thus, the longitudinal dataset included 1,359 students who had received parental consent and were enrolled in the school system at both data collection time points. The following section addresses the first main analysis question which examined the stability of popular status as a function of Time 1 popular group membership. The subsequent research question investigated the patterns of stability in popular status as a function of gender and grade level. Next, the influence of stability in popular status on children's self-reported social self-perceptions and self-concept was examined, with consideration of gender and grade level as moderating variables on this relationship. The final results section and set of analyses examined the relationship between stability versus change in popularity on children's peer reported social behaviors, while considering gender and grade level as potential moderators.

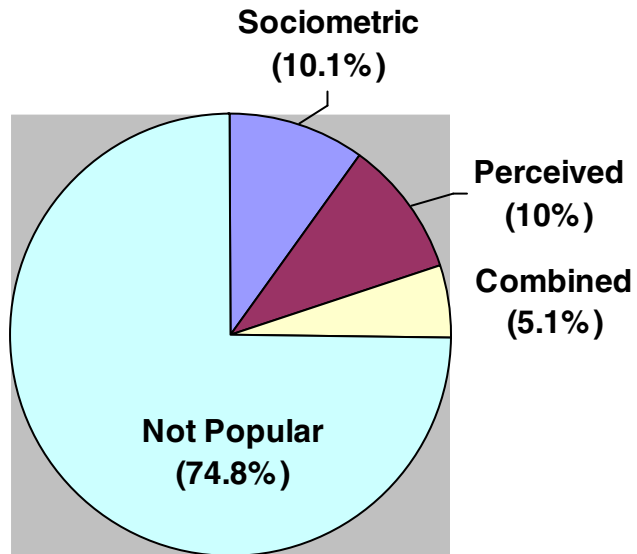
#### Preliminary analyses

The subject population was first divided into four social status groups based on popularity: (1) Perceived Popular (students who had a popularity z-score over 1.0 at Time 1), (2) Sociometrically Popular (students who met criteria proposed by Coie and colleagues {1982} for sociometric popularity at Time 1), (3) Combined (students who had a popularity z-score over 1.0 and met criteria for sociometric popularity at Time 1), and (4) Not Popular (students who had a popularity z-score of less than 1.0 and did not meet criteria for sociometric popularity at Time 1). Frequency tables were generated in order to demonstrate the number of students in each group. Of the study population, 142 (10%) students were classified as Perceived Popular, 144 (10.1%) were sociometrically Popular, 73 (5.1%) were nominated as both perceived and sociometrically popular, and 1064 (74.8%) fell into the Not Popular group. See Figure 1 for display of these results. Because the perceived popular status group draws students from all five of the traditional social status groups, (i.e., Coie et al., 1982) as well as the Unclassified group, the Not Popular group is comprised of students from all status groups as well. To use only Average or Rejected students as a comparison group would not accurately portray the diversity among the popular groups constructed in this research. Using the traditional sociometric algorithm, of the 217 students considered sociometrically popular at Time 1, 34% were also seen as perceived popular by their peers based on the model of popularity derived for this study. Among the 108 controversial students, 52% were assigned to the Perceived Popular group when the Popular groups were delineated for the purposes of this study. Figure 2 displays this relationship.

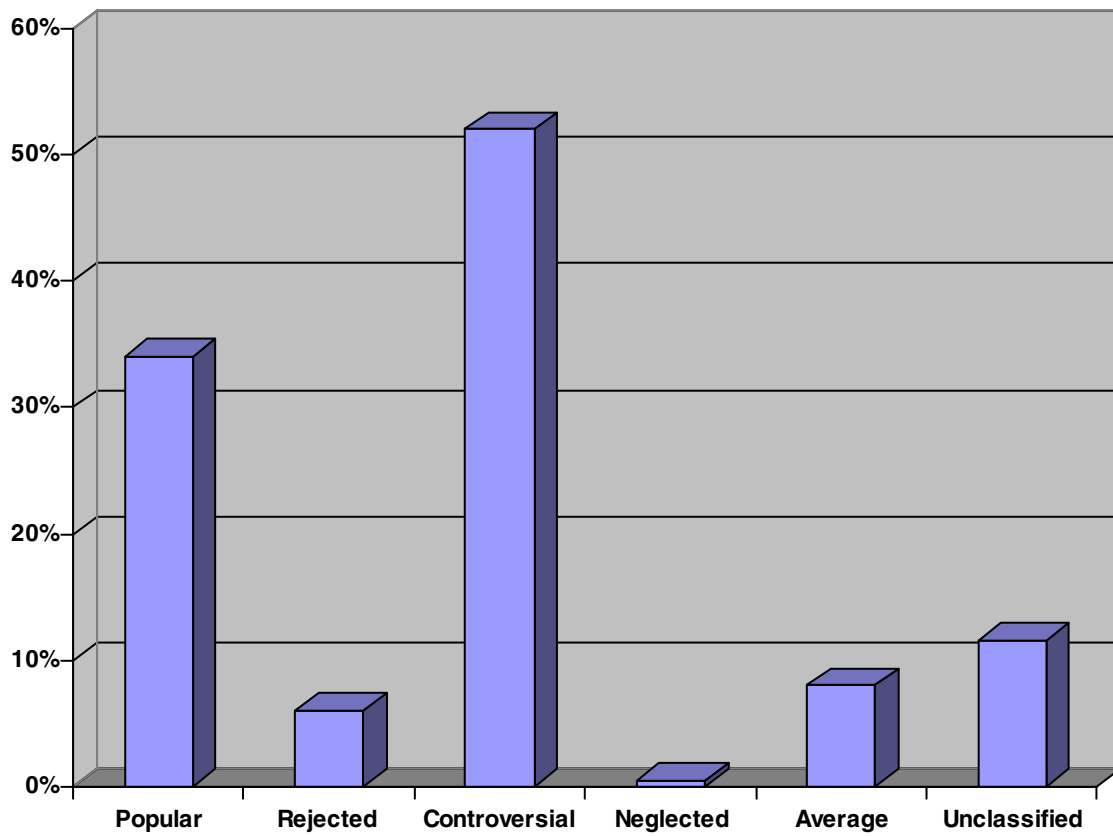
Correlations were then run between all Time 1 sociometric items (i.e., Liked Most, Liked Least, Indirect Aggression, Bullying, Victimization, Perceived Popularity, Friendship, and Leadership) and Social Preference and Social Impact. Strong positive correlations were

**Figure 1:**

**Percentage of Students in Each Popular Category at Time 1**



**Figure 2:**  
**Percentage of Students Classified as Perceived Popular**  
**From the Traditional Social Status Classifications**



found between Liked Most and Friendship (.85), Leadership (.66) and Social Preference (.82), Liked Least and Bullying (.66) and Indirect Aggression (.62), Bullying and Indirect Aggression (.69), Perceived Popularity and Leadership (.70), and Friendship and Leadership (.64) and Social Preference (.71). Moderate positive correlations were found between Liked Most and Perceived Popularity (.56) and Social Impact (.59), Liked Least and Victimization (.45) and Social Impact (.55), Bullying and Social Impact (.41), Perceived Popularity and Friendship (.54), Social Impact (.49) and Social Preference (.34), Friendship and Social Impact (.48), Leadership and Social Impact (.38) and Social Preference (.54), and Indirect Aggression and Social Impact (.43). A strong negative correlation was found between Liked Least and Social Preference (-.81). Moderate negative correlations were demonstrated between Liked Most and Liked Least (-.34), Liked Least and Friendship (-.32), Bullying and Social Preference (-.51), Victimization and Social Preference (-.40), and Indirect Aggression and Social Preference (-.45). Table 1 displays these findings.

A MANOVA (multivariate analysis of variance) was run in order to examine the relationship between the sociometric variables and gender, ethnicity, and grade level at Time 1. Significant multivariate effects were followed up with univariate analyses, and for the univariate effects that held, post-hoc means comparisons using the Student-Neumann Keuls procedure were employed. Significant multivariate main effects were found for Gender ( $F_{(10,1386)}=5.39, p<.0001$ ) and Ethnicity ( $F_{(10,1390)}=33.15, p<.0001$ ). A multivariate interaction effect was found between Gender and Ethnicity ( $F_{(10,1390)}=4.87, p<.0001$ ).

Univariate analyses demonstrated significant relationships between gender and liked least ( $F_{(1,1416)}=11.97, p<.001$ ), bullying ( $F_{(1,1416)}=26.47, p<.0001$ ), victimization ( $F_{(1,1416)}=4.11, p<.05$ ), perceived popularity ( $F_{(1,1416)}=11.41, p<.001$ ), and social impact ( $F_{(1,1416)}=16.18,$

**Table 1:****Time 1 Correlations Between Sociometric Items**

	Liked Most	Liked Least	Relational Aggression	Bullying	Victimization	Perceived Popularity	Friendship	Leadership	Social Preference	Social Impact
Liked Most	1.0									
Liked Least	-0.344***	1.0								
Relational Aggression	-0.115***	0.623***	1.0							
Bullying	-0.179***	0.662***	0.694***	1.0						
Victimization	-0.213***	0.448***	0.195***	0.208***	1.0					
Perceived Popularity	0.555***	-0.002	0.28***	0.179***	-0.089**	1.0				
Friendship	0.849***	-0.316***	-0.114***	-0.193***	-0.212***	0.534***	1.0			
Leadership	0.657***	-0.231***	0.008	-0.067*	-0.166***	0.7***	0.638***	1.0		
Social Preference	0.823***	-0.814***	-0.446***	-0.51***	-0.402***	0.342***	0.713***	0.008***	1.0	
Social Impact	0.588***	0.552***	0.43***	-.41***	0.194***	0.487***	0.477***	0.543***	0.03	1.0

Note: \*=p<.05; \*\*=p<.001; \*\*\*=p<.0001.



$p < .0001$ ). Univariate effects for ethnicity held for liked most ( $F_{(5,1412)} = 19.19$ ,  $p < .0001$ ), liked least ( $F_{(5,1412)} = 17.72$ ,  $p < .0001$ ), bullying ( $F_{(5,1412)} = 56.36$ ,  $p < .0001$ ), indirect aggression ( $F_{(5,1412)} = 26.50$ ,  $p < .0001$ ), perceived popularity ( $F_{(5,1412)} = 11.41$ ,  $p < .001$ ), friendship ( $F_{(5,1412)} = 20.46$ ,  $p < .0001$ ), leadership ( $F_{(5,1412)} = 12.07$ ,  $p < .0001$ ), social impact ( $F_{(5,1412)} = 16.88$ ,  $p < .0001$ ), and social preference ( $F_{(5,1412)} = 18.74$ ,  $p < .0001$ ). Interaction effects held for liked most ( $F_{(5,1412)} = 2.92$ ,  $p < .05$ ), bullying ( $F_{(5,1412)} = 5.09$ ,  $p < .0001$ ), perceived popularity ( $F_{(5,1412)} = 5.91$ ,  $p < .0001$ ), leadership ( $F_{(5,1412)} = 3.74$ ,  $p < .01$ ), and social impact ( $F_{(5,1412)} = 2.35$ ,  $p < .05$ ).

Post-hoc means comparisons tests indicated that boys had higher scores for liked least, bullying, and victimization than girls, although they also had higher mean social impact scores. Girls demonstrated higher mean perceived popularity than boys. Caucasian students demonstrated higher mean liked most scores than Latino/a students, while African American students had higher liked least scores than all other groups except Native American. African American students were named as the biggest bullies and indirect aggressors, while Native American students were higher on bullying behaviors and indirect aggression than Asian students. Native American students were rated as the most perceived popular compared to all other groups, and these students also received the highest number of friendship nominations; Latino/a students received the least. Native Americans also demonstrated the highest mean leadership score, while Caucasian students were stronger leaders than their Latino/a peers. Native American students evidenced the highest mean social impact scores while Latino/a students demonstrated the lowest scores on this index. African American students demonstrated the lowest social preference scores of any other group except Latino/a students. Examination of interaction effect means suggests that African American boys and girls and

Latino boys received the lowest liked most scores, while Caucasian girls and Multi-Racial boys received the highest. African American boys evidenced significantly higher bullying scores than other students, although African American girls and Native American boys obtained elevated bullying mean scores as well. Native American and Asian girls were seldom nominated as bullies. Native American boys received the highest perceived popularity score while Latina girls and Asian boys were seldom nominated as popular. Native American boys obtained the highest social impact mean scores, followed by Caucasian girls. Lowest on social impact were Latino/a boys and girls.

The next set of preliminary analyses was aimed at examining Time 1 differences in popular status as a function of gender, ethnicity, and grade level. Chi-square analysis revealed significant differences in popular group membership based on gender ( $\chi^2_{(3)}=16.44$ ,  $p<.001$ ). Examination of the results suggests that girls were more likely to be assigned to the Combined and Sociometrically Popular groups than boys. Significant differences in Time 1 popular status as a function of student ethnicity were also demonstrated using chi-square analysis ( $\chi^2_{(15)}=62.84$ ,  $p<.0001$ ). Examination of the results suggests that Asian/Pacific Islander students were most likely to be classified as Sociometrically Popular than students of any other ethnic group, while they were infrequently considered Perceived Popular. Caucasian, African American, and Multi-Racial students were approximately equally likely to be nominated as Perceived Popular, while Native American students were most likely to be assigned to this group. Latino/a students were most often assigned to the Not Popular group, while Caucasian students were least likely to belong to this category. Caucasian students were more likely than students of any other ethnic group to be classified within the

Combined group. Table 2 displays these results. No significant popular group by grade level relationship was found.

Next, a MANOVA (multivariate analysis of variance) was run in order to examine differences in self-reported social self-perceptions and self-concept as a function of popular group assignment. For significant multivariate effects, univariate tests were performed. For significant univariate findings, post hoc means comparisons tests were run using the Student-Neumann Keuls procedure. A significant multivariate main effect was found for popular group membership ( $F_{(9, 1313)}=12.04, p<.0001$ ). Univariate effects held for Self-Efficacy ( $F_{(3, 1319)}=6.43, p<.001$ ), Outcome Expectancy ( $F_{(3,1319)}=4.95, p<.01$ ), Overall Self-Concept ( $F_{(3,1319)}=23.28, p<.0001$ ), Behavioral Adjustment ( $F_{(3,1319)}=8.28, p<.0001$ ), Popularity ( $F_{(3,1319)}=28.53, p<.0001$ ), Physical Appearance ( $F_{(3,1319)}=28.31, p<.0001$ ), Happiness and Satisfaction ( $F_{(3,1319)}=10.27, p<.0001$ ), Intellectual and School Status ( $F_{(3,1319)}=13.44, p<.0001$ ), and Freedom from Anxiety ( $F_{(3,1319)}=8.90, p<.0001$ ).

Post-hoc analyses revealed that Perceived Popular students had higher mean Self-Efficacy than students in the Not Popular group and higher mean Outcome Expectancy than any other group of students. Students in any one of the three popular groups demonstrated higher overall self-concept than Not Popular students. Students in the Combined and Sociometrically Popular groups reported higher mean Behavioral Adjustment than students in the Not Popular group. Students who were both types of popular rated themselves as significantly more popular than Sociometrically Popular and Not Popular students. Perceived Popular students rated themselves as significantly more attractive than any other group of students, while Combined students felt more positively about their appearance than Not

**Table 2:**

**Popular Group Assignment at Time 1 as a Function of Ethnicity**

*Time 1 Popular Status*

<i>Ethnicity</i>	(n=144) <b>Sociometric</b>	(n=141) <b>Perceived</b>	(n=72) <b>Combined</b>	(n=1061) <b>Not Popular</b>
<b>African-American</b> (n=182)	5% (n=9)	13% (n=23)	2% (n=4)	80% (n=146)
<b>American Indian</b> (n=9)	0% (n=0)	22% (n=2)	0% (n=0)	78% (n=7)
<b>Asian/Pacific Islander</b> (n=178)	14% (n=25)	3% (n=5)	3% (n=6)	80% (n=142)
<b>Caucasian</b> (n=864)	12% (n=103)	11% (n=99)	7% (n=59)	70% (n=603)
<b>Latino/a</b> (n=115)	2% (n=2)	3% (n=4)	1% (n=1)	94% (n=108)
<b>Multi-Racial</b> (n=70)	7% (n=5)	11% (n=8)	3% (n=2)	79% (n=55)

Popular students. Students in any one of the three popular groups reported greater Happiness and Satisfaction than Not Popular students, and the same pattern was true for Intellectual and School Status. Students in the Combined and Perceived Popular groups reported greater Freedom from Distraction than Not Popular students. Table 3 displays the between-group means and standard deviations for these self-report variables.

The final set of preliminary analyses was aimed at examining Time 1 differences in social behaviors (Liked Most, Liked Least, Bullying, Relational Aggression, Victimization, Reciprocal Friendships, and Leadership) between the four derived popular status groups. The significant multivariate effect ( $F_{(9, 1412)}=255.09, p<.0001$ ) was followed up with univariate analyses, and for the univariate effects that held, post-hoc means comparisons using the Student-Neumann Keuls procedure were employed. Univariate effects held for all dependent variables, demonstrating significant relationships between popular group membership and Liked Most ( $F_{(3, 1419)}=366.45, p<.0001$ ), Liked Least ( $F_{(3, 1419)}=75.60, p<.0001$ ), Bullying ( $F_{(3, 1419)}=41.56, p<.0001$ ), Relational Aggression ( $F_{(3, 1419)}=50.41, p<.0001$ ), Victimization ( $F_{(3, 1419)}=5.91, p<.001$ ), Reciprocal Friendships ( $F_{(3, 1419)}=230.99, p<.0001$ ), and Leadership ( $F_{(3, 1419)}=271.05, p<.0001$ ).

Post-hoc analyses indicated that students in the Combined group were the most well-liked, followed by Sociometrically Popular students, then Perceived Popular students, with Not Popular students evidencing the lowest mean Liked Most scores. Perceived Popular students obtained the highest mean Liked Least score of any group, followed by the Not Popular group, with students in the Combined and Sociometrically Popular groups earning similarly low scores on this variable. The pattern was similar for Bullying, with Perceived Popular

**Table 3:**

**Means and Standard Deviations of Self-Reported Social Self-Perceptions and Self-Concept  
as a Function of Time 1 Popular Status**

<i>Self-Report Domain</i>	<i>Popular Status</i>			
	Sociometric	Perceived	Combined	Not Popular
Self-Efficacy	3.95 (.53) <sup>ab</sup>	4.07 (.46) <sup>a</sup>	4.03 (.46) <sup>a</sup>	3.86 (.60) <sup>b</sup>
Outcome Expectancy	3.63 (.47) <sup>b</sup>	3.80 (.48) <sup>a</sup>	3.65 (.42) <sup>b</sup>	3.60 (.59) <sup>b</sup>
Overall Self-Concept	0.82 (.13) <sup>a</sup>	0.86 (.11) <sup>a</sup>	0.85 (.12) <sup>a</sup>	0.77 (.16) <sup>b</sup>
Behavioral Adjustment	0.93 (.11) <sup>a</sup>	0.91 (.12) <sup>ab</sup>	0.93 (.12) <sup>a</sup>	0.88 (.16) <sup>b</sup>
Popularity	0.74 (.19) <sup>b</sup>	0.78 (.19) <sup>ab</sup>	0.80 (.17) <sup>a</sup>	0.64 (.23) <sup>c</sup>
Physical Appearance	0.72 (.20) <sup>bc</sup>	0.84 (.17) <sup>a</sup>	0.76 (.21) <sup>b</sup>	0.67 (.22) <sup>c</sup>
Happiness/Satisfaction	0.90 (.16) <sup>a</sup>	0.92 (.13) <sup>a</sup>	0.91 (.13) <sup>a</sup>	0.84 (.21) <sup>b</sup>
Intellectual/School Status	0.84 (.17) <sup>a</sup>	0.88 (.13) <sup>a</sup>	0.87 (.13) <sup>a</sup>	0.79 (.19) <sup>b</sup>
Freedom from Anxiety	0.80 (.19) <sup>ab</sup>	0.83 (.16) <sup>a</sup>	0.84 (.17) <sup>a</sup>	0.76 (.21) <sup>b</sup>

\*Means with different letters indicate significant differences.

students being recognized by their peers as the biggest bullies, followed by students in the Not Popular group, then those in the Combined group. Sociometrically Popular students were seen as bullies the least often. Perceived Popular students evidenced the highest mean scores for Relational Aggression, while Sociometrically Popular students earned the lowest. Combined and Not Popular students were similarly in the middle with regard to this variable. Not Popular students were most likely to be victimized, while their Sociometrically Popular peers were least often viewed as victims. Students in the Combined group had the highest mean number of reciprocal friendships, followed by Sociometrically Popular students, then Perceived Popular students. Not Popular students evidenced the fewest reciprocated friendships. Combined students were seen as the biggest leaders, followed by Perceived Popular students, then Sociometrically Popular students. Not popular students were seldom viewed as possessing strong leadership qualities. Table 3 shows the between-group means and standard deviations for these peer-reported social behaviors.

#### Attrition analyses

Over the course of the study period, 64 students with parental consent to participate in data collection had left the school system. In order to test for differential attrition, students with parental consent who were present at both time points (stable) versus those who left the sample (transient) were compared across all variables. Chi-square analyses were used to test for between-group attrition differences by gender, ethnicity, grade level, and Time 1 popular group membership. Bonferroni correction was employed to control for spurious effects associated with running multiple frequency tests (Lomax, 2001). No differential attrition effects were evidenced.

**Table 4:****Means and Standard Deviations of Peer-Reported Social Behaviors as a Function of Time 1 Popular Status**

<i>Social Behavior</i>	<i>Popular Status</i>			
	Sociometric	Perceived	Combined	Not Popular
Liked Most	1.32 (.50) <sup>b</sup>	0.60 (.74) <sup>c</sup>	1.70 (.46) <sup>a</sup>	-0.31 (.79) <sup>d</sup>
Liked Least	-0.87 (.39) <sup>c</sup>	0.50 (.94) <sup>a</sup>	-0.72 (.32) <sup>c</sup>	0.79 (.96) <sup>b</sup>
Bullying	-0.53 (.23) <sup>d</sup>	0.64 (1.16) <sup>a</sup>	-0.28 (.53) <sup>c</sup>	-0.02 (.86) <sup>b</sup>
Relational Aggression	-0.57 (.43) <sup>c</sup>	0.78 (1.2) <sup>a</sup>	0.01 (.74) <sup>b</sup>	-0.02 (.96) <sup>b</sup>
Victimization	-0.28 (.57) <sup>b</sup>	-0.07 (.69) <sup>ab</sup>	-0.16 (.63) <sup>ab</sup>	0.06 (.56) <sup>a</sup>
Reciprocated Friendships	1.08 (.69) <sup>b</sup>	0.65 (.82) <sup>c</sup>	1.47 (.64) <sup>a</sup>	-0.27 (.84) <sup>d</sup>
Leadership	0.63 (.85) <sup>c</sup>	1.19 (.75) <sup>b</sup>	1.71 (1.0) <sup>a</sup>	-0.30 (.71) <sup>d</sup>

\*Means with different letters indicate significant differences.



In order to test for between-group (stable versus transient) differences in Time 1 self-reported student adjustment, a multivariate analysis of variance (MANOVA) was employed. A multivariate main effect was found for Attrition ( $F_{(9, 1313)}=2.37, p<.05$ ). Univariate effects were revealed for Overall Self-Concept ( $F_{(1, 1321)}=6.21, p<.05$ ), Behavioral Adjustment ( $F_{(1, 1321)}=7.88, p<.01$ ), Happiness and Satisfaction ( $F_{(1, 1321)}=5.00, p<.05$ ), Intellectual and School Status ( $F_{(1, 1321)}=8.23, p<.01$ ), and Freedom from Anxiety ( $F_{(1, 1321)}=8.09, p<.01$ ). Post-hoc analyses using the Student-Newman Keuls procedure revealed that students who remained in the study sample over both data collection time points reported higher mean scores on each of those variables at Time 1 than students who left the sample prior to follow-up. In order to address these attrition findings, residual scores were computed for all adjustment variables at Time 1 as a function of attrition status prior to creating change scores for any subsequent analyses (Malgady & Colon-Malgady, 1991).

In order to test for between-group (stable versus transient) differences in Time 1 peer-reported social behavior, a multivariate analysis of variance (MANOVA) was employed. A multivariate main effect was found for Attrition ( $F_{(7, 1415)}=3.00, p<.005$ ). Univariate effects were revealed for Liked Most ( $F_{(1, 1422)}=14.69, p<.0001$ ), Bullying ( $F_{(1, 1422)}=4.92, p<.05$ ), Perceived Popularity ( $F_{(1, 1422)}=4.54, p<.05$ ), Reciprocated Friendships ( $F_{(1, 1422)}=12.37, p<.001$ ), and Leadership ( $F_{(1, 1422)}=8.80, p<.005$ ). Post-hoc analyses using the Student-Newman Keuls procedure revealed that students who remained in the study sample over both data collection time points received higher mean liked most scores, engaged in less bullying behavior, were more often perceived as popular, participated in more reciprocated friendships, and were viewed as stronger leaders at Time 1 than those who left the sample prior to the follow-up data collection. In order to address these attrition findings, prior to

creating change scores for any subsequent analyses, residual scores were computed for those peer-report variables that showed differential attrition.

#### Research question #1:

What are the Time 1 and Time 2 relationships between popular group assignments?

In order to examine the relationship between Time 1 and Time 2 popular group membership, a chi-square analysis was used. Results revealed significant differences in status group stability as a function of Time 1 popular group assignment ( $\chi^2_{(9)}=920.9$ ,  $p<.0001$ ). Examination of the pattern of results showed that 90% of students in the Not Popular group at Time 1 were classified the same at Time 2, which was significantly more stable than any other group. Sociometric popularity appeared to be the most unstable, as only 43.5% of students classified as Sociometrically Popular at Time 1 were assigned to that same group at Time 2. Many of these non-stable sociometrically popular students became Not Popular over the course of the school year (45%). Notably, very few students classified as Perceived Popular became Sociometrically Popular over the course of the school year (4.4%), and the same was true for those classified as Sociometrically Popular at Time 1; these students seldom became Perceived Popular (5%). See Table 5.

#### Research question #2: What are the patterns of stability among the popular sub-groups as a function of gender and grade level?

In order to examine this question, a series of chi-square analyses was initiated. Results revealed a significant relationship between popular group membership and stability of status and gender. The effect was significant for both boys ( $\chi^2_{(9)}=448.04$ ,  $p<.0001$ ) and girls ( $\chi^2_{(9)}$

**Table 5:**  
**Stability of Popular Group Membership between Time 1 and Time 2**

<i>Time 1 Popular Status</i>	<i>Popular Status at Time 2</i>			
	(n=133) <b>Sociometric</b>	(n=131) <b>Perceived</b>	(n=78) <b>Combined</b>	(n=1017) <b>Not Popular</b>
<b>Sociometric</b> (n=138)	<b>43.5%</b> (n=60)	5% (n=7)	6.5% (n=9)	45% (n=62)
<b>Perceived</b> (n=137)	4.4% (n=6)	<b>51%</b> (n=70)	14% (n=19)	30.6% (n=42)
<b>Combined</b> (n=73)	15% (n=11)	29% (n=21)	<b>49%</b> (n=36)	7% (n=5)
<b>Not Popular</b> (n=1011)	5.5% (n=56)	3% (n=33)	1.5% (n=14)	<b>90%</b> (n=908)

=520.77,  $p < .0001$ ). Examination of the pattern of results suggests that among students in the Combined subgroup, boys are more likely to remain stable, while girls often move into the Perceived Popular group. Among Sociometrically Popular students, girls appear to frequently move into the Perceived Popular group, while boys are more likely to become Not Popular.

A significant relationship was also demonstrated between popular group membership and stability of status and grade level. The effect held for both third graders ( $\chi^2_{(9)} = 494.98$ ,  $p < .0001$ ) and fourth graders ( $\chi^2_{(9)} = 478.33$ ,  $p < .0001$ ). Among students in the Combined subgroup, fourth graders remain in this status classification more often than third graders, while third graders frequently move into either the Perceived Popular or Sociometrically Popular groups. Fourth graders were also less likely than third graders to become Not Popular over the course of the school year. Among Perceived Popular students, fourth graders were more likely to move into the Combined group, while third graders were more likely to become Sociometrically Popular. Sociometrically Popular fourth graders were less stable in their status classification than third graders. Among this group of fourth graders, students who changed in their status over the course of the year were more likely to become either Not Popular or Perceived Popular.

Research Question #3: How do continuity and change in popular status impact differences in students' self-reported social self-efficacy outcome expectancy, and self-concept? What impact do gender and grade level have on this relationship?

Due to differences in Time 1 self-reported adjustment between students who remained in the sample over the course of the school year versus those who left, residual scores were first calculated for all Time 1 adjustment domains using regression analysis (Malgady & Colon-

Malgady, 1991). Change scores were then created by subtracting the Time 1 residual score from the Time 2 score for each adjustment indicator (Bonate, 2000). Change scores were then standardized by school and grade level in order to mirror the standardization done by the sociometric data analysis program (DeRosier & Thomas, 2003). For students who were assigned to one of the three popular groups at Time 1, a dichotomous dummy variable was created in order to identify whether s/he remained popular or became unpopular over the course of the school year. For students who were assigned to the Not Popular group at Time 1, a dichotomous dummy variable was created in order to identify students who remained unpopular or became popular at Time 2.

In order to investigate the relationship between self-reported adjustment at follow-up and stability versus change in popular status, three hierarchical 2 (Stability of popular status) X 2 (Grade Level) X 2 (Gender) MANOVAs were conducted, one for each of the remaining Time 1 popular subgroups. Due to the prohibitively low number of Time 1 Combined Popular students who became unpopular over the course of the school year ( $n=5$ ), this subgroup was excluded from this set of analyses. No significant multivariate main or interaction effects were found.

In order to examine the variability of change in self-perceptions as a function of the specific popular group (e.g., Sociometric, Perceived, or Combined) that students were assigned to at Time 2, four MANOVAs were initiated, one for each of the Time 1 status groups. No significant multivariate effects were obtained.

Research Question #4: How do continuity and change in popular status impact change in students' peer-reported social behaviors?

What impact do gender and grade level have on this relationship?

Due to differences in Time 1 peer-reported social behaviors between students who remained in the sample over the course of the school year versus those who left, residual scores were first calculated for all Time 1 social behaviors that evidenced differential attrition (e.g., Liked Most, Bullying, Perceived Popularity, Reciprocated Friendships, and Leadership) using regression analysis (Malgady & Colon-Malgady, 1991). Change scores were then created by subtracting the Time 1 residual score (for the above-mentioned variables) or the Time 1 z-score (for social behavior variables that did not evidence differential attrition) from the Time 2 score for each behavioral indicator (Bryman, 2000). Change scores were then standardized by school and grade level in order to mirror the standardization done by the sociometric data analysis program (DeRosier & Thomas, 2003). For students who were assigned to one of the three popular groups at Time 1, a dichotomous dummy variable was created in order to identify whether s/he remained popular or became unpopular over the course of the school year. For students who were assigned to the Not Popular group at Time 1, a dichotomous dummy variable was created in order to identify students who remained unpopular or became popular at Time 2.

In order to investigate the relationship between social behaviors at follow-up and stability versus change in popular status, three hierarchical 2 (Stability of popular status) X 2 (Grade Level) X 2 (Gender) MANOVAs were conducted, one for each of the remaining Time 1 popular subgroups. Due to the prohibitively low number of Time 1 Combined Popular students who became unpopular over the course of the school year ( $n=5$ ), this subgroup was excluded from this set of analyses. When an effect was significant at the MANOVA level, univariate analyses were examined to determine for which areas of adjustment the effect

held. For significant univariate effects, effect sizes were calculated and post-hoc means comparison tests (Student-Newman Keuls) were conducted to determine the direction of effect.

Next, an additional set of analyses were run in an effort to examine differences in change in social behaviors based on the particular popular group (e.g., Perceived, Sociometric, or Combined) to which a student was assigned at Time 2. For this set of analyses, four MANOVAS were conducted (one for each Time 1 popular group) using group assignment at Time 2 (e.g., Perceived, Sociometric, or Combined) as the independent variable and social behavior change scores as the dependent variables.

Significant multivariate main effects were found for the stability of popular status for students classified as Sociometrically Popular at Time 1 ( $F_{(7,124)}=17.44, p<.0001$ ). Univariate effects held for Liked Most ( $F_{(1,130)}=75.8, p<.0001$ ; effect size  $d=1.51$ ), Liked Least ( $F_{(1,130)}=27.74, p<.0001$ ; effect size  $d=-0.96$ ), and Reciprocated Friendships ( $F_{(1,130)}=17.54, p<.0001$ ; effect size  $d=0.70$ ). Post-hoc means comparisons indicated that among students who were classified as Sociometrically Popular at Time 1, those who became unpopular over the course of the school year were less well-liked, more disliked, and enjoyed fewer reciprocated friendships than their peers who remained stable in their popular status.

For the second MANOVA run on Time 1 Sociometrically Popular students, significant multivariate main effects were demonstrated for the impact of group assignment at Time 2 on change in social behaviors ( $F_{(14,134)}=4.18, p<.0001$ ). Univariate effects held for Liked Most ( $F_{(2,73)}=8.25, p<.001$ ), Liked Least ( $F_{(2,73)}=15.65, p<.0001$ ), and Bullying ( $F_{(2,73)}=3.55, p<.05$ ). Post-hoc means comparisons suggested that students who were classified as Sociometrically Popular at Time 1 but became Perceived Popular at Time 2 were

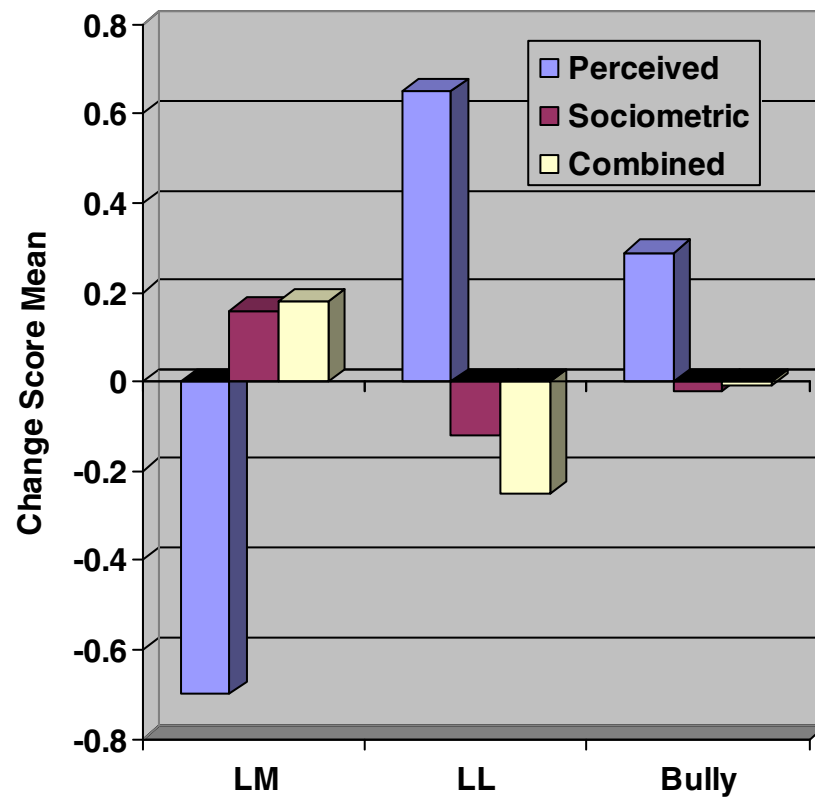
significantly less well-liked, more disliked, and bigger bullies than their peers who remained Sociometrically Popular or moved into the Combined group. Figure 3 displays this relationship.

Significant multivariate main effects were found for the stability of popular status for students classified as Perceived Popular at Time 1 ( $F_{(7,122)}=2.30$ ,  $p<.05$ ). Univariate effects held for Relational Aggression ( $F_{(1,128)}=5.45$ ,  $p<.05$ ; effect size  $d=0.42$ ), Bullying ( $F_{(1,128)}=7.05$ ,  $p<.01$ ; effect size  $d=0.52$ ), Reciprocated Friendships ( $F_{(1,128)}=5.83$ ,  $p<.05$ ; effect size  $d=0.43$ ) and Leadership ( $F_{(1,128)}=3.86$ ,  $p<.05$ ; effect size  $d=0.34$ ). Post-hoc means comparisons indicated that among students who were classified as Perceived Popular at Time 1, those who became unpopular over the course of the school year were rated as significantly less relationally aggressive and as engaging in less bullying behavior, enjoyed fewer reciprocated friendships, and were viewed as leaders less frequently than their peers who remained popular.

For the second MANOVA run on Time 1 Perceived Popular students, multivariate main effects were demonstrated for the impact of group assignment at Time 2 on change in social behaviors ( $F_{(14,172)}=3.94$ ,  $p<.0001$ ). Univariate effects held for Liked Most ( $F_{(2,92)}=4.28$ ,  $p<.05$ ), Liked Least ( $F_{(2,92)}=15.96$ ,  $p<.0001$ ), Bullying ( $F_{(2,92)}=4.33$ ,  $p<.05$ ), and Victimization ( $F_{(2,92)}=4.24$ ,  $p<.05$ ). Post-hoc means comparisons suggested that Time 1 Perceived Popular who remained stable in their group assignment at Time 2 were less well-liked, more disliked, and seen as bigger bullies than their peers who became Sociometrically or Combined Popular over the course of the school year. Students who moved into the Combined group at Time 2 were less victimized than those who remained stable in their assignment or became Sociometrically Popular. Figure 4 displays this relationship.

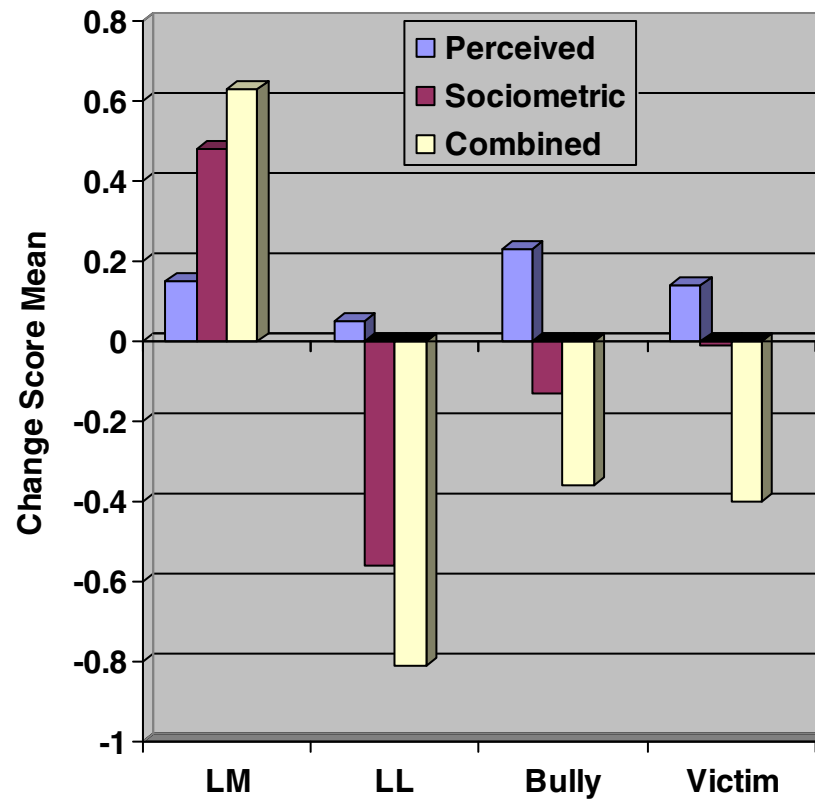


**Figure 3:**  
**Peer-Reported Social Behaviors as a Function of Time 2 Popular Group Membership**  
**Among Time 1 Sociometrically Popular Students**



Note: LM=Liked Most; LL=Liked Least.

**Figure 4:**  
**Peer-Reported Social Behaviors as a Function of Time 2 Popular Group Membership**  
**Among Time 1 Perceived Popular Students**

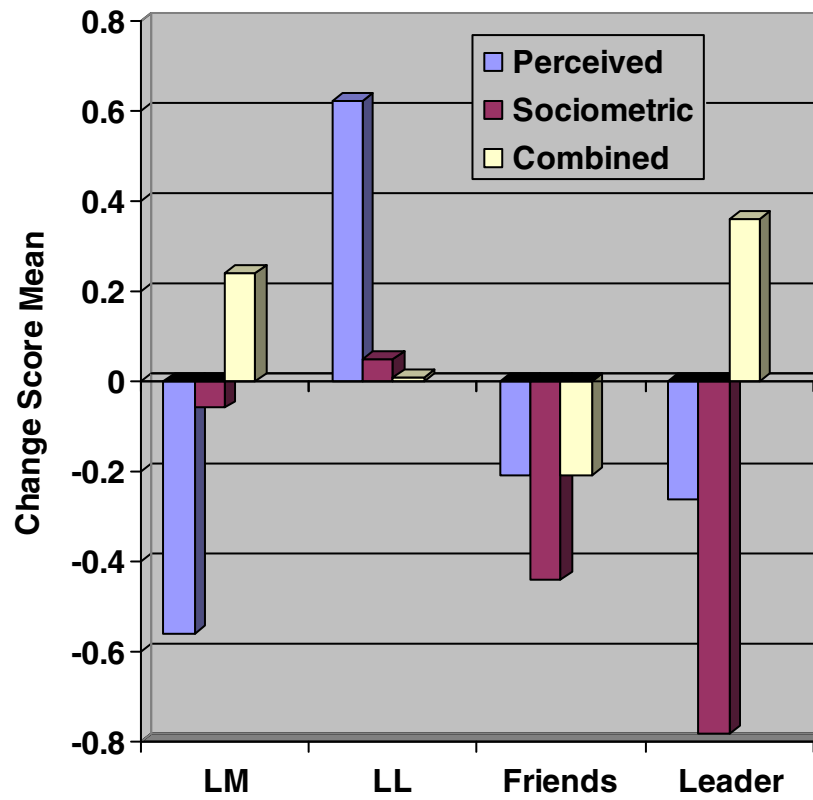


Note: LM=Liked Most; LL=Liked Least.

For the MANOVA run on Time 1 Combined Popular students, significant multivariate main effects were demonstrated for the impact of group assignment at Time 2 on change in social behaviors ( $F_{(14,118)}=4.49$ ,  $p<.0001$ ). Univariate effects held for Liked Most ( $F_{(2,65)}=10.56$ ,  $p<.0001$ ), Liked Least ( $F_{(2,92)}=11.10$ ,  $p<.0001$ ), Reciprocated Friendships ( $F_{(2,65)}=4.48$ ,  $p<.05$ ), and Leadership ( $F_{(2,65)}=6.26$ ,  $p<.01$ ). Post-hoc means comparisons less suggested that students who were assigned to the Combined group at Time 1 but became Perceived Popular at follow-up were less well-liked and more disliked than their peers who remained stable in their group assignment or became Sociometrically Popular over the course of the school year. Students who maintained their assignment to the Combined group at both time points had more reciprocated friendships and were seen as stronger leaders than those who became Sociometrically Popular at Time 2. Figure 5 displays this relationship.

Significant multivariate main effects were found for the stability of popular status ( $F_{(7,992)}=17.57$ ,  $p<.0001$ ) and gender ( $F_{(7,992)}=3.96$ ,  $p<.001$ ) for students classified as Not Popular at Time 1. Additionally, a multivariate interaction effect was demonstrated for the relationship between stability of popular status and gender among this group of students ( $F_{(7,992)}=2.34$ ,  $p<.05$ ). For the main effect finding for stability of popular status, univariate effects held for Liked Most ( $F_{(1,998)}=99.30$ ,  $p<.0001$ ; effect size  $d=0.27$ ), Liked Least ( $F_{(1,998)}=15.40$ ,  $p<.0001$ ; effect size  $d=-0.41$ ), Relational Aggression ( $F_{(1,998)}=5.37$ ,  $p<.05$ ; effect size  $d=0.24$ ), Reciprocated Friendships ( $F_{(1,998)}=28.37$ ,  $p<.0001$ ; effect size  $d=-0.43$ ), and Leadership ( $F_{(1,998)}=31.48$ ,  $p<.0001$ ; effect size  $d=0.53$ ). Post-hoc means comparisons indicated that among students who were classified as Not Popular at Time 1, those who became popular over the course of the school year were significantly more

**Figure 5:**  
**Peer-Reported Social Behaviors as a Function of Time 2 Popular Group Membership**  
**Among Time 1 Combined Popular Students**



Note: LM=Liked Most; LL=Liked Least.

well-liked, less disliked, more relationally aggressive, participated in more reciprocated friendships, and were viewed as stronger leaders than their peers who remained unpopular.

For the main effect finding for gender, univariate effects held for Leadership ( $F_{(1,998)}=11.51$ ,  $p<.001$ ; effect size  $d=0.18$ ). Post-hoc means comparisons indicated that among students who were classified as Not Popular at Time 1, boys were seen as stronger leaders than girls.

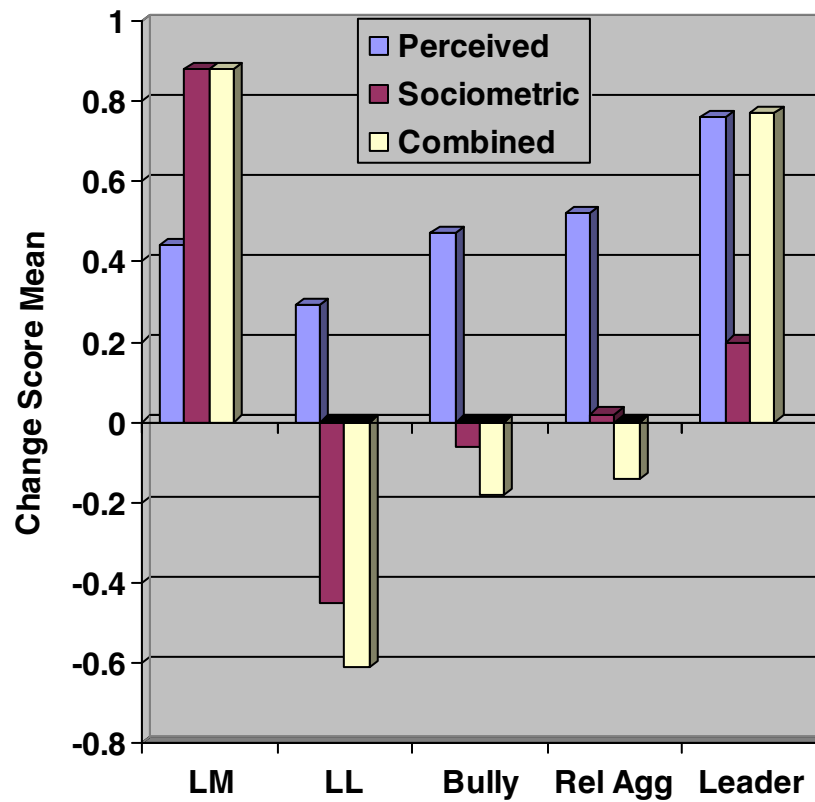
For the interaction effect between stability of popular status and gender, univariate effects held for Leadership ( $F_{(1,998)}=12.24$ ,  $p<.001$ ). Post-hoc means comparisons indicated that among students who were classified as Not Popular at Time 1, boys who became popular over the course of the school year evidenced significant gains in their peer-reported leadership skills. Table 6 displays the means and standard deviations of Time 2 social behaviors as a function of status stability for the three popular subgroups.

For the second MANOVA run on Time 1 Not Popular students, significant multivariate main effects were demonstrated for the impact of group assignment at Time 2 on change in social behaviors ( $F_{(14,188)}=5.85<.0001$ ). Univariate effects held for Liked Most ( $F_{(2,100)}=5.90$ ,  $p<.01$ ), Liked Least ( $F_{(2,100)}=20.56$ ,  $p<.0001$ ), Relational Aggression ( $F_{(2,100)}=5.87$ ,  $p<.005$ ), Bullying ( $F_{(2,100)}=11.05$ ,  $p<.0001$ ), and Leadership ( $F_{(2,100)}=5.59$ ,  $p<.005$ ). Post-hoc means comparisons indicated that students who moved into the Perceived Popular subgroup evidenced the smallest gains in being well-liked, but became more disliked than their peers who moved into either the Sociometrically Popular or Combined groups over the course of the school year evidenced larger gains in peer-reported leadership than those who became Sociometrically Popular. Figure 6 depicts these differences.

**Table 6:****Change Score Means and Standard Deviations of Peer-Reported Social Behaviors as a Function of Stability in Popular Status***Social Behavior*

<i>Popular Status at Time 1</i>	Liked Most	Liked Least	Bullying	Rel. Agg.	Victim	Recip. Friends	Leadership
<b>Sociometric</b>							
Popular T2	0.09 (.57)	-0.06 (.40)	N/S	N/S	N/S	0.21 (.75)	N/S
Not Popular T2	-0.74 (.53)	0.35 (.45)	N/S	N/S	N/S	-0.33 (.79)	N/S
<b>Perceived</b>							
Popular T2	N/S	N/S	0.09 (.82)	0.31 (.98)	N/S	0.14 (.77)	0.21 (1.1)
Not Popular T2	N/S	N/S	-0.28 (.59)	-0.15 (1.2)	N/S	-0.23 (.96)	-0.18 (1.2)
<b>Not Popular</b>							
Popular T2	0.74 (.62)	-0.23 (.67)	N/S	0.16 (.79)	N/S	0.46 (.66)	0.45 (.82)
Not Popular T2	0.08 (.63)	0.05 (.68)	N/S	-0.04 (.89)	N/S	0.11 (.65)	0.06 (.64)

**Figure 6:**  
**Peer-Reported Social Behaviors as a Function of Time 2 Popular Group Membership**  
**Among Time 1 Not Popular Students**



Note: LM=Liked Most; LL=Liked Least; Rel Agg=Relational Aggression.

## CHAPTER V

### DISCUSSION

#### Overview

The present study examined competing definitions of popularity among third and fourth grade students and their impact on social self-perceptions, self-concept, and social behaviors over the course of a school year. The discussion section of this paper will be divided into three parts. The first portion will discuss the findings obtained through this research. The next part will examine the limitations of the current study, while the final narrative will identify important directions for future research that will enhance understanding of the impact of popularity on children's development and adjustment.

#### Discussion of Findings

Overall, this study supports the hypothesis that sociometric and perceived popularity are distinct descriptors of social acceptance and desirability (Parkhurst & Hopmeyer, 1998) and that this difference is observable during middle childhood. To date, limited research on perceived popularity has focused on elementary school students. The findings described herein are in concert with existing information available on perceived popularity among middle and high school students, although they differ from those reported in a recent study by Kosir and Pecjak (2005) who found limited differences between sociometric and perceived popularity among elementary school students. Students in this study demonstrated



significant discrepancies on demographic indicators, social self-perceptions, self-concept, and social behaviors depending on their popular group membership.

The study population was divided into four groups: Perceived Popular, Sociometrically Popular, Both Perceived and Sociometrically Popular, and Not Popular. The students who were classified as perceived popular were drawn from all traditional social status classifications; most frequently from the popular, controversial, and unclassified groups. Controversial students were classified as perceived popular significantly more frequently than those who were sociometrically popular according to the traditional sociometric algorithm (Coie et al., 1982). In addition, perceived popularity was more strongly correlated with Social Impact than Social Preference. These findings support the suggestion that Controversial students may serve as a more fruitful comparison group for perceived popular students than those classified as Sociometrically Popular (Parkhurst & Hopmeyer, 1998).

Preliminary analyses demonstrated that significant differences existed at the outset of the study between the four classifications of students on demographic indicators and on measures of self-perceptions, self-concept, and social behaviors. Consistent with Kennedy's (1995) and LaFontana and Cillessen's (2002) research that found gender and ethnic differences in the correlates of popularity among children, this research demonstrated discrepancies in status group assignment based on gender and race. Specifically, girls were more likely to meet criteria for sociometric popularity than boys. Asian/Pacific Islander students were most consistently rated as sociometrically popular, while Native American students were most frequently considered perceived popular. Caucasian students were more likely than any other group to be classified as Combined. Latino/a students were least likely to be assigned to any of the high status groups.

On measures of social self-perceptions at the beginning of the school year, significant differences were evidenced between popular status classifications. Students who met criteria for perceived popularity evidenced higher social self-efficacy than all other students. Social self-efficacy is a measure of a child's belief about his ability to perform social tasks, and this finding suggests that students who are named as popular by their peers are more confident in their abilities to undertake social challenges. A similar finding was obtained for social outcome expectancy, which measures a child's belief that his social attempts will be successful. Students classified as Perceived Popular evidenced higher mean social-outcome expectancy at Time 1 than any other group of students. Taken together, these findings suggest that when children are viewed as important and influential with their peers, their social self-confidence is enhanced (i.e., they are able to recognize their social salience). However, for children who also maintain the prosocial characteristics necessary to being widely *well-liked* by their peers, they do not expect that their social attempts will be met with success as consistently. This relationship may be mediated by a child's social influence (e.g. leadership qualities, as suggested by findings discussed below), which is an area for future exploration.

Time 1 differences in self-concept were also demonstrated between popularity classifications. Students in any of the popular groups evidenced higher global self-concept, academic confidence, sense of their own popularity, and overall happiness than those classified as unpopular. This finding is in line with available knowledge of the importance of social acceptance for healthy child development, and supports previous research that has shown that well-accepted children demonstrate stronger self-concept than their less popular peers (Brown & Lohr, 1987; Jackson & Bracken, 1998; Prinstein & La Greca, 2002). Within

the groups of students classified as one of the three dimensions of popularity (i.e., perceived, sociometric, or combined), differences existed on a number of domains of self-concept. Students who met criteria for perceived popularity but not sociometric popularity obtained the highest mean scores for self-rated physical appearance. This is an interesting finding given available literature pointing to the importance of attractiveness for popularity among peers (Adler et al., 1992; LaFontana & Cillessen, 2002). Typically, students who obtain social prestige are considered physically attractive by their peers (Parkhurst & Hopmeyer, 1998). Students who met criteria for perceived popularity rated themselves higher on popularity than students who were widely well-liked by their peers. This suggests that as early as third grade, children differentiate between being well-accepted and being socially visible, and can apply this scheme to perceptions of themselves within the social hierarchy of their peer environment.

At Time 1, significant differences in social behaviors were demonstrated between the four popular sub-groups. Perceived Popular students were the most disliked and were named as bullies most frequently. These students were also rated highest for relational aggression, while concurrently being viewed as strong leaders. These findings are consistent with those demonstrated in previous studies of perceived popularity (Gorman et al., 2002; LaFontana & Cillessen, 2002; Parkhurst & Hopmeyer, 1998) and suggest that this construct involves a blend of negative social behaviors coupled with strong leadership abilities. Conversely, Sociometrically Popular students were well-liked and infrequently disliked. They were least often viewed as bullies or as relationally aggressive. Of the students nominated as any kind of popular, Sociometrically Popular students were least often considered to be leaders among their peers. Students in the Combined group were the most well-liked, participated in the

most reciprocated friendships, and were considered the strongest leaders. They were infrequently seen as bullies or as relationally aggressive. These observations suggest that children who possess leadership qualities in the absence of negative social behaviors are able to achieve both social acceptance and social influence. Taken together, these results imply that leadership skills may have a mediating effect on the relationship between social acceptance and social influence. While the presence or absence of negative social behaviors appeared to distinguish perceived popular from sociometrically popular students at the beginning of the school year, leadership qualities seemed to further segregate the groups by delineating a third cluster of students who achieved both social acceptance and high social visibility concurrently.

Differences between the popular groups were also examined longitudinally over the course of the school year. Consistent with previous research that has investigated the stability of popular group assignment (Cillessen & Mayeau, 2004; LaFontana & Cillessen, 2002), this study demonstrated that popular status was differentially stable between the groups and was impacted by gender and grade level. Students classified as Not Popular at Time 1 were most likely to remain stable in their group assignment. Among students in one of the three popular groups, those who were Sociometrically Popular at Time 1 were least likely to maintain their group assignment at Time 2, with many of these students moving into the Not Popular group. While approximately half of the students considered sociometrically and perceived popular at Time 1 remained stable in their classification, the majority of those who changed status assignments at Time 2 became only perceived popular; very few became only sociometrically popular. This suggests that characteristics of social salience may consolidate over time, and that children who demonstrate socially influential behaviors may be

increasingly less likely to be perceived as well-liked and prosocial. This finding was differentially significant for boys and girls, as boys remained stable in their assignment to the Combined classification, while girls more frequently moved in the perceived popular group. This is consistent with Eder's (1985) assertion that high status girls become increasingly disliked. It is possible that girls are viewed as less well-liked once they achieve high social status due to their increased use of social and indirect aggression (Cillessen & Mayeux, 2004), and experience a correlated reduction in their perceived prosociality. Overall, popular group assignment was differentially stable for third and fourth graders. Older students were less likely to move out of the Not Popular and Combined groups over the course of the school year, while younger students who were either Perceived or Sociometrically Popular at Time 1 were more likely to maintain their status assignment. These findings were not expected given available research that suggests that stability in status group assignment is more consistent as children mature (Cillessen et al., 2000). It was expected that fourth graders assigned to one of the extreme status groups would have been less fluid in their group assignment over the course of the school year.

The impact of popular group assignment stability on children's social self-perceptions and self-concept was examined, and the moderating effects of gender and grade level were investigated. No significant differences were demonstrated based on stability of group assignment. Students' self-reports were not differentially effected based on stable versus transient popularity. Several explanations for this lack of findings are possible. Although subgroup differences in self-perceptions and self-concept existed at the outset of the study, students may not have internalized their decreased or enhanced centrality within the social ecology over the course of the school year. While younger children tend to attribute

companionship and support to peer groups, it is not until adolescence that reactions from peers are considered indicators of self-worth and provide security about one's importance (O'Brien & Bierman, 1988). It has been suggested that manifest negative peer experiences are most likely to influence the development of poor self-perceptions (Boivin & Hymel, 1997). It is possible that students who evidenced declines in their peer preference over the study period were hopeful about regaining high status, and as a result, their self-reported conceptions of social abilities and general worth were not impacted by their peers' newly emerged negative appraisals. An important area of future inquiry will be to examine the longer-term impact of loss of social salience on children's self appraisals. It is possible that persistently low levels of peer acceptance and centrality among students who were popular during an earlier period of their life will negatively influence their emerging conceptions of self.

Differential change in social behaviors was examined as a function of stability of popularity. Gender and grade level were investigated as moderating variables on this relationship. Strong findings emerged, suggesting that gain or loss in popularity has significant implications for children's social behaviors. For students classified as Sociometrically Popular at the outset of the study, those who became unpopular over the course of the school year became less well-liked, more disliked, and had fewer reciprocated friendships at Time 2. Large effect sizes were demonstrated for differential change in both liked most and liked least mean scores, while change in mutual friendships obtained a moderate effect size. Due to the inherent measurement indices of sociometric popularity (Coie et al., 1982), changes in peer like and dislike were expected here. Given the strong positive correlation between peer-liking and friendship, the associated reduction in

reciprocated friendships observed by this group of students is also consistent with change in social preference.

Further examination of maintenance of group assignment versus movement into a different popular group over the course of the school year suggested that discrepancies in social behaviors existed depending on group assignment at Time 2. Students who were Sociometrically Popular at Time 1 and became Perceived Popular at Time 2 were less well-liked, more disliked, and viewed as bigger bullies than their peers who remained Sociometrically Popular or became Combined Popular over the course of the school year. This suggests that students who engage in high levels of negative social behaviors (specifically bullying), are not able to maintain peer acceptance, even when they are considered socially visible.

Students who belonged to the Perceived Popular group at Time 1 and became Not Popular over the course of the school year showed significant declines in their number of reciprocated friendships although only a small effect size was obtained for this finding. In addition, these students demonstrated less relational aggression, bullying behavior, and leadership skills when compared to their peers who remained perceived popular at both time points. These findings support differences in social behaviors demonstrated at Time 1, in which significant variations existed between this group and the other popular subgroups on measures of aggression and leadership. While a moderate effect size was observed for differential change in bullying behavior, the relational aggression and leadership findings obtained small effects. The concurrent reduction in peer-reported aggressive behaviors coupled with decline in the degree to which students were seen as leaders further supports the assertion that perceived

leadership ability may play a mediating role in the attainment and maintenance of social influence.

When specific popular group assignment at Time 2 was examined among Perceived Popular students who maintained popularity over the course of the school year, discrepancies in social behaviors emerged. Those who remained stable in their group assignment were less well-liked, more disliked, and seen as bigger bullies than their peers who obtained social acceptance at follow-up; they were also more victimized than their peers who became Combined Popular. As demonstrated previously for Time 1 Sociometrically Popular students, bullying behaviors may influence the maintenance of social desirability.

Among students who were assigned to the Combined Popular group at Time 1, those who lost their social acceptance at Time 2 were less well-liked and more disliked than their peers who maintained sociometric popularity. However, segregating students who were solely socially accepted at Time 2 from those who maintained their social visibility were reciprocated friendships and leadership qualities. Students who remained high on both indices of social success evidenced greater positive change in their number of mutual friendships as well in their perceptions as leaders. This finding lends additional support for the hypothesis that leadership skills are imperative for the acquisition and retention of social dominance.

Robust findings were also obtained for variations in social behaviors among students who were Not Popular at the beginning of the school year but became popular over the study period. Gender was shown to have a moderating impact on this relationship. For students who became popular over the course of the school year, a concurrent rise in their level of peer acceptance, relational aggression, reciprocated friendships, and leadership was



observed; small effect sizes were obtained for each finding except for leadership which achieved a moderate effect. These students also experienced larger reductions in their peer dislike than those who remained unpopular over the study period; although only a small effect size was obtained for this finding. The observed rise in peer-perceived leadership skills once again underscores the salience of being viewed as a person who is good to have in charge in the establishment of high peer status. While these students experienced enhanced peer ratings of positive social behaviors, they were also recognized as engaging in more social aggression than their counterparts who remained noncentral to the social ecology. Consistent with Lease et al.'s (2002) research that suggests that relational aggression contributes to effectively managing social control, the current findings support the notion that social exclusion may also play a central role in the attainment of high social status.

When the impact of the specific popular group that students moved in to at Time 2 was examined, results indicated that students who became Perceived Popular over the course of the school year were significantly less well-accepted and more disliked than those who secured the prosocial standing of students who achieved sociometric popularity and became either Sociometrically Popular or Combined. Additionally, those who became Perceived Popular displayed more bullying and relational aggression than those who obtained either Sociometrically Popular or Combined status. Again, leadership appeared to play a mediating role in the relationship between prosocial and Machiavellian high status, as this index was the only item that delineated students who were Sociometrically Popular from those who became Combined. Students who became either Combined or Perceived Popular over the course of the school evidenced similar higher mean scores on peer-reported leadership

qualities; scores that were significantly inflated compared to their peers who became solely sociometrically popular.

### Limitations of the Research

The results of this study significantly contribute to the existing limited body of knowledge on perceived popularity among middle childhood students. This research is strengthened by its large sample size and heterogeneous population. These characteristics support the generalization of information obtained beyond this sample by including a cross-section of children from diverse backgrounds. The obtained rate of informed consent was high while study population attrition was low, suggesting that the observed sample was reflective of the overall population being studied.

While this research lends considerable insight into the impact of competing conceptions of popularity among elementary school students, several study limitations exist. This study sought to examine change over time in children's self-perceptions and social behaviors by using a longitudinal approach to data collection and analysis. The time between data collection points was approximately eight months. Initial data collection was obtained several months into the school year in an effort to give students a chance to get to know their peers (Cillessen & Bukowski, 2000), and follow-up data was collected prior to summer recess. Considering the constructs being measured (i.e., stability versus change in social status, social self-perceptions, self-concept, and social behaviors), eight months may not have been an adequate time lag in which to observe significant change in children's correlated shifts in their beliefs about their competencies and self-worth (Boivin & Hymel, 1997).

Gaining the sole observation afforded through self-report data may have additionally compromised the ability to detect change in self-perceptions associated with fluctuations in social success. Conversely, the utility of accessing multiple informants (i.e., peer reports) likely enhanced the capacity to demonstrate discrepancies in social behaviors correlated with gain or loss of social centrality (Cillessen et al., 1992). This research would have been further strengthened by examination of self-reported social acceptance and influence, as well as an investigation of students' beliefs about their own social behaviors. This information could potentially serve as a bridge to explain the discordance between observed changes in self-perceptions and peer-reported behavior associated with stability versus change in popular status over the course of the school year. Lastly, obtained effect sizes were small for some of the longitudinal findings. Replication of these results will lend additional credibility to the observed phenomena, and until such data is available, caution is advised when generalizing these observations to other populations (McCartney & Rosenthal, 2000).

### Future Directions

The findings observed in the present study have important implications for micro and macro level interventions, as well as for informing future research agendas. The results described herein strongly suggest that peer-assessed leadership abilities mediate the relationship between wholly prosocial social success versus social centrality that involves the demonstration of some Machiavellian behaviors. Consistently, findings from this study demonstrated that being viewed as a leader delineated students who were solely well-accepted by their peers from those who were perceived as socially influential. For children who are identified in need of social skills training, emphasizing the development of

leadership qualities will likely prove an important avenue of focus during treatment.

Similarly, as the implementation of school-wide peer culture and anti-bullying programs continues to expand, the incorporation of a strong module aimed at enhancing prosocial leadership abilities will be an essential component of programming.

Additionally, findings from this research suggest that bullying has significant impact on children's social desirability. Among students who demonstrated high levels of bullying behaviors, an observed decline in their peer acceptance was noted, both at the outset of the study and when recorded over time. For students who were seen as prosocially popular at the initiation of the study, the emergence of aggressive behavior over the course of the school year was associated with loss of social acceptance. Bullying also appeared to prevent students from moving into status groups involving high degrees of social acceptance. These results lend additional support for school-based positive peer culture programming. Given recent attention to long-term outcomes and the emergence of health-risk behaviors associated with early peer acceptance, the importance of creating less socially hierarchical schools is a pressing concern. Being well-liked by peers has been shown to have a moderating effect on the relationship between early aggression and later health-risk behaviors. In the absence of peer acceptance, aggressive elementary-age girls have been shown to be more likely to develop substance abuse and sexual risk behaviors later in life than their aggressive counterparts who were well-liked by their peers (Prinstein & LaGreca, 2004). In the current study, students who were perceived as popular by their peers demonstrated limited concurrent peer liking. Findings like those obtained by Prinstein & LaGreca (2004) underscore the need for creating school environments in which positive social behaviors are

rewarded and where students who demonstrate socially aggressive behaviors do not achieve high status.

The changes in social behaviors observed among students who achieved high status over the course of the school year suggest that elementary-aged children may be willing to adopt negative behaviors in the pursuit of social recognition, which has previously been proposed by LaFontana and Cillessen (2002). Because perceived peer behavior has a strong influence on individual behavior (Prinstein & Wang, 2005), when other students observe their peers being rewarded for negative behaviors, they are more likely to imitate their actions. The “which came first” question as discussed by Eder (1985) is compelling when considering these observations. Did students obtain peer-perceived popularity as a result of developing socially aggressive and group leadership tactics? Conversely, were bullying, relational aggression, and leadership qualities subsequently attributed to students who achieved social prestige as a result of their perceived high status? These and similar directionality questions will be important considerations for future inquiry into the divergence of prosocial and Machiavellian popularities, which will further inform treatment and intervention planning.

## Appendix I:

### SCAN Data Collection Script

**INTRODUCTION:** “Hello. My name is Ms.\_\_\_\_ and this is Mr.\_\_\_\_. We're here today to ask you to answer some questions for us about you and your friendships with other kids here at "Name of School". We need to ask you this information because you are the best people to ask—you're the ones who really know what goes on with each other here at school.”

“We want you to know that everything you answer on these questionnaires is completely confidential. Who knows what that means? (get responses--reinforce correct ones) It means that everything you say on these pages is private and **no one** will know exactly what you say, not your parents, not your teachers, and not any other students. So, you can be completely honest. We will share, with the principal and others, what kids say in general, but no one's exact answers will be shared. The main reason we need to know this information is so that we can plan how to use our time and resources to help kids here at “Name of School”. If we know what is going on, we can use that information to help decrease problems and help kids get along with one another better.”

“Now, just like we're not going to share your answers with other people, you are NOT to talk with any other students about what you say on these pages. You need to keep your answers private from other kids just like we're going to keep them private. What we are asking about today is very important and we need to know it, but it's also important to keep your answers to yourself so that no one's feelings get hurt. You can tell your parents about what you did today and what you answered, but remember to keep it private from other kids. OK?”

“If you feel uncomfortable or upset about any question, you can skip it, but try to answer as many of the questions as you can. If you would like to talk about any question with one of us, just raise your hand. We really appreciate your filling out these questions, but, if you chose to, you can stop at any time without anything bad happening to you. OK? OK, let's get started.”

“Pull out your pages in your packet, but keep them in order. Everyone is getting their own packet and every packet is just the same. We have some extra copies of the packets in Spanish, because some people feel more comfortable reading Spanish than English. Who would like to complete these questions on Spanish? (**Pass out Spanish versions to children who raise their hands.**) Please use one or two folders or books to keep your answers more private, like this (DEMONSTRATE). We have lots to do, so it's very important that you be as quiet as possible, pay attention, and keep working so that we can finish up. But if you have any questions as we go along, raise your hand and one of us will come talk with you.”

CONTINUALLY walk around the room and monitor their progress as non-intrusively as possible. If it looks like a child doesn't understand a question or questionnaire, stop and help him/her--  
**DON'T WAIT FOR THE CHILD TO ASK FOR HELP;**

Ensure quiet and privacy-- use glances, stand behind or near a disruptive child, separate children, or quietly ask them to get back on task, as needed.

### **SOCIOMETRIC QUESTIONNAIRE**

For each question, there is a separate page containing a list of all the names of the children in their grade at their school. There will be a number next to each name, their ID number. Children nominate another child by circling the number next to a name. They may nominate as many children as they like from 0 to all children in the grade.

Throughout administration:

- (1) Remind students to take their time and look through all lists so that they don't accidentally miss someone.
- (2) Remind students that they can nominate anyone from any class—they are **not** limited to nominating only within their own class.

“We've given you a list of the names of all the kids in your GRADE here at "Name of School". Find your teacher's name and then look for your own name on the list for your class. If your name is not on the list, raise your hand. Also, if other kids know you by a name other than the one written here, raise your hand.”

If there is someone whose name is not on the list, put his/her name on the board and make up a four-digit number to put next to it. Ask the class to add this person to the bottom of the correct teacher's list for every page, so they can nominate this child if they want. Note any name changes on the board as well and announce these to the class.

Demonstrate how to complete the pages on the board. Use sesame street or cartoon characters. Put fake numbers next to each name and demonstrate circling the numbers. State that they **may** nominate themselves for any question. Remind them that as they are going through the pages, to think of themselves as well and to circle the ID number next to their own name when they feel the questions describes something about them. Is everybody ready to begin?

**Page 1: Like Most.** “Good. Here's the first one. **Everybody likes some people more than they like others. Are there some boys or girls in your grade who you like more than others? Look at the names on this page and circle the number next to the names of ALL the kids who you like the very most.** Make sure to look at all the names in all the classrooms so you don't miss anyone. You can circle anyone's name in any classroom, not just your own. When you're done with this page, turn to the next page and look up at me, so I'll know you're ready to go on. Don't complete the next page until everyone is ready.”

**Make sure that everyone is filling this question out correctly before moving on!**

Throughout administration, if a few children are lagging behind, instruct them to keep working on their current page and go on at their own pace. Then, give instructions to the rest of the class for the next item. Do not wait for the entire class to finish before moving on.

**Page 2: Like Least.** “Good. Now let’s go on to the next question. At the upper left hand corner of the page, you should see a '2'. **Just like there are some kids who you like the very most, there are probably some boys or girls who you like less than other kids. This does not mean that you hate them. It simply means that you like them less than you like other kids. Circle the number next to the names of ALL the kids in your grade who you like the very least.** Turn the page and look up at me when you're done.”

If any child seems uncomfortable about this question, reiterate that it doesn't mean they hate anybody; it just means that they like them less than other kids.  
Remember, children are free not to answer this or any other question, as they choose.

**Page 3: Relational Aggression.** “OK, let's go on to question three. Now, this kid tells other kids not to be friends with someone. They may try to keep others out of their group of friends. This kid may not talk to someone when they are mad at them or don’t like them. Who is most like this in your grade? Circle the number next to the names of ALL the kids in your grade who try to leave other kids out a lot. Turn the page and look up at me when you're done.”

**Page 4: Bully.** “OK, let's go on to question four. You should see a '4' at the top left. This kid acts like a bully a lot. They may pick on, tease, or call other kids names a lot. They may hit, kick, punch, or do other things to beat up on other kids. They may say mean or nasty things to hurt other kids’ feelings. Who is most like this in your grade? Circle the number next to the names of ALL the kids in your grade who act like a bully a lot. Turn the page and look up at me when you're done.”

**Page 5: Victim.** “OK, good. Let's all move on to number 5. Now, this kid gets picked on, beat up, or called names a lot or laughed at a lot by other kids. Other kids make fun of them or say mean or nasty things to them. Circle the number next to the names of ALL the kids in your grade who get picked on or called names a lot. Look up at me when you're done.”

**Page 6: Immature.** “OK, good. Let's all move on to number 6. Now, this kid says or does weird or strange things a lot. They may make weird noises or odd sounds. They might do things you think are weird, that most other kids don’t do. Circle the number next to the names of ALL the kids in your grade who act strange or weird a lot. Look up at me when you're done.”

**Page 7: Perceived Popularity.** “OK, let’s go on to question 7. Now, this kid is popular with other students. Everyone seems to know this kid. This kid seems to have a lot of friends. Other kids really want this kid to like them and be their friend. Circle the names of ALL the kids in your grade who are popular. Circle everyone you consider to be popular. Look up at me when you’re done.”

**Page 8: Friend.** “OK, let’s go on to question 8. Now, circle the names of ALL the kids in your grade who are your friend. Circle everyone who you consider to be your friend. Look up at me when you're done.”



**Page 9: Leader.** “OK, let’s move on to question 9. Now, this kid gets chosen by other kids as the leader a lot. They are good at organizing or running a group or team. Other kids like to have this person in charge. Circle the number next to the names of ALL the kids in your grade who are good leaders. Look up at me when you're done.”

“When you're all done, turn the pages over on your desk or put them back in your packet. Thank you so much for all your hard work. Remember to keep your answers to yourself and not talk about them with any other children.”

Continue with the next questionnaire, if applicable. At the end of all questionnaires, pass out the prizes and encourage trading with one another for a short time-period.

## REFERENCES

- Adler, P.A & Adler, P. (1997). *Peer power: Adolescent culture and identity*. New Brunswick, NJ: Rutgers University Press.
- Adler, P.A., Kless, S.J., & Adler, P. (1992). Socialization to gender roles: Popularity among elementary school boys and girls. *Sociology of Education*, 65 (3), 169-187.
- Asher, S. R. & Coie, J. D. (1990). *Peer rejection in childhood*. New York: Cambridge University Press.
- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice-Hall.
- Bell-Dolan, D.J., Foster, S.L., & Christopher, J.S. (1992). Children's reactions to participating in a peer relations study: An example of cost-effective assessment. *Child Study Journal*, 22, 137-155.
- Bell-Dolan, D.J., Foster, S.L., & Christopher, J.S. (1995). Girls' peer relations and internalizing problems: Are socially neglected, rejected, and withdrawn girls at risk? *Journal of Clinical Child Psychology*, 24 (4), 463- 473.
- Bell-Dolan, D.J., Foster, S.L., & Sikora, D.M. (1989). Effects of sociometric testing on children's behavior and loneliness in school. *Developmental Psychology*, 25, 306-311.
- Boivin, M. & Begin, G. (1989). Peer status and self-perception among early elementary school children: The case of the rejected child. *Child Development*, 60, 591-596.
- Boivin, M. & Hymel, S. (1997). Peer experiences and social self-perceptions: A sequential model. *Developmental Psychology*, 33 (1), 135-145.
- Boivin, M., Poulin, F., & Vitaro, F. (1994). Depressed mood and peer rejection in childhood. *Development and Psychopathology*, 6, 483- 498.
- Bonate, P.L (2000). Analysis of pretest-posttest designs. Boca Raton, FL: Chapman and Hall/CRC.
- Bronfenbrenner, U. (1943). A constant frame of reference for sociometric research. *Sociometry*, 6, 363-397.
- Brown, B.B. & Lohr, M.J. (1987). Peer group affiliation and adolescent self-esteem: An integration of ego-identity and symbolic-interaction theories. *Journal of Personality and Social Psychology*, 52 (1), 47-55.
- Bukowski, W.M., Sippola, L., Hoza, B., & Newcomb, A.F. (2000). Pages from a sociometric notebook: An analysis of nomination and rating scale measures of

- acceptance, rejection, and social preference. In A.H.N. Cillessen & W.M. Bukowski (Eds.), *Recent Advances in the Measurement of Acceptance and Rejection in the Peer System* (pp.11-26). San Francisco: Jossey-Bass.
- Byrne, B.M. (1996). Measures of self-concept for preadolescents. In B.M. Byrne (Ed.), *Measuring Self Concept Across the Life Span: Issues and Instrumentation* (pp.125-168). Washington, DC: American Psychological Association.
- Cantrell, V.L. & Prinz, R.J. (1985). Multiple perspectives of rejected, neglected, and accepted children: Relation between sociometric status and behavioral characteristics. *Journal of Consulting and Clinical Psychology*, 53, 884-889.
- Carney, J.V. (2000). Bullied to death: Perceptions of peer abuse and suicidal behavior during adolescence. *School Psychology International*, 21, 213-223.
- Cicchetti, D., Toth, S., & Bush, M. (1988). Developmental psychopathology and incompetence during childhood. In B.B. Lahey & A.E. Kazdin (Eds.), *Advances in Clinical Child Psychology* (Vol. 11, pp.125-158). New York: Plenum Press.
- Cillessen, A.H.N. & Bellmore, A.D. (2002). Social skills and interpersonal perception in early and middle childhood. In C.H. Hart & P.K. Smith (Eds.), *Blackwell handbook of childhood social development* (pp.356-374). Malden, MA: Blackwell Publishers.
- Cillessen, A.H.N. & Bukowski, W.M. (2000). Conceptualizing and measuring peer acceptance and rejection. In A.H.N. Cillessen & W.M. Bukowski (Eds.), *Recent Advances in the Measurement of Acceptance and Rejection in the Peer System* (pp.3-10). San Francisco: Jossey-Bass.
- Cillessen, A.H.N., Bukowski, W.M., & Haselager, G.J.T. (2000). Stability of sociometric categories. In A.H.N. Cillessen & W.M. Bukowski (Eds.), *Recent Advances in the Measurement of Acceptance and Rejection in the Peer System* (pp.75-93). San Francisco: Jossey-Bass.
- Cillessen, A.H.N. & Mayeux, L. (2004). From censure to reinforcement: Developmental changes in the association between aggression and social status. *Child Development*, 75 (1), 147-163.
- Cillessen, A.H.N., Terry, R.A., Coie, J.D., & Lochman, J.E. (1992, April). *Accuracy of teacher-identification of children's sociometric status positions*. Paper presented at the Conference on Human Development, Atlanta.
- Cillessen, A.H.N., van Ijzendoorn, H.W., & van Lieshout, C.F.M. (1992). Heterogeneity among peer- rejected boys: Subtypes and stabilities. *Child Development*, 63, 893- 905.
- Coie, J.D. (1990). Toward a theory of peer rejection. In S.R. Asher & J.D. Coie (Eds.), *Peer rejection in childhood* (pp.365- 401). New York: Cambridge University Press.

- Coie, J.D. & Dodge, K.A. (1988). Multiple sources of data on social behavior and social status in the school: A cross-age comparison. *Child Development*, 59, 815-829.
- Coie, J.D. & Dodge, K.A. (1998). Aggression and antisocial behavior. In W. Damon (Series Ed.) & N. Eisenberg (Vol. Ed.), *Handbook of child psychology: Vol. 3. Social, emotional, and personality development* (5<sup>th</sup> ed., pp. 17-59). New York: Wiley.
- Coie, J.D., Dodge, K.A., & Coppotelli, H. (1982). Dimensions and types of social status: A cross-age perspective. *Developmental Psychology*, 18 (4), 557- 570.
- Coie, J.D., Dodge, K.A., & Kupersmidt, J.B. (1990). Peer group behavior and social status. In S.R. Asher & J.D. Coie (Eds.), *Peer rejection in childhood* (pp. 17-59). New York: Cambridge University Press.
- Coie, J.D. & Kupersmidt, J.B. (1983). A behavioral analysis of emerging social status in boys' groups. *Child Development*, 54, 1400-1416.
- Crick, N.R. & Bigbee, M.A. (1998). Relational and overt forms of peer victimization: A multi-informant approach. *Journal of Consulting and Clinical Psychology*, 66 (2), 337-347.
- Crick, N. R. & Dodge, K. A. (1994). A review and reformulation of social information-processing mechanisms in children social adjustment. *Psychological Bulletin*, 115, 74-101.
- DeRosier, M.E., Kupersmidt, J.B., & Patterson, C.J. (1994). Children's academic and behavioral adjustment as a function of the chronicity and proximity of peer rejection. *Child Development*, 65, 1799- 1813.
- DeRosier, M.E. & Marcus, S.R. (2004, March). *Dimensions of Popularity: Influence on Friendships, Social-Cognitive Accuracy, and Self-Concept*. In Buskirk, A.A. & Rubin K.H. (Chairs), *The Many Faces of Popularity*. Paper presented at the Biennial Meeting of the Society for Research on Adolescence, Baltimore, MD.
- DeRosier, M.E. & Thomas, J.M. (2003). Strengthening sociometric prediction: Scientific advances in the assessment of children's peer relations. *Child Development*, 74 (5), 1379-1392.
- Dodge, K.A. (1983). Behavioral antecedents of peer social status. *Child Development*, 54, 1386-1399.
- Dolcini, M.M. & Adler, N.E. (1994). Perceived competencies, peer group affiliation, and risk behavior among early adolescents. *Health Psychology*, 13 (6), 496-506.

- Eder, D. (1985). The cycle of popularity: Interpersonal relations among female adolescents. *Sociology of Education*, 58 (3), 154-165.
- Eder, D. & Kinney, D.A. (1995). The effect of middle school extracurricular activities on adolescents' popularity and peer status. *Youth and Society*, 26 (3), 298-324.
- Egan, S.K., & Perry, D.G. (1998). Does low self-regard invite victimization? *Developmental Psychology*, 34, 299-309.
- Elkind, D. (1967). Egocentrism in adolescence. *Child Development*, 38 (4), 1025-1034.
- Elkind, D. & Bowen, R. (1979). Imaginary audience behavior in children and adolescents. *Developmental Psychology*, 15 (1), 38-44.
- Erikson, E.H. (1968). *Identity: youth and crisis*. Oxford, England: Norton & Co.
- Farmer, T.W., Estell, D.B., Leung, M-C., Trott, H., Bishop, J., & Cairns, B.D. (2003). Individual characteristics, early adolescent peer affiliations, and school dropout: An examination of aggressive and popular group types. *Journal of School Psychology*, 41, 217-232.
- Farmer, T.W., Leung, M-C., Pearl, R., Rodkin, P.C., Cadwaller, T.W., & Van Acker, R. (2002). Deviant or diverse peer groups: The peer affiliations of aggressive elementary students. *Journal of Educational Psychology*, 94 (3), 611-620.
- Farmer, T.W. & Rodkin, P.C. (1996). Antisocial and prosocial correlates of classroom positions: The social network centrality perspective. *Social Development*, 5, 174-188.
- French, D.C. & Waas, G.A. (1985). Teachers' ability to identify peer-rejected children: A comparison of sociometrics and teacher ratings. *Journal of School Psychology*, 23 , 347-353.
- Furman, W. & Buhrmester, D. (1985). Children's perceptions of the personal relationships in their social networks. *Developmental Psychology*, 21 (6), 1016-1024.
- Gifford-Smith, M.E., & Brownell, C.A. (2003). Childhood peer relationships: social acceptance, friendships, and peer networks. *Journal of School Psychology*, 41, 235-284.
- Gorman, A.H., Kim, J., & Schimmelbusch, A. (2002). The attributes adolescents associate with peer popularity and teacher preference. *Journal of School Psychology*, 40 (2), 143-165.
- Harter, S. (1993). Causes and consequences of low self-esteem in children and adolescents. In R.F. Baumeister (Ed.), *Self-esteem: The puzzle of low self-regard* (pp. 87-116). New York: Plenum.

- Hawley, P.H. (2003). Prosocial and coercive configurations of resource control in early adolescence: A case for the well-adapted Machiavellian. *Merrill-Palmer Quarterly*, 49 (3), 279-309.
- Hecht, D.B., Inderbitzen, H.M., & Bukowski, A.L. (1998). The relationship between peer status and depressive symptoms in children and adolescents. *Journal of Abnormal Child Psychology*, 26 (2), 153- 60.
- Hymel, S., & Franke, S. (1985). Children's peer relations: Assessing self-perceptions. In B. Schneider, K. Rubin, & J. Ledingham (Eds.), *Peer relationships and social skills in childhood: Issues in assessment and training* (pp.75-91). New York: Springer-Verlag.
- Jackson, L.D. & Bracken, B.A. (1998). Relationship between students' social status and global and domain-specific self-concepts. *Journal of School Psychology*, 36 (2), 233-246.
- Kazdin, A.E. (1991). *The prevention of mental disorders: Progress, problems, and prospects*. Washington, DC: National Institutes of Mental Health.
- Kennedy, E. (1995). Correlates of perceived popularity among peers: A study of race and gender differences among middle school students. *Journal of Negro Education*, 64 (2), 186-195.
- Kindermann, T.A. (1993). Natural peer groups as contexts for individual development: The case of children's motivation in school. *Developmental Psychology*, 29, 970-977.
- Kosir, K. & Pecjak, S. (2005). Sociometry as a method for investigating peer relationships: What does it actually measure? *Educational Research*, 47 (1), 127-144.
- Kupersmidt, J. B. & Coie, J. D. (1990). Preadolescent peer status, aggression, and school adjustment as predictors of externalizing problems in adolescence, *Child Development*, 61, 1350-1362.
- Kupersmidt, J.B., Coie, J.D., & Dodge, K.A. (1990). The role of poor peer relationships in the development of disorder. In S.R. Asher & J.D. Coie (Eds.), *Peer rejection in childhood* (pp.274- 305). New York: Cambridge University Press.
- Kupersmidt, J.B., & DeRosier, M.E. (2004). How peer problems lead to negative outcomes: An integrative mediational model. In J. Kupersmidt & K. A. Dodge (Eds.), *Children's peer relations: From development to intervention to policy: A festschrift to honor John D. Coie* (pp. 119-138). Washington DC: American Psychological Association.
- LaFontana, K.M. & Cillessen, A.H.N. (1998). The nature of children's stereotypes of popularity. *Social Development*, 7, 301-320.

- LaFontana, K.M. & Cillessen, A.H.N. (1999). Children's interpersonal perceptions as a function of sociometric and peer-perceived popularity. *The Journal of Genetic Psychology, 160* (2), 225-242.
- LaFontana, K.M. & Cillessen, A.H.N. (2002). Children's perceptions of popular and unpopular peers: A multimethod assessment. *Developmental Psychology, 38* (5), 635-647.
- Lease, A.M., Kennedy, C.A., & Axelrod, J.L. (2002). Children's social constructions of popularity. *Social Development, 11* (1), 87-109.
- Lease, A.M., Musgrove, K.T., & Axelrod, J.L. (2002). Dimensions of social status in preadolescent peer groups: Likability, perceived popularity, and social dominance. *Social Development, 11* (4), 508-533.
- Leff, S.S., Kupersmidt, J.B., Patterson, C.J., & Power, T.J. (1999). Factors influencing teacher identification of peer bullies and victims. *School Psychology Review, 28* (3), 505-517.
- Lemann, T.B. & Solomon, R.L. (1952). Group characteristics as revealed in sociometric patterns and personality ratings. *Sociometry, 15*, 7-90.
- Lomax, R.G. (2001). *Statistical concepts: A second course for education and the behavioral sciences* (2<sup>nd</sup> ed.). Mahwah, NJ: Lawrence Erlbaum Associates.
- Malgady, R.G. & Colon-Malgady, G. (1991). Comparing the reliability of difference scores and residuals in analysis of covariance. *Educational and Psychological Measurement, 51* (4), 803-807.
- McCartney, K. & Rosenthal, R. (2000). Effect size, practical importance, and social policy for children. *Child Development, 71* (1), 173-180.
- Merten, D.E. (1997). The meaning of meanness: Popularity, competition, and conflict among junior high school girls. *Sociology of Education, 70*, 175-191.
- Moreno, J.L. (1934). *Who shall survive?: A new approach to the problem of human interrelations*. Washington, DC: Nervous and Mental Disease Publishing Co.
- Nelson, D. & Crick, N. (1999). Rose-colored glasses: Examining the social information processing of prosocial young adolescents. *Journal of Early Adolescence, 19*, 17-38.
- Newcomb, A.F., Bukowski, A.L., & Pattee, L. (1993). Children's peer relations: A meta-analytic review of popular, rejected, neglected, controversial, and average sociometric status. *Psychological Bulletin, 113* (1), 99- 128.

- O'Brien, S.F. & Bierman, K.L. (1988). Conceptions and perceived influence of peer groups: Interviews with preadolescents and adolescents. *Child Development*, 59, 1360-1365.
- O'Moore, M. & Kirkham, C. (2001). Self-esteem and its relationship to bullying behavior. *Aggressive Behavior*, 27, 269-283.
- Ollendick, T. H. & Schmidt, C. R. (1987). Social learning constructs in the prediction of peer interactions. *Journal of Clinical Child Psychology*, 16, 80-87.
- Olweus, D. (1992). Victimization by peers: Antecedents and long-term outcomes. In K.H. Rubin & J.B. Asendorpf (Eds.) *Social withdrawal, inhibition, and shyness in childhood* (pp. 315-341). Hillsdale, NJ: Erlbaum.
- Parker, J. G. & Asher, S. R. (1987). Peer relations and later personal adjustment: Are low-accepted children at risk? *Psychological Bulletin*, 102, 357-389.
- Parker, J.G., Rubin, K.H., Price, J.M., & DeRosier, M.E. (1995). Peer relationships, child development and adjustment: A developmental psychopathology perspective. In D. Cicchetti & D. J. Cohen (Eds.), *Developmental psychopathology: Risk, disorder, and adaptation* (Vol. 2, pp. 96-161). New York: Cambridge University Press.
- Parkhurst, J.T. & Asher, S. (1992). Peer rejection in middles chool: Subgroup differences in behavior, loneliness, and interpersonal concerns. *Developmental Psychology*, 28 (2), 231-241.
- Parkhurst, J.T. & Hopmeyer, A. (1998). Sociometric popularity and peer-perceived popularity: Two distinct dimensions of peer status. *Journal of Early Adolescence*, 18 (2), 125-144.
- Patterson, C.J., Kupersmidt, J.B., & Griesler, P.C. (1990). Children's perceptions of self and of relationships with others as a function of sociometric status. *Child Development*, 61, 1335- 1349.
- Peery, J.C. (1979). Popular, amiable, isolated, rejected: A reconceptualization of sociometric status in preschool children. *Child Development*, 50, 1231-1234.
- Pellegrini, A.D. (2002). Affiliative and aggressive dimensions of dominance and possible functions during early adolescence. *Aggression and Violent Behavior*, 9 (3), 271-303.
- Pettit, G.S., Bakshi, A., Dodge, K.A., & Coie, J.D. (1990). The emergence of social dominance in young boys' play groups: Developmental differences and behavioral correlates. *Developmental Psychology*, 26 (6), 1017-1025.
- Piers, E.V. & Herzberg, D.S. (2002). *Piers-Harris Children's Self Concept Scale, Second Edition*. Western Psychological Services.



- Prinstein, M.J. & Cillessen, A.H.N. (2003). Forms and functions of adolescent peer aggression associated with high levels of peer status. *Merrill-Palmer Quarterly*, 49 (3), 310-342.
- Prinstein, M.J. & La Greca, A.M. (2002). Peer crowd affiliation and internalizing distress in childhood and adolescence: A longitudinal follow-back study. *Journal of Research on Adolescence*, 12 (3), 325-351.
- Prinstein, M.J. & La Greca, A.M. (2004). Childhood peer rejection and aggression as predictors of adolescent girls' externalizing and health risk behaviors: A 6-year longitudinal study. *Journal of Consulting and Clinical Psychology*, 72 (1), 103-112.
- Prinstein, M. J. & Wang, S.S. (2005). False consensus and adolescent peer contagion: Examining discrepancies between perceptions and actual reported levels of friends' deviant and health risk behaviors. *Journal of Abnormal Child Psychology*, 33 (3), 293-306.
- Rodkin, P.C., Farmer, T.W., Pearl, R., & Van Acker, R. (2000). Heterogeneity of popular boys: Antisocial and prosocial configurations. *Developmental Psychology*, 36 (1), 14-24.
- Rose, A.J., Swenson, L.P., & Waller, E.M. (2004). Overt and relational aggression and perceived popularity: Developmental differences in concurrent and prospective relations. *Developmental Psychology*, 40 (3), 378-387.
- Rosenberg, F.R. & Simmons, R.G. (1975). Sex differences in self-concept in adolescence. *Sex Roles*, 1, 147-159.
- Rubin, K.H., LeMare, L.J., & Lollis, S. (1990). Social withdrawal in childhood: Developmental pathways to peer rejection. In S.R. Asher & J.D. Coie (Eds.), *Peer rejection in childhood* (pp. 219-249). New York: Cambridge University Press.
- Schuster, B. (2001). Rejection and victimization by peers: Social perception and social behavior mechanisms. In S. Graham & J. Juvonen (Eds.), *Peer harassment in school: The plight of the vulnerable and victimized* (pp.290-309). New York: Guilford Press.
- Selman, R.L. (1980). *The growth of interpersonal understanding: Developmental and clinical analyses*. New York: Academic Press.
- Terry, R. (1994). *A latent-trait model of social judgement: Implications for sociometric assessment*. Unpublished manuscript.
- Terry, R. (2000). Recent advances in measurement theory and the use of sociometric techniques. In A.H.N. Cillessen & W.M. Bukowski (Eds.), *Recent Advances in the Measurement of Acceptance and Rejection in the Peer System* (pp.27-53). San Francisco: Jossey-Bass.

- Terry, R. & Coie, J.D. (1991). A comparison of methods for defining sociometric status among children. *Developmental Psychology*, 27, 867-880.
- Vossekuil, B., Reddy, M., & Fein, R. (2002). *Safe school initiative: Final report on the prevention of targeted violence in schools*. US Secret Service Threat Assessment Center: US Dept of Education and National Institute of Justice.
- Woodward, L. J., & Fergusson, D. M. (2000). Childhood peer relationship problems and later risks of educational under-achievement and unemployment. *Journal of Child Psychology and Psychiatry and Allied Disciplines*, 41(2), 191-201.