A CROSS-VALIDATION OF A MULTIDIMENSIONAL CONCEPTUALIZATION OF PREADOLESCENT SOCIAL STATUS

by

WILLIAM ALFRED LINDSTROM, JR.

(Under the Direction of A. Michele Lease)

ABSTRACT

The main objective of this investigation was to examine the support for a multidimensional typology of preadolescent social status. In the literature review, empirical findings relating to social status and preadolescent peer groups were reviewed. Three distinct one-dimensional conceptualizations were described: (a) sociometric studies have defined social status using peer nominations of likeability; (b) sociological studies have used ethnographic means and have equated social status with social prominence, prestige, and visibility; and (c) social dominance studies have assessed the degree to which children are able to access and control resources in the peer group. A review of the research assessing the degree of relation between the contrasting indices suggested relative independence and considerably different high status behavioral profiles. Further, research studies that have defined social status using multiple dimensions were found to consistently identify multiple types of high status children. The usefulness of one-dimensional conceptualizations in identifying multiple types of high status children within a multi-dimensional framework was discussed. In the empirical manuscript, the support for a multidimensional typology of preadolescent social status described by Lease, Musgrove, and Axelrod (2002) was investigated using two external validation methods: cluster

analysis of an independent sample and cross-classification comparisons. Six of the seven subtypes of the Lease, Musgrove, and Axelrod (2002) solution emerged within the independent cluster analysis: *High Status*, *Perceived Popular/Dominant*, *Well-Liked/Dominant*, *Disliked*, *Low Dominant/Unpopular*, and *Low Status*. An *Average* cluster subtype was not found. Comparisons of the two typologies revealed highly similar centroids, comparable hierarchical structures, and consistent behavioral profiles as rated by teachers and peers. The cross-classification procedure demonstrated a high degree of similarity between the solutions of the original (Lease et al., 2002) and independent samples. The findings provide evidence that a replicable, internally valid social status typology may underlie preadolescent peer groups.

INDEX WORDS: sociometric, perceived popularity, social dominance, social status

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DEDICATION

For mom, dad, and Christian.

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Christian. It is not possible for me to communicate how fortunate I feel to have been blessed with such wonderful family support. I have been surrounded with grace, love, and peace all of my life. They catch me every time I fall, and for that I am eternally grateful.

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CHAPTER 1

INTRODUCTION AND LITERATURE REVIEW

The benefits of successful functioning within the peer context are numerous and have been well-documented (e.g., Harter, 1983; Hartup, 1970; Hawley & Little, 1999). Similarly, the consequences of poor social adjustment also have been extensively studied and have been associated with poor immediate and long-term outcomes in children (Austin & Draper, 1984; Cowen, Pederson, Babigian, Izzo, & Trost, 1973; Kupersmidt, Coie, & Dodge, 1990; Li, 1985; McGuire, 1973; Parker & Asher, 1987; Roff, Sells, & Golden, 1972; Wentzel, 2003). With peer relations playing such a vital role in child social and emotional development, it is not surprising that social status has been extensively investigated via a number of alternate research traditions.

Historically, relative status within the peer group (i.e., social status) has been researched by developmental psychologists, sociologists, and ethologists; however each tradition has its own conceptualization of social status. As a result, differing groups of children have been identified as possessing high status. For example, children with high social status identified through the developmental psychology tradition (i.e., *sociometric* status) have been described as socially-skilled, cooperative, supportive, friendly, and assertive (Coie, Dodge, & Coppotelli, 1982; Dodge, 1983; Rubin, Bukowski, & Parker, 1998). In contrast, high social status children identified by researchers from the sociological tradition, which has been labeled *perceived popularity* (LaFontana & Cillessen, 2002; Lease, Kennedy, & Axelrod, 2002; Parkhurst & Hopmeyer, 1998), have consisted of those with athletic ability, toughness, social savvy, stylish clothing, high socio-economic status, and visibility, but not necessarily likeability (Adler &

Adler, 1998; Eder, Evans, & Parker,1995; Lease, Kennedy et al., 2002). Finally, high social status children identified by ethologists (i.e., *social dominance*) have been described as those most influential and central to their peer group; they are successful at securing social and material resources (Hawley, 1999).

More recently, researchers have examined the relation between contrasting definitions of social status in preadolescent children. The findings from at least two independent studies (Lease, Kennedy et al., 2002; Parkhurst & Hopmeyer, 1998) have suggested that sociometric popularity and perceived popularity have distinct behavioral correlates and are substantially differing conceptualizations. The results of Lease, Kennedy et al. (2002) have underscored social dominance as an independent domain in the elementary school sample, as well.

In related research, person-oriented techniques have been used in exploratory studies of social status. Findings have consistently suggested the presence of multiple subtypes of high status children (Estell, Farmer, Cairns, & Cairns, 2002; Farmer, Estell, Bishop, O'Neal, & Cairns, 2003; Rodkin, Farmer, Pearl, & Van Acker, 2000). These have included both prosocial and antisocial subtypes. Therefore, it has emerged that social status might be a more complex construction than has been perceived in the past. Interestingly, consistencies between the high status subtypes of the exploratory studies and the high status subtypes of the traditional disciplines (i.e., developmental psychology, sociology, and ethology) have been apparent. For example, prosocial popular children (Rodkin et al., 2000) of exploratory studies have been found to be similar to sociometrically popular children (Coie et al., 1982). In addition, antisocial popular children (Rodkin et al., 2000) of exploratory studies have been found to be similar to perceived popular children (Parkhurst & Hopmeyer, 1998). Thus, it could be that a cross-

disciplinary conceptualization of social status might be better at capturing the complexity of the social status system of preadolescent children.

The following dissertation includes two manuscripts, both of which will be submitted for peer review and publication. In the first manuscript, I attempted to determine the relevant roles of sociometric popularity, perceived popularity, and social dominance within a more contemporary, comprehensive description of preadolescent social status. First, I reviewed the social status definitions emanating from three distinct disciplines: developmental psychology, sociology, and ethology. Second, I described the degree of relation between the dimensions assessed by each of the three. Third, the usefulness of one-dimensional conceptualizations in identifying multiple types of high status children within a multi-dimensional framework was discussed. Finally, conclusions were drawn relating to cross-disciplinary behavioral correlates of high social status, the possibility of developing a more comprehensive model of preadolescent social status, and the potential utility of such a model.

In the second manuscript, I investigated the validity and utility of the multidimensional typology of preadolescent social status developed by Lease, Musgrove, and Axelrod (2002). Two methods were used in the investigation: (1) model replication via cluster analysis of an independent sample (DiStefano, Kamphaus, Horne, & Winsor, 2003; Milligan, 1996; Milligan & Cooper, 1987), and (2) cross-classification among grouping procedures (DiStefano et al., 2003). Findings from both methods were integrated and analyzed to assess the stability and internal validity of the social status typology proposed by Lease Musgrove, and Axelrod (2002). Links to multiple disciplines of social status research were examined and practical implications for both assessment and intervention of child maladjustment were drawn.

The dissertation concludes with a summary of the findings of the two manuscripts and implications for future research.

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CHAPTER 2

PREADOLESCENT SOCIAL STATUS: CONTRASTING CONCEPTUALIZATIONS AND CROSS-DISCIPLINARY INTEGRATION[1]

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Abstract

Empirical findings relating to social status and preadolescent peer groups were reviewed. Three distinct one-dimensional conceptualizations of social status were described: (a) sociometric studies have defined social status using peer nominations of likeability; (b) sociological studies have used ethnographic means to define social status and have equated it with social prominence, prestige, and visibility; and (c) social dominance studies have assessed the degree to which children are able to access and control resources in the peer group. A review of the research assessing the degree of relation between the contrasting indices suggests relative independence and considerably different behavioral profiles associated with high status. Further, research studies that have defined social status using multiple dimensions were found to consistently identify multiple types of high status children. The usefulness of one-dimensional conceptualizations in identifying multiple types of high status children within a multi-dimensional framework was discussed.

KEY WORDS: sociometric, perceived popularity, social dominance, social status

Introduction

The ability to develop and maintain positive peer relationships has been well-established as a critical component to the social and emotional development of children (Coie, Dodge, & Kupersmidt, 1990; Coleman, 1961; Newcomb, Bukowski, & Pattee, 1993; Parker & Asher, 1987). For those successful in their efforts to fit in with peers, the benefits can be numerous. Inter-personal skills such as assertiveness, social skills, and altruistic behavior (Hartup, 1983), as well as intra-personal skills such as moral reasoning (Hartup, 1983), positive self-esteem (Hartup, 1970), and a sense of personal control (Hawley, 1999), have been associated with satisfying peer relations. Unsuccessful adaptation within the peer system, however, has been associated with poor academic performance (Austin & Draper, 1984; Li, 1985; Muma, 1965; Wentzel, 2003), dropping out of school (Parker & Asher, 1987), criminal behavior (Kupersmidt, Coie, & Dodge, 1990; Parker & Asher, 1987), mental health problems (Kupersmidt et al., 1990), and aggression (Coie, Dodge, & Coppotelli, 1982; McGuire, 1973). In addition, research findings have revealed strong associations between the peer relations of children and subsequent mental health functioning as adults (Cowen, Pederson, Babigian, Izzo, & Trost, 1973; Robins, 1966; Roff, Sells, & Golden, 1972). It was not surprising, then, to discover that children's relative position within the peer group (i.e., social status) has been investigated from a number of different research perspectives. It was surprising, however, that so many disparate definitions exist given the number of disciplines that find social status important.

Researchers from the disciplines of developmental psychology (e.g., Coie et al., 1982), sociology (e.g., Adler & Adler, 1998), and ethology (e.g., Hawley, 1999) have attempted to identify those behaviors and personal characteristics that place children on pathways to successful and unsuccessful integration within the peer group. Peer perceptions (e.g., peer

nominations) have been commonly used by each of the three disciplines to assess these variables. Whereas all three have relied on peer perceptions, however, each discipline has its own unique view of social status. Within the developmental psychology (i.e., *sociometric*) discipline, social status traditionally has been defined by the degree to which a child is liked and/or disliked by peers (see Bukowski & Hoza, 1989; Newcomb et al., 1993). This method has resulted in high and low social status groups defined by friendliness and proficiency with prosocial skills (Coie et al., 1982; Dodge, 1983; Rubin, Bukowski, & Parker, 1998). As the most enduring research tradition, the sociometric method has been the most frequently applied conceptualization since its emergence in 1934 (Moreno). More recently, cross-disciplinary studies have been pursued and have challenged the validity of the traditional, univariate framework.

High status children identified by the sociological and ethological traditions appear qualitatively different from those identified by sociometric methods. Researchers from the sociological tradition typically have used ethnographic methods that allow participants to define popularity for themselves (e.g., Adler & Adler, 1998). Results have indicated that high status is related to prominence, athletic ability, toughness, social savvy, stylish clothing, high socio-economic status, and visibility (Ader & Adler, 1998; Eder, Evans, & Parker, 1995). Likeability, however, has not been a defining feature of the high status children identified in sociological studies.

More recently, psychologists also have assessed a social status construct that allows children to define popularity as they perceive it. The construct, labeled *perceived popularity* (Parkhurst and Hopmeyer, 1998) or *judgmental popularity* (Babad, 2001), has been defined by peer nominations of classmates deemed “most popular.” Like the high status children of ethnographic studies, perceived popular children have been found to be socially prominent,

prestigious, and visible (LaFontana & Cillessen, 2002; Lease, Kennedy, & Axelrod, 2002; Parkhurst & Hopmeyer, 1998).

Ethologists historically have measured *social dominance* as a means of analyzing social status hierarchies within peer groups. Socially dominant children are those who are able to obtain and dictate resources in the peer group (Hawley, 2002). These children have been described as influential and central members of their peer group (Hawley, 1999) who often obtain their status using aggressive means (Hawley, 2003). In contrast to the high status children within the sociometric tradition, then, high status children as defined by sociologists and ethologists tend to possess characteristics related to prominence and power, as opposed to likeability.

More recently, new perspectives have initiated a shift in the conceptualization of preadolescent social status. According to results from a large number of nontraditional, person-oriented studies (e.g., Rodkin, Farmer, Pearl, & Van Acker, 2000; Luthar & McMahon, 1996), multiple types of behaviorally distinct high status children exist. These include a prosocial subtype, an antisocial subtype, and children with more complex presentations. Interestingly, these high status subtypes have shown significant similarities with the high status children of the traditional disciplines (i.e., developmental psychology, sociology, and ethology). For example, prosocial popular children identified in exploratory studies (e.g. Rodkin et al., 2000) have appeared similar in behavioral profile to sociometrically popular children (Coie et al., 1982). In addition, antisocial popular children of exploratory studies have appeared similar in behavioral profile to high status children of the sociological tradition (e.g., Adler & Adler, 1998). It seems possible, then, that each contrasting conceptualization might play a relevant role in a more comprehensive model of preadolescent social status.

Within the broader social status literature, a cross-disciplinary definition of social status has yet to emerge, limiting the communication and generalization of findings across disciplines. In the current review, the author attempted to determine the relevance of the viewpoints offered by developmental psychologists, sociologists, and ethologists within a more contemporary, comprehensive description of preadolescent social status. Initially, the unique conceptualization of social status offered by each individual discipline was described. First, given its traditional standing and endurance, we reviewed the emergence and social status definition of the developmental psychology approach. Second, the author discussed the alternative social status conceptualizations guiding research efforts in sociology and ethology. Third, research findings describing the degree of relation between the contrasting conceptualizations were reviewed. Finally, the possible roles of one-dimensional conceptualizations in identifying multiple types of high status children within a multi-dimensional framework were discussed.

Disciplinary Social Status Definitions

Three primary research paradigms of social status have come from developmental psychology (i.e., sociometric status), sociology, and ethology. In the following section, each research tradition was described, including its development, its conceptualization of social status, and the categorical models that have been developed using it.

Sociometric Research

Whereas a number of conceptualizations of social status have emerged over the past few decades, the research tradition with the greatest longevity is the developmental psychology-based sociometric status paradigm. This tradition was based on the early work of Moreno (1934) who utilized peer ratings of attractiveness (i.e., a measure of the forces pulling people together) and repulsion (i.e., a measure of the forces pushing people apart) to assess relative social position

within a peer hierarchy. Moreno's use of peer-nominations of which children peers like the most was adopted by the researchers of the developmental psychology research tradition (Babad, 2001). Subsequently, a number of methods using peer assessments of likeability were used to determine relative position within the peer system.

Specifically, early sociometric methods conceptualized social status by the number of liking nominations received from peers (Northway, 1947; Potashin, 1947) or by the number of both liking and disliking nominations received from peers (Dunnington, 1957; Lemann & Solomon, 1952; Thompson & Powell, 1951). These early methods of sociometric classification typically yielded three categories: *popular* children received many like-most and few like-least nominations; *rejected* children received many like-least and few like-most nominations; the remainder of children fell somewhere in the middle (see Peery, 1979).

As researchers began to discover that the number of negative nominations a child received was generally unrelated to the number of positive nominations received (Goldman, Corsini, & deUrioste, 1980; Gottman, 1977; Parkhurst & Asher, 1992), conceptualizations of sociometric status began to move towards two-variable models that considered both status and visibility (e.g., Dunnington, 1957). Peery (1979) described a model that included two independent variables developed using negative and positive peer nominations: *social preference*, the result of like-most nominations minus like-least nominations, was used to represent status; *social impact*, the result of positive nominations plus negative nominations, was used to represent social visibility. In addition to identifying rejected (i.e., high social impact, negative social preference) and popular (i.e., high social impact, positive social preference) children, this model also was used to identify isolated (i.e., low social impact, negative social preference) and amiable (i.e., low social impact, positive social preference) children.

Following Peery's seminal contribution, two dominant two-variable models of sociometric status classification emerged which used peer nominations. Coie et al. (1982) developed a standard score approach, which involved indices of acceptance (i.e., number of times a child was nominated as liked most) and rejection (i.e., number of times a child was nominated as liked least). Like-most and like-least nominations were totaled for each participant and converted into standard scores by grade. Independent social preference and social impact scores, as defined by Peery (1979), were then computed for each child and also standardized by grade. Though the Coie et al. (1982) method used the standardized variables of like-most, like-least, social preference, and social impact like Peery (1979) did, the five categories of children were identified in a slightly different way. *Popular* children receive a social preference standard score greater than 1, a like-most standard score greater than 0, and a like-least standard score less than 0. *Rejected* children receive a social preference standard score less than -1, a like-least standard score less than 0, and a like-most standard score less than 0. *Neglected* children receive a social impact standard score less than -1 and a like-most standard score close to 0. *Controversial* children receive a social impact standard score greater than 1, and like-most and like-least standard scores greater than 0. *Average* children receive social impact and social preference standard scores between -.5 and .5. The remaining children are not classified by this system.

After the identification of a number of significant weaknesses with the Coie et al. (1982) and Peery (1979) methods (see Newcomb & Bukowski, 1983), Newcomb and Bukowski (1983) proposed an alternative model. Children were assigned to exhaustive sociometric groups based on the number of liked nominations received, disliked nominations received, and the total number of nominations received (i.e., social impact). Each classmate nominated a total of six

peers: three as like-most and three as like-least. Using these nominations, a binomial distribution was created. A greater than chance criterion level of .05 was set to identify a significantly (i.e., not likely due to chance) high or low number of nominations for each grade. *Popular* children are identified as those with a significantly high liked score and a disliked score below the mean. *Neglected* group members are identified by a significantly low total number of nominations (i.e., social impact scores). *Controversial* children are those with significantly high liked and disliked scores. They also include those with one score that is significantly high and the other above the mean. *Average* children have a chance social impact score and insignificant liked and disliked scores. *Rejected* children receive a significantly high number of disliked nominations and a liked score below the mean.

The types of children identified through these classification methods (i.e., Coie et al., 1982; Newcomb & Bukowski, 1983) have been the topic of extensive study over the past two decades, allowing relatively clear descriptions of the types to emerge. It is notable that evidence suggests a "reasonable degree of similarity" between the Coie et al. (1982) and Newcomb and Bukowski (1983) methods in proportions of children classified by group (see Terry & Coie, 1991); thus, the following overall findings are presented across methodology.

Based on the sociometric methodology, popular children are polite (Rubin et al., 1998), likeable children (Newcomb et al., 1993) who typically perform well in school (Austin & Draper, 1984; Wentzel & Asher, 1995). They also have been portrayed as strong, assertive leaders with effective problem-solving abilities (Newcomb et al., 1993; Rubin et al., 1998). Studies also have revealed them to be low in aggression, disruptiveness, and social withdrawal (Coie & Dodge, 1988; Newcomb et al., 1993; Rubin et al., 1998). Overall, these children appear to be well-adapted, prosocial children.

In contrast to sociometrically popular children, rejected children within the sociometric literature have been described as aggressive and disruptive (Coie & Dodge, 1988; Coie et al., 1982; Green, Vosk, Forehand, & Beck, 1981; Wentzel & Asher, 1995), uncooperative (Coie et al., 1982), and less sociable than average children (Newcomb et al., 1993). They have more academic difficulties than classmates and less interest in school (Wentzel & Asher, 1995), and often are isolated by peers through both social and physical ostracism (Rogosch & Newcomb, 1989; Sandstrom & Cillessen, 2003). Further investigations have suggested that there are multiple subtypes of rejected children, such as aggressive-rejected and submissive-rejected (Boivin & Begin, 1989; Cillessen, van Ijzendoorn, van Lieshout, & Hartup, 1992; Parkhurst & Asher, 1992; Wentzel & Asher, 1995).

Although neglected children have been described as socially withdrawn, they have demonstrated few differences from average status children (Coie, Finn, & Krehbiel, 1984; Newcomb et al., 1993). They have been shown to have a similar number of positive social interactions and friendships as average children (Newcomb et al., 1993), few aggressive or disruptive behaviors (Coie et al., 1984; Newcomb et al., 1993), and have been rated by peers as relatively likeable (Newcomb et al., 1993). Differences between the neglected group and the average group have mostly been confined to academics and the overall degree of social interaction. For example, Wentzel and Asher (1995) reported that neglected children had more positive academic profiles than average children. They also showed greater motivation and self-regulation, and teachers liked them better than average children. In a meta-analysis by Newcomb et al. (1993), it was suggested that neglected children have fewer social interactions with peers than average children, are not well-known by peers, and have a greater degree of social

withdrawal. The authors concluded, however, that neglected children did not appear to be at serious risk for developing psychopathology.

The members of the controversial group have been described as possessing a combination of traits displayed by rejected and popular children (Newcomb et al., 1993). Similar to popular children, controversial children receive high popularity ratings (Wentzel & Asher, 1995), display numerous prosocial behaviors (Dodge, 1983; Newcomb et al., 1993), and have numbers of social interactions and friendships that are comparable to those of popular children (Newcomb et al., 1993). Like rejected children, however, they tend to be aggressive, disruptive, initiate fights, and display multiple antisocial behaviors (Coie & Dodge, 1988; Dodge, 1983; Newcomb et al., 1993; Wentzel & Asher, 1995). Initially controversial children appeared to be unusual given their mix of positive and negative traits. Subsequent research within the sociological tradition, however, has provided insight into the role of controversial children within the status hierarchy.

Contrasting Conceptualizations of Social Status

The sociometric definition of social status has proved enduring, but recently has been challenged by contrasting findings within the sociological and ethological research literature. Within the developmental psychology perspective, high status children, by definition, are prosocial, likeable children. Given that likeability is negatively associated with aggression, children displaying antisocial behaviors typically have not been nominated for high status social positions (Coie et al., 1982; Farmer & Farmer, 1996). However, other research traditions have used social status definitions that are not limited to likeability. In sociology-based and ethology-based research traditions, children with antisocial behavior patterns routinely occupy high social status positions.

Perceived popularity research.

Researchers from the sociological tradition have defined social status differently than in the sociometric paradigm, and, thus, have come to differing conclusions regarding the behaviors associated with varying levels of social status. Whereas sociometric popularity typically has been defined using peer nominations of like-most and like-least (Coie et al., 1982; Newcomb & Bukowski, 1983), sociological studies of social status historically have used qualitative or ethnographic methods that emphasize participants' own conceptualizations of popularity (e.g., Adler & Adler, 1998; Corsaro, 1979; Eder et al., 1995). Thus, children themselves have identified who is "popular" based on peer reputation. Ethnographic studies of elementary (Adler & Adler, 1998; Adler, Kless, & Adler, 1992) and middle school (Eder et al., 1995) populations have indicated that children's social constructions of popularity are strongly associated with visibility, recognition, and prominence.

More recently, developmental psychologists have become interested in the sociological construction of popularity. They have used peer nominations (i.e., "Who are the most popular kids in your class?") to assess a participant-defined social status construct labeled *perceived popularity* (see Parkhurst & Hopmeyer, 1998). The research using perceived popularity and ethnographic methods has allowed a fairly consistent depiction of sociologically popular children to emerge.

Perceived popular children typically have been portrayed as possessing both prosocial and antisocial characteristics. Specifically, perceived popular children have been described as attractive, assertive, and socially-connected. In fact, for both boys and girls, precocity in social situations has been a significant characteristic associated with perceived popularity (Adler & Adler, 1998; LaFontana & Cillessen, 2002). However, they also have been noted to establish and

maintain their high social status through sometimes callous means. In contrast to sociometrically popular children, they are not always liked due to their exclusionary behaviors, elitist manners (Adler & Adler, 1998; Adler et al., 1992; Eder et al., 1995), and use of physical (i.e., fighting and calling names) and/or relational aggression (i.e., spreading rumors, talking behind others' backs) to achieve their goals (LaFontana & Cillessen, 2002). In general, perceived popular children have a good grasp of group dynamics that enables them to manipulate and exclude others in order to achieve personal social goals.

Some correlates of perceived popularity are specific to gender. Perceived popularity for boys is heavily determined by athletic ability (Adler & Adler, 1998; Eder et al., 1995; LaFontana & Cillessen, 2002; Lease, Kennedy, et al., 2002). Other important factors for boys include coolness and toughness. More specifically, boys appear to be cool if they wear the right clothes and are able to sustain a nonchalant attitude during confrontation (Adler & Adler, 1998). "Toughness" is applied to boys who have the ability to competitively rough-house, defy authority figures, and challenge rules (Adler & Adler, 1998; Adler et al., 1992; Eder et al., 1995; LaFontana & Cillessen, 2002). In addition, a boy's popularity status can be damaged by either too much or too little academic success (Adler & Adler, 1998).

Gender-specific factors for girls include socio-economic status, physical appearance, and academic performance (Adler & Adler, 1998; LaFontana & Cillessen, 2002; Lease, Kennedy, et al., 2002). For example, in the Adler and Adler (1998) study, girls with greater financial resources had access to prestige-enhancing factors such as fashionable clothing, expensive vacations, and select activities such as horse-back riding and skiing. Attractiveness, including wearing the appropriate clothes and makeup, has also been a critical component of the popular image for girls (Adler& Adler, 1998; LaFontana & Cillessen, 2002; Lease, Kennedy, et al.,

2002). Finally, unlike boys, academic success does not seem to detract from girls' popularity (Adler & Adler, 1998).

Social dominance research.

Beyond the psychological and sociological studies of social status, the ethologically-based study of social dominance provides an additional means of determining a child's place in the social hierarchy. According to the ethological conceptualization, children are organized hierarchically in the social group according to their relative ability to control material and social resources within the peer group (Hawley, 1999). Dominant children, or those towards the top of the hierarchy, are considered influential and central within the peer group. Possessing a high rank in the social dominance hierarchy has been associated with effective interpersonal skills, high self-esteem, athletic ability, early pubertal maturation, self-confidence, intelligence, popularity, attractiveness, toughness, and physical size (see Paikoff & Savin-Williams, 1983; Savin-Williams, 1979). In contrast, children towards the bottom of the hierarchy tend to be overlooked by their peers because they lack the ability or motivation to acquire and control resources (Hawley, 1999). Low dominant children have been described as insecure, clumsy, overly talkative, and/or unpopular (Savin-Williams, 1979). Dominance hierarchies have been identified and described in children as young as three years of age (Hawley & Little, 1999), though most studies have addressed adolescent populations (e.g., Savin-Williams, 1979; Savin-Williams & Freedman, 1977).

The methods that children use to establish and maintain positions in the dominance hierarchy have been the focus of recent studies. According to Hawley (1999; 2002), both *coercive* and *prosocial* means can be used to assert dominance. Coercive strategies include such antisocial behaviors as aggression, monopolization of resources, and threats. However, such

methods tend to damage social relations and might lead to poor long-term outcomes (Hawley, Little, & Pasupathi, 2002). *Prosocial* strategies include behaviors such as cooperation, alliance formation, and reciprocation (Hawley, 2002). These methods also can be effective at establishing a dominant position within a peer hierarchy at some developmental stages. Unlike coercive means, however, prosocial methods are hypothesized to foster interpersonal relations and lead to more positive long-term outcomes (Hawley et al., 2002), because such methods take the needs of others into account.

On the surface, the high status children of the perceived popularity and social dominance conceptualizations appear to differ substantially from those of the sociometric conceptualization. Using the perceived popularity definition, children identified by peers as "popular" are not necessarily likeable. Similarly, some high status children of the social dominance definition appear openly hostile. To determine if contrasting conceptualizations of social status are truly identifying different types of high status children, studies have assessed the relation between the constructs of sociometric popularity (i.e., likeability), perceived popularity (i.e., prominence), and social dominance.

The Relation among Conceptualizations of Contrasting Disciplines

Evaluation of the relation between contrasting conceptualizations of social status has emerged as a popular research agenda over the past five years. In the following section, research studies that compared at least two differing conceptualizations of social status (i.e., sociometric popularity, perceived popularity, and social dominance) were reviewed. Strength of association indices relating the constructs were presented, as were contrasting behavioral profiles.

Sociometric popularity and perceived popularity.

Eight studies from the past several years included peer nominations related to sociometric popularity and perceived popularity and examined the relation between the variables, either directly or indirectly. While varying methodologies have complicated interpretation, authors from all eight studies concluded that sociometric popularity and perceived popularity are similar, yet distinct, constructs.

In late elementary school populations, two independent studies have reported a moderate relation between sociometric popularity and perceived popularity. Lease et al. (2002) reported moderate-to-high correlations between most-popular nominations and like-most nominations, r = .62, and between least-popular nominations and like-least nominations, r = .59. LaFontana and Cillessen (1999) assessed perceived popularity by subtracting least popular nominations from most popular nominations and standardizing the difference score by classroom. When children with perceived popularity z-scores above 1.00 were identified as perceived popular, the authors reported a moderate overlap (Cohen's Kappa = .42) between children identified as sociometrically popular (Coie et al., 1982) and children identified as perceived popular.

Findings for middle school populations have been less consistent. Correlations have ranged from .28 (Parkhurst & Hopmeyer, 1998) to .70 (LaFontana & Cillessen, 2002). The wide range might be explained in part by differences in construct definition. Parkhurst and Hopmeyer (1998) defined perceived popularity by the number of most popular nominations received by participants. Using the same definition, Babad (2001) reported a correlation of .58. LaFontana and Cillessen (2002) attributed the high association they reported to the fact that they used a composite perceived popularity score defined by "popular" nominations minus "not popular" nominations. In addition, they allowed participants to nominate an unlimited number of peers, as

opposed to the typical three. In an additional study, longitudinal results for children from grade five to nine indicated a descending trend, with correlations ranging from .73 in fifth grade to .40 in ninth grade (Cillessen & Mayeux, 2004).

Behavioral descriptions of sociometrically popular and perceived popular children have revealed observable differences. Four specific studies (i.e., Babad, 2001; LaFontana & Cillessen, 2002; Lease, Kennedy, et al., 2002; Parkhurst & Hopmeyer, 1998) have assessed both constructs and presented contrasting high status behavioral profiles. Behavioral descriptions of sociometrically popular children have been consistent with the descriptions of the sociometrically popular group identified by Coie et al. (1982) and Newcomb and Bukowski (1983). That is, they were described as prosocial, kind, and trustworthy (Parkhurst & Hopmeyer, 1998). They were not considered dominant, conceited (Parkhurst & Hopmeyer, 1998), or aggressive (LaFontana & Cillessen, 2002; Parkhurst & Hopmeyer, 1998). Behavioral descriptions of perceived popular children have been consistent with the descriptions of popular children identified by sociologists (Adler & Adler, 1998; Eder et al., 1995). They were attractive, visible, talented, and from upper socio-economic status homes (Lease, Kennedy, et al., 2002). In contrast to the children high on sociometric popularity, they were not well-liked. They were described as aggressive (Parkhurst & Hopmeyer, 1998; Prinstein & Cillessen, 2003; Rose, Swenson, & Lockerd, 2003), conceited, unkind, and untrustworthy (Parkhurst & Hopmeyer, 1998). Notable groups of perceived popular children that were not sociometrically popular were found to be sociometrically controversial (27%, Parkhurst & Hopmeyer, 1998), average (41%, LaFontana & Cillessen, 1999; 16%, Parkhurst & Hopmeyer, 1998), and even rejected (11%, Parkhurst & Hopmeyer, 1998).

Sociometric popularity and social dominance.

The relation between sociometric popularity and social dominance has received far less attention in the social status literature. Lease, Kennedy, et al. (2002) assessed social dominance using a forced choice, paired-comparison method. Children were requested to circle the child within each pair that possessed more "influence and power." Social dominance nominations defined in this manner were found to be strongly correlated with like-most nominations, $r = .57$, in an elementary school population. Like-least nominations and social dominance were negatively correlated, $r = -.28$. Despite the presence of only one study, the moderate relation between the two constructs described by Lease, Kennedy, et al. (2002) was consistent with the moderate degree of behavioral similarity between socially dominant and sociometrically popular children. Similar to sociometrically popular children, socially dominant children have been described as attractive, self-confident, intelligent, and possessing effective interpersonal skills (see Paikoff & Savin-Williams, 1983; Savin-Williams, 1979). However, in contrast to sociometrically popular children, descriptions of socially dominant children also have included such terms as tough, physically imposing, and aggressive (Paikoff & Savin-Williams, 1983; Pettit, Bakshi, Dodge, & Coie, 1990; Savin-Williams, 1979; Vaughn & Waters, 1981; Wright, Zakriski, & Fisher, 1996); aggressive behaviors have been more often associated with sociometrically *rejected* children (Coie & Dodge, 1998; Newcomb et al., 1993).

Perceived popularity and social dominance.

Similar to the relation between sociometric popularity and social dominance, the relation between social dominance and perceived popularity has received little attention in the social status literature. When social dominance was defined using the forced choice method previously described, Lease, Kennedy, et al. (2002) reported that social dominance was strongly correlated

with most-popular nominations (r = .62) and least-popular nominations (r = -.57) in fourth through sixth grade children. When considering behavioral profiles, a great number of similarities exist between socially dominant children and perceived popular children. Consistent with descriptions of socially dominant children (see Paikoff & Savin-Williams, 1983; Savin-Williams, 1979), perceived popular children have been described as assertive, attractive, tough (Adler & Adler, 1998), athletic (Adler & Adler, 1998; Eder et al., 1995; LaFontana & Cillessen, 2002; Lease, Kennedy, et al., 2002), sophisticated in social situations (Adler & Adler, 1998; LaFontana & Cillessen, 2002), and aggressive (Parkhurst & Hopmeyer, 1998; Prinstein & Cillessen, 2003; Rose et al., 2003).

In summary, sociometric popularity, perceived popularity, and social dominance exhibited moderate to high degrees of association. Thus, contrasting conceptualizations of social status appear to be assessing social status constructs that are only moderately similar. Sociometric popularity and perceived popularity have been extensively investigated, and the behavioral similarities and differences between the high status children of the contrasting conceptualizations have been well-documented. The relations between social dominance and the more prominent measures of sociometric popularity and perceived popularity have been less frequently assessed than the relation between sociometric popularity and perceived popularity. Given the lack of findings, how dominance relates to sociometric popularity and perceived popularity remains in question. The magnitude of the only correlation found relating social dominance and like-most nominations (i.e., r = .57; Lease, Kennedy, et al., 2002) was somewhat surprising and suggested that dominant children, while often aggressive, might also be likeable. It also supported Hawley's (2002, 2003) theory that prosocial means can be used to establish and maintain dominant positions. The strong relation between social dominance and most popular

nominations (i.e., $r = .62$; Lease, Kennedy, et al., 2002) was more predictable given the vast number of behavioral similarities between socially dominant and perceived popular children. How socially dominant and perceived popular children differ, however, remains unclear. Finally, given the moderate to high correlations between the indices of social status, it appears possible that children might attain high status as defined by two or more of the indices. In other words, it seems possible that children can be sociometrically popular and perceived popular, or even socially dominant, sociometrically popular, and perceived popular. Such speculation has been supported by findings describing the existence of multiple subtypes of high status children.

Multiple Subtypes of High Status Children

When used alone, contrasting conceptualizations of social status appear to result in relatively distinct groups of high status children. Whereas some high status children are likeable, kind, and studious, others are manipulative, aggressive, and prominent. More recently, evidence suggesting the existence of both prosocial and antisocial subtypes of high status children has been described. Interestingly, such evidence has emerged from studies employing differing methodologies.

The existence of prosocial and antisocial subtypes of high status children has received support from a number of exploratory, person-oriented investigations that have used scales of the Interpersonal Competence Scale – Teacher (ICS-T; Cairns, Leung, Gest, & Cairns, 1995) as clustering variables. The scales of the ICS-T coincide with the conceptualizations espoused by developmental psychologists and sociologists. For example, the Affiliative subscale is composed of items ("always smiles" and "always friendly") that approximate "likeability." The Popularity subscale is composed of items ("popular with boys," "popular with girls," and "lots of friends") that approximate perceived-popularity. Other scales address behaviors commonly associated

with social status in children (e.g., Academic: “good at math” and “good at spelling;” Olympian/Physical Competence: “good at sports,” “good looking,” “wins a lot;” Aggressive: “always argues,” “gets in trouble,” and “always fights;” and Internalizing: “always sad,” “always worries,” and “shy”). Across four separate studies using the ICS-T, evidence supporting the presence of prosocial and antisocial high status boys has emerged. In two studies, evidence for prosocial and antisocial high status girls has emerged.

Farmer, Rodkin, Pearl, and Van Acker (1999) investigated the social functioning of elementary boys and girls with mild disabilities. In their person-oriented approach, the authors employed all seven ICS-T subscales (i.e., Popular, Olympian, Affiliative, Academic, Aggressive, Shy, and Internalizing) as the clustering variables. Two subtypes of high status boys were identified: Model boys were popular, academically oriented, friendly, and athletic, but not aggressive. Tough boys were popular, athletic, and aggressive, but not academically oriented. Two types of high status girls were also identified. In contrast to other studies, however, both high status subtypes of girls were considered prosocial and not aggressive. Model girls were described as popular, friendly, and academically oriented. Studious girls were shy, studious, and popular. It is possible that a high status, aggressive subtype of girls was not identified due to the lack of variables assessing social aggression (see Adler & Adler, 1998).

Rodkin et al. (2000) investigated possible subtypes of high status elementary preadolescent boys using a cluster analysis of the ICS-T. Six subscales (i.e., Affliliative, Popular, Olympian/Physical Competence, Academic, Aggressive, and Internalizing) were used as clustering variables. Two subtypes of high status boys were found. Popular-prosocial boys were perceived by peers to be cool, athletic, cooperative, studious, and not aggressive. They were also

considered to be good leaders. Popular-antisocial boys were perceived by peers to be cool, athletic, and antisocial.

Estell, Farmer, Cairns, and Cairns (2002) investigated the social relations and academic achievement of first grade boys and girls from inner city classrooms. The cluster analysis using the Popularity, Academic, and Aggression subscales as clustering variables revealed two subtypes of high status children: an academically oriented popular group low on aggression and an academically oriented popular group high on aggression. Given previous findings that high status, antisocial boys have typically been found to avoid an academic success (Adler & Adler, 1998), it was interesting to find an aggressive popular group with an academic orientation. It appeared likely that a social reputation as an academic achiever might not yet harm the social status of boys in first grade.

Farmer, Estell, Bishop, O'Neal, and Cairns (2003) employed a person-oriented approach in their investigation of social relations and aggression within a sample of rural African American early adolescent boys and girls. The clustering variables for boys included the Aggressive, Popular, Academic, Affilative, and Olympian ICS-T scales. To allow for an assessment of social aggression for girls, the same scales were used in conjunction with three teacher-rated items: "manipulates friendships," "class leader," and "bullies peers." Two types of high status boys and girls emerged. Model boys were described as popular, academically oriented, affiliative, athletic, and not aggressive. Tough boys, while popular and affiliative, were also aggressive. Similar to model boys, model girls were popular, academically oriented, affiliative, and not aggressive. They were also perceived by teachers to be good leaders. Popular girls, while popular, academically oriented, affiliative, and also perceived as good leaders, were socially aggressive and manipulative. Further investigation revealed the aggressive, high status

subtypes of boys and girls to be actively involved in extracurricular activities. In addition, the aggressive, high status boys were more likely than other boys to have rejected sociometric status; aggressive, high status girls were more likely than other girls to be controversial.

Overall, person-oriented approaches consistently revealed prosocial and antisocial subtypes of high status elementary school boys (Estell et al., 2002; Farmer, Estell, Bishop, et al., 2003; Farmer et al., 1999; Rodkin et al., 2000) and girls (Estell et al., 2002; Farmer, Estell, Bishop, et al., 2003). Similar to sociometrically popular children (Coie et al., 1982), prosocial-popular subtypes tended to be nonaggressive, academically-oriented, cooperative, and responsible, and displayed effective leadership skills. Antisocial-popular children were described as prominent, sociable, cool, athletic, and either socially or physically aggressive. The profiles of these popular, yet antisocial, children were consistent with those of sociologically popular children (Adler & Adler, 1998) who often pursued high status positions using ruthless, yet socially sophisticated tactics.

Further support for two subtypes of high status children has emerged from a person-oriented study employing a peer reputation approach. The approach assesses social attributes by having participants identify peers who most closely portray certain characteristics (see Masten, Morison, & Pelligrini, 1985). Luthar and McMahon (1996) investigated peer relations in inner city, ninth grade students using a peer reputation measure (i.e., the Revised Class Play; Masten et al., 1985). In their cluster analysis, the clustering variables included four factors: popular-sociable (e.g., “everyone likes to be with,” “has many friends”), aggressive-disruptive (e.g., “picks on other kids,” “gets into a lot of fights,” “too bossy”), sensitive –isolated (e.g., “often left out,” “has trouble making friends,”), and prosocial-leader (e.g., “helps other people when they need it,” “good leader”). Four identical clusters emerged for both boys and girls, two of which

were high status. The prosocial-popular group was high on scales representing prosocial behaviors, leadership skills, and popularity. This group appeared to be similar in description to the prosocial-popular subtype of the ICS-T studies (e.g, Estell et al., 2002; Farmer, Estell, Bishop, et al., 2003) and sociometrically popular children (Coie et al., 1982). The aggressive-popular group was high on scales representing aggression/disruption and popularity. This group appeared similar to the antisocial popular subtype of the ICS-T studies (e.g, Estell et al., 2002; Farmer, Estell, Bishop, et al., 2003) and perceived popular children (Parkhurst & Hopmeyer, 1998).

Whereas an extensive number of studies have described both prosocial and antisocial subtypes of high status children, additional investigations have suggested a third subtype. In addition to prosocial and antisocial high status children, a high status subtype with a mixed presentation that includes both prosocial and antisocial behaviors has emerged from both person-oriented and cut-score methods of classification.

Lease, Musgrove, and Axelrod (2002) examined the specific roles of peer-nominated sociometric popularity, perceived popularity, and social dominance in a person-oriented paradigm. The authors cluster-analyzed a sample of over 500 preadolescent children into seven social status subtypes. The clustering variables included peer-reported nominations of likeability (i.e., Who do you like to play with the most? Who do you like to play with the least?), perceived popularity (i.e., Who are the most popular students?), and social dominance. Social dominance was assessed using a forced choice, paired-comparison method: children were requested to circle the child within each pair that possessed more "influence and power" (Lease, Musgrove, et al., 2002). Of the seven subtypes, three reflect a high status standing. One group received high likeability and dominance ratings, but average popularity ratings (Well-Liked/Dominant). Given

their presentation as likeable and fun to be around, this group appears similar in description to the prosocial-popular subtype of previously described studies (e.g., Estell et al., 2002; Farmer, Estell, Bishop, et al., 2003; Farmer et al., 1999; Rodkin et al., 2000). A second group received high popularity and dominance ratings, but average likeability ratings (Perceived Popular/Dominant). This group appeared similar in description to the antisocial-popular subtype previously described due to their use of social aggression and coercive dominance methods. Unlike previously described studies, however, a third group was high on likeability, popularity, and dominance (High Status). These children were described as socially sophisticated and able to selectively employ both prosocial and coercive dominance behaviors. Interestingly, social dominance and perceived popularity appear to be distinct constructs in the Lease, Musgrove, et al. (2002) model. That is, the Well-Liked/Dominant group is high on dominance, but not perceived popularity.

Multiple types of high status children also have emerged from a study using a cut-score approach to classification. Cut-score models divide children into groups by establishing demarcation lines within classification variables. Hawley et al. (2002) used such an approach when investigating self-reported use of coercive and prosocial dominance strategies in children grades three to six. Three types of socially dominant children were identified and described using behavioral correlates. Children who scored above the 65th percentile on prosocial strategy use and average or low on coercive strategy use were identified as *prosocial controllers*. Similar to sociometrically popular (Coie et al., 1982) and prosocial-popular children (Farmer, Estell, Bishop, et al., 2003), children within this group were found to possess positive social characteristics, intrinsic motivation for social interactions, and a positive sense of well-being. Children who scored above the 65th percentile on coercive strategy use and average or low on

prosocial strategy use were identified as *coercive controllers*. Similar to perceived popular (Parkhurst & Hopmeyer, 1998) and antisocial-popular children (Farmer, Estell, Bishop, et al., 2003), children within this group were more hostile than other subtypes, pursued relationships for status and extrinsic outcomes, and were lonelier than prosocial controllers. *Bistrategic controllers* scored above the 65th percentile on prosocial and coercive strategy use. They were found to be agreeable and hostile, intrinsically and extrinsically motivated to pursue relationships, and both socially-connected and lonely. Further study of such children, labeled Well-Adapted Machiavellians by Hawley (2003), revealed them to be socially skilled, well-adjusted children who are able to selectively employ both prosocial and antisocial means towards resource control (Hawley, 2003). This presentation appeared similar to High Status children from the Lease, Musgrove, et al. (2002) multidimensional model.

An integration of findings across methodology and discipline reveals extensive evidence for multiple types of high status children. Person-oriented approaches including variables related to sociometric popularity, perceived popularity (e.g., Estell et al., 2002; Farmer, Estell, Bishop, et al., 2003; Farmer et al., 1999; Rodkin et al., 2000), and social dominance (e.g., Lease, Musgrove, et al., 2002) have described similar subtypes of highs status children as those that emerged from a cut-score classification using prosocial and antisocial dominance strategy use as classification variables (Hawley et al., 2002). Across discipline and methodology, prosocial high status children have been described as children who desire satisfying relationships, use effective social skills, and possess a positive sense of well-being. Antisocial high status children have been described as possessing a high need for recognition, capable of aggression and hostility, and seeking peer interactions in order to enhance personal status and to gain extrinsic outcomes. The third subtype of high status children that emerged in the Lease, Musgrove, et al. (2002) and

Hawley et al. (2002) studies was described with a combination of prosocial and antisocial terms. These groups were sociable and friendly, yet capable of using aggression and hostility to achieve goals. They were also socially skilled, such that they could manipulate situations and likely hide aggressive acts from teachers. It is notable that this group of children typically has been found to be relatively small. Children have usually been found to be high on only one index (i.e., sociometric popularity or perceived popularity; Babad, 2001). For example, Parkhurst and Hopmeyer (1998) reported that most children identified as sociometrically popular were not identified as perceived popular. Similarly, most children high on perceived popularity were not high on social preference.

The various disciplinary conceptualizations (i.e., sociometric popularity, perceived popularity, and social dominance) each appear to bring slightly different perspectives to the description of social status. When considered within the context of multiple types of high status children, it is evident that these varying perspectives may play significant roles in a more comprehensive description of the preadolescent social status system. In order to identify the multiple types of high status children that have emerged in person-oriented and cut-score classification studies, a range of variables from differing social status conceptualizations has been necessary. Variables such as assertiveness, leadership ability, and social precocity have historically been associated with social dominance (see Paikoff & Savin-Williams, 1983; Savin-Williams, 1979) and were consistently related to high status across the studies reviewed. To further distinguish the types of high status children, however, prosocial behaviors such as likeability, kindness, and trustworthiness are necessary. Such variables are consistent with a sociometric-popularity perspective. Similarly, to identify the antisocial-popular children, variables related to both physical and relational aggression are necessary. Such variables are

consistent with a perceived-popularity perspective. Overall, it appears that a cross-disciplinary approach to preadolescent social status conceptualization would enhance the ability to provide a comprehensive picture of the social status hierarchy within preadolescent peer groups.

Discussion

The conceptualizations posited by sociometric popularity, perceived popularity, and social dominance traditions all appeared to play relevant - yet slightly different - roles when attempting to provide a thorough depiction of preadolescent social status. Based on the findings of the current review, several broad conclusions regarding the assessment and description of preadolescent social status can be drawn. These include the finding of cross-disciplinary behavioral markers of high social status, the possibility of developing a more comprehensive model of preadolescent social status, and the potential utility of such a model.

First, despite the differences between high status children identified within the sociometric popularity, perceived popularity, and social dominance research literature, some characteristics appear to be consistent in all types of socially successful preadolescent children. These include assertiveness (Adler & Adler, 1998; Newcomb et al., 1993; Paikoff & Savin-Williams, 1983; Rubin et al., 1998; Savin-Williams, 1979), leadership ability (Adler & Adler, 1998; Newcomb et al., 1993; Paikoff & Savin-Williams, 1983; Rubin et al., 1998), precocity in social skills (Adler & Adler, 1998; LaFontana & Cillessen, 2002; Newcomb et al., 1993 Paikoff & Savin-Williams, 1983; Savin-Williams, 1979), athletic ability (Adler & Adler, 1998; Boivin & Begin, 1989; Eder et al., 1995; LaFontana & Cillessen, 2002; Lease, Kennedy, et al., 2002; Newcomb et al., 1993; Paikoff & Savin-Williams, 1983; Savin-Williams, 1979), and attractiveness (Adler & Adler, 1998; Boivin & Begin, 1989; Eder et al., 1995; LaFontana & Cillessen, 2002; Lease, Kennedy, et al., 2002; Newcomb et al., 1993; Paikoff & Savin-Williams,

1983; Savin-Williams, 1979). Despite the importance of these characteristics for high status children across disciplines, however, research also has indicated that the behavioral profiles of high status children can vary dramatically on additional variables, such as use of aggression, motivations for social interactions, sense of well-being, likeability, trustworthiness, kindness, and emphasis on academics. The seminal contributions of Hawley (2002, 2003) captured the wide range of varying methods employed by preadolescent children to attain and maintain their high status positions, from prosocial methods to outright hostile tactics.

Second, it can be argued that preadolescent social status might best be described within an integrated, cross-disciplinary framework. Research studies that have included variables representing prosocial behaviors (e.g., likeability), antisocial behaviors (e.g., physical and relational aggression), and dominance-related characteristics (e.g., athletic ability, assertiveness, and leadership ability) have repeatedly identified multiple subtypes of high status children, regardless of methodology. By including these contrasting dimensions, groups of children with varying profiles can be identified. For example, the Lease, Musgrove, et al. (2002) investigation into preadolescent social status included sociometric popularity, perceived popularity, and social dominance dimensions within a person-oriented framework. The resulting classification scheme included three behaviorally distinct subtypes of high status children (High Status, Well-Liked/Dominant, Perceived Popular/Dominant), as well as three subtypes falling at the lower end of the status hierarchy (i.e., Low Status, Low Dominant/Unpopular, Disliked).

A primary advantage of the development of a multi-dimensional model of preadolescent social status is increased sensitivity for subtypes of children. For example, the emergence of both high status and low status subtypes of aggressive children provides some clarification in the debate regarding bullies as “social inadequates” or “Machiavellian schemers” (see Arsenio &

Lemerise, 2001). Historically, some researchers have considered bullies to be "social inadequates" due to deficiencies in encoding and interpreting social cues (Crick & Dodge, 1994). This perspective has typically been associated with reactive aggression (i.e., reacting to misperceived threats; Arsenio & Lemerise, 2001). Investigations of reactive aggressive children typically have found them to be socially rejected by peers (i.e., low in likeability; Coie & Dodge, 1988; Coie et al., 1982; Green et al., 1981; Wentzel & Asher, 1995).

Whereas the rejected, "social inadequate" interpretation is consistent with the traditional association between rejection and aggression (Coie & Dodge, 1988; Coie et al., 1982; Green et al., 1981; Wentzel & Asher, 1995), it is not consistent with the association between popularity and aggression posited by sociologists (e.g., Adler & Adler, 1998) and multidimensional, person-oriented findings (e.g., Estell et al., 2002; Farmer, Estell, Bishop, et al., 2003; Lease, Musgrove, et al., 2002). Antisocial popular subtypes appear to be more accurately described as "Machiavellian schemers" (Arsenio & Lemerise, 2001). "Machiavellian schemers" have been found to be aggressive despite accurate encoding and interpreting of social cues (Dodge & Coie, 1987). They tend to employ proactive aggression as a means of achieving instrumental goals (i.e., external rewards) and are more likely than other children to perceive aggression as an effective means of doing so. In addition, they have been found equivalent in likeability (i.e., social preference) to non-aggressive children (Dodge, Lochman, Harnish, Bates, & Pettit, 1997), though some have been considered rejected (Dodge & Coie, 1987).

A second benefit of a multidimensional model is increased ability to identify children on maladaptive developmental pathways. As theorized by Hawley (1999) and emphasized by Lease, Musgrove, et al. (2002), children who employ prosocial strategies to attain and maintain high status among peers are facilitating social relationships that will continue to provide positive

returns in the future. Such children appear to learn that benefits of being a part of a social group exist and develop methods of obtaining resources that allow them to balance their own needs with the needs of others (Hawley, 2002). Developmentally, prosocial behaviors are more adaptive and have been shown to be stronger predictors of peer-rated dominance than coercive means by the time children reach adolescence (Wright et al., 1996). In contrast, children who employ antisocial/coercive strategies might achieve dominance status while toddlers, but such strategies have been theorized to limit future access to social and material resources, thus impeding opportunities for future social and material success (Hawley, 2002).

It is interesting, though, that the multidimensional, person-oriented studies reviewed revealed subtypes of high status, yet antisocial, children. The use of a cross-disciplinary, multidimensional model would allow for the identification of subtypes of low and high status antisocial children. Subsequent investigation could be conducted into how these groups differ. For example, how do antisocial-popular children successfully maintain high status despite using methods that should alienate them? Do they manipulate others and establish dominant positions using precocious social and theory of mind skills as theorized by Sutton, Smith, and Swettenham (1999)? Are they the culprits of proactive aggression? In addition, longitudinal investigations might reveal when – and if – antisocial behaviors result in decreased social status.

An additional benefit of the development of a multidimensional model of preadolescent social status would be increased sensitivity to influential, antisocial members of the peer group. For example, the review has indicated that high status, influential children are not always prosocial and likeable. In fact, many influential children with prominence, good social skills, and active extracurricular involvement are highly aggressive (Farmer, Estell, Leung, Trott, Bishop, & Cairns, 2003). Therefore, it appears possible that antisocial-popular children might play a role in

the proliferation of delinquent behaviors that often emerge during adolescence. Research findings have supported a role for delinquent, yet influential, peers in generating a relatively temporary and normative form of conduct disorder within adolescents (Bukowski, Sippola, & Newcomb, 2000; Luthar & McMahon, 1996; Moffitt, Caspi, Rutter, & Silva, 2001; Simons, Wu, Conger, & Lorenz, 1994). In findings from their longitudinal study, Moffitt et al. (2001) suggested that an adolescence-limited path of conduct problem children developed as children mimicked delinquent behaviors as a means to display autonomy. Children with low influence and status are not likely to encourage imitation, however. Given their high levels of popularity and dominance, it appears that the group exerting influence over children who develop the adolescence-limited form of conduct disorder might be members of the antisocial-popular group. Identification of this subtype of high status children could be significant when attempting to identify and reduce negative peer pressure within peer groups. Such information could be especially useful in the classroom. It is critical that teachers be aware that some influential high status children can be manipulative, disruptive, and physically and socially aggressive. Vigilance for the sly tactics socially sophisticated children often employ is critical to maintaining a healthy educational environment.

Finally, the emergence of a widely-accepted, cross-disciplinary conceptualization would enhance generalization and cross-disciplinary communication of findings related to social status. Evidence from the review has suggested that addressing multiple variables supported by differing disciplines would likely allow a more precise depiction of the social status structure. Such advances would ultimately augment the movement towards prediction and intervention in applied settings.

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CHAPTER 3

CROSS-VALIDATION OF A MULTIDIMENSIONAL CONCEPTUALIZATION OF PREADOLESCENT SOCIAL STATUS[1]

[1] Lindstrom, W.A., & Lease, A.M. To be submitted to *Social Development*.

Abstract

The main objective of this investigation was to examine the support for a person-oriented, multidimensional model of preadolescent social status using two external validation methods: cluster analysis of an independent sample and cross-classification comparisons. Six of the seven subtypes of the Lease, Musgrove, and Axelrod (2002) solution emerged within the independent cluster analysis: *High Status*, *Perceived Popular/Dominant*, *Well-Liked/Dominant*, *Disliked*, *Low Dominant/Unpopular*, and *Low Status*. An *Average* cluster subtype was not found. Comparisons of the two typologies revealed highly similar centroids, comparable hierarchical structures, and consistent behavioral profiles as rated by teachers and peers. The cross-classification procedure demonstrated a high degree of similarity between the solutions of the original (Lease et al., 2002) and independent samples. The findings provide evidence that a replicable, internally valid social status typology may underlie preadolescent peer groups.

KEY WORDS: sociometric, perceived popularity, social dominance, social status, preadolescent

Introduction

Over the past seventy years, research findings from multiple disciplines have associated the failure to develop and maintain satisfying peer relationships in preadolescence with a number of maladaptive outcomes. Such outcomes have included poor academic performance (Austin & Draper, 1984; Li, 1985; Muma, 1965; Wentzel, 2003), dropping out of school (Parker & Asher, 1987), criminal behavior (Kupersmidt, Coie, & Dodge, 1990; Parker & Asher, 1987), mental health problems (Kupersmidt et al., 1990), and aggression (Coie, Dodge, & Coppotelli, 1982; McGuire, 1973). The consistency of the findings has established the study of preadolescent social status (i.e., relative position in the peer group) as an effective means for the identification of children on maladaptive developmental pathways. Recently, however, researchers have begun to re-evaluate how social status itself has been conceptualized.

Historically, investigators from several disciplines have conceptualized social status differently from one another. Within the developmental psychology (i.e., *sociometric*) discipline, social status traditionally has been defined by the degree to which a child is liked and/or disliked by peers (see Bukowski & Hoza, 1989; Newcomb, Bukowski, & Pattee, 1993). This method has resulted in a high status group composed of friendly children who are proficient with prosocial skills (Coie et al., 1982; Dodge, 1983; Rubin, Bukowski, & Parker, 1998). Researchers from the sociological tradition typically have allowed participants to define popularity for themselves. High status children identified in that literature have been described as prominent, socially savvy, and often high in socio-economic status (Adler & Adler, 1998; Eder, Evans, & Parker, 1995; Lease, Kennedy, & Axelrod, 2002). Researchers from the ethological (i.e., *social dominance*) tradition historically have equated social status with the degree to which children are able to obtain and dictate resources within the peer group (Hawley, 2002). High status children

of this conceptualization have been described as influential and central members of their peer group (Hawley, 1999) who often obtain their status using aggressive means (Hawley, 2003). Thus, consideration of contrasting conceptualizations has suggested that characteristics of high status children can vary dramatically depending on the social status perspective employed.

More recently, our research group examined the possible benefits of a cross-disciplinary conceptualization of social status. In an initial step towards this goal, Lease, Musgrove, and Axelrod (2002) developed a multi-dimensional classification of a preadolescent sample using a person-oriented approach (see Bergman & Magnusson, 1997). Variables representing each of the three historically dominant research disciplines were used in cluster analyses, and seven status subtypes were identified. The purpose of the current study was to investigate the external validity of that multi-dimensional conceptualization of social status through (1) model replication via cluster analysis of an independent sample and (2) cross-classification among grouping procedures.

Theoretical Foundations

The multi-dimensional model developed by Lease, Musgrove, et al. (2002) integrated variables from three independent conceptualizations of social status. These included the developmental psychology-based *sociometric popularity*, the sociology-based *perceived popularity*, and the ethology-based *social dominance* constructs. In the following section, the unique perspective offered by each research discipline, including the means by which each discipline traditionally has operationally defined social status, was briefly described.

Sociometric Tradition

Founded on the work of Moreno (1934), developmental psychology researchers investigating sociometric status have evaluated relative social position among peers through peer

nominations of attraction and repulsion. Attraction has been assessed by asking children to nominate peers they *like-most*, whereas repulsion has been assessed through *like-least* peer nominations (Bukowski & Hoza, 1989). Thus, sociometrically popular children are those who are well-liked by peers, whereas low status children are those who are disliked by peers.

Over time, sociometric classification schemes have evolved from one-dimensional models, which were based only on liking nominations (Northway, 1947; Potashin, 1947), to current models that use both like-most and like-least nominations (Coie et al., 1982; Newcomb & Bukowski, 1983). Two dominant models, one by Coie, Dodge, and Coppotelli (1982) and one by Newcomb and Bukowski (1983), emerged in the early 1980's and remain the dominant models. Both employ four variables: peer nominations of like-most, peer nominations of like-least, *social preference*, and *social impact*. Social preference is the result of subtracting disliking nominations from liking nominations and is believed to represent a summary score of social status. Social impact is the result of adding the number of positive nominations a child receives to the number of negative nominations; it is believed to be a measure of social visibility (Peery, 1979).

Despite differing methodologies, both classification schemes described five categories of children (i.e., popular, rejected, neglected, controversial, and average). The social and behavioral characteristics of these types of children have been studied extensively. *Popular* children appear to be well-adapted, prosocial children who are likeable, academically-oriented, and assertive (Austin & Draper, 1984; Coie & Dodge, 1988; Newcomb et al., 1993; Rubin et al., 1998; Wentzel & Asher, 1995). In contrast, *rejected* children have been described as aggressive, disruptive, and less sociable than average children (Newcomb et al., 1993; Rogosch & Newcomb, 1989; Sandstrom & Cillessen, 2003; Wentzel & Asher, 1995). Like the average group, *neglected* children appear to be likeable (Newcomb et al., 1993) and not aggressive

(Wentzel & Asher, 1995). They tend to have more positive academic profiles than average children (Wentzel & Asher, 1995), but less social interaction (Newcomb et al, 1993). The members of the *controversial* group have been described with a mixture of positive and negative characteristics. They have numbers of friendships that are comparable to those of popular children (Newcomb et al., 1993), yet they have been described as aggressive and disruptive (Coie et al., 1982; Newcomb & Bukowski, 1983). The latter two categories – neglected and controversial – have poorer psychometric characteristics than the popular and rejected categories, which have been found to be fairly reliable (see Fredrickson & Furnham, 1998).

Perceived Popularity

Whereas sociometric popularity has been determined using like-most and like-least peer nominations, researchers working within the sociological tradition historically have used ethnographic methods that rely on participants' own conceptualizations of popularity (e.g., Adler & Adler, 1998; Eder et al., 1995). Thus, children themselves have identified who is "popular" based on peer reputation. Ethnographic studies of elementary (Adler & Adler, 1998; Adler, Kless, & Adler, 1992) and middle school (Eder et al., 1995) populations have indicated that children's social constructions of popularity are strongly associated with visibility, recognition, and prominence.

More recently, psychologists also have assessed a social status construct that allows children to define popularity as they perceive it. The construct, labeled *perceived popularity* (Parkhurst & Hopmeyer, 1998) or *judgmental popularity* (Babad, 2001), has been defined by peer nominations of classmates deemed "most popular." Findings from the psychologically-based perceived popularity literature have painted a picture of popular children that is remarkably consistent with that of the sociological literature.

Specifically, perceived popular children have been described as attractive, assertive, and socially-connected. For both boys and girls, precocity in social situations has been a significant characteristic associated with perceived popularity (Adler & Adler, 1998; LaFontana & Cillessen, 2002). However, they also have been noted to establish and maintain their high social status through sometimes callous means. In contrast to sociometrically popular children, they are not always liked due to their exclusionary behaviors, elitist manners (Adler & Adler, 1998; Adler et al., 1992; Eder et al., 1995), and use of physical (i.e., fighting and calling names) and/or relational (i.e., spreading rumors, talking behind others' backs) aggression to achieve their goals (LaFontana & Cillessen, 2002). Some correlates of perceived popularity are specific to gender. Perceived popular reputations for boys are heavily determined by athletic ability, coolness, and toughness. Gender-specific factors for girls include socio-economic status, physical appearance, and academic performance (Adler & Adler, 1998).

Social Dominance

According to the ethological conceptualization of status, children are organized hierarchically according to their relative ability to control material and social resources within the peer group (Hawley, 1999). Dominant children, or those towards the top of the hierarchy, are considered influential and central within the peer group. Possessing a high rank in the social dominance hierarchy has been associated with effective interpersonal skills, athletic ability, self-confidence, intelligence, popularity, attractiveness, toughness, and physical size (see Paikoff & Savin-Williams, 1983; Savin-Williams, 1979). In contrast, children towards the bottom of the hierarchy tend to be overlooked by their peers because they lack the ability or motivation to acquire and control resources (Hawley, 1999). Low dominant children have been described as insecure, clumsy, overly talkative, and/or unpopular (Savin-Williams, 1979). Dominance

hierarchies have been identified and described in children as young as three years of age (Hawley & Little, 1999), though most studies have addressed adolescent populations (e.g., Savin-Williams, 1979; Savin-Williams & Freedman, 1977).

According to Hawley (1999; 2002), both *coercive* and *prosocial* means can be used to gain and maintain dominance over peers. *Coercive* strategies include antisocial behaviors such as aggression, monopolization of resources, and threats; however, such methods tend to damage social relations and might lead to poor long-term outcomes (Hawley, Little, & Pasupathi, 2002). *Prosocial* strategies include behaviors such as cooperation, alliance formation, and reciprocation (Hawley, 2002). These methods also can be effective at establishing a dominant position within a peer hierarchy at some developmental stages. Unlike coercive means, however, prosocial methods are hypothesized to foster better interpersonal relations and lead to more positive long-term outcomes (Hawley et al., 2002) because they take the needs of others into account.

Evidence for Multiple Dimensions

The findings from two types of studies have suggested that a cross-disciplinary model of social status might better portray the complex world of children's peer groups than unidimensional models. First, investigations into the contrasting disciplinary conceptualizations have suggested that sociometric popularity, perceived popularity, and social dominance are moderately related, yet distinct, conceptualizations of social status. Thus, types of children identified as high status vary by study given which conceptualization is used. Second, person-oriented studies of social status have provided extensive support for the presence of multiple types of high status children. As these subtypes include high status groups that are behaviorally similar to sociometrically popular and perceived popular children, it appears that each

contrasting conceptualization might play a significant role in a more comprehensive description of preadolescent social status.

Sociometric popularity, perceived popularity, and social dominance appear to be related, yet non-overlapping, constructs. Specifically, research with elementary and middle school-aged populations has shown that peer nominated sociometric popularity and perceived popularity are moderately to highly related, with correlations ranging from .40 to .73 (Babad, 2001; Cillessen & Mayeux, 2004; LaFontana & Cillessen, 1999, 2002; Lease, Kennedy, et al., 2002; Parkhurst & Hopmeyer, 1998). Findings for elementary school children have indicated that peer nominated sociometric popularity and social dominance are also highly related, $r = .57$ (Lease, Kennedy, et al., 2002). Finally, research with elementary and middle school samples has suggested that social dominance and perceived popularity have a low to moderate relation, with correlations ranging from .20 to .62 (Lease, Kennedy, et al., 2002; Parkhurst & Hopmeyer, 1998). Overall, authors from the vast majority of studies have concluded that sociometric popularity, perceived popularity, and social dominance are moderately related, yet independent, constructs.

When variables related to sociometric popularity, perceived popularity, and social dominance have been cluster analyzed to develop child behavioral classifications, multiple types of high status children have been described. A number of such studies have been conducted using teacher perceptions as assessed using the Interpersonal Competence Scale – Teacher (ICS-T; Cairns, Leung, Gest, & Cairns, 1995). The ICS-T includes variables conceptually related to perceived popularity (e.g., "popular with boys/girls"), sociometric popularity (e.g., "always friendly"), and social dominance (e.g., "wins a lot"). Using these variables and a population of elementary school children, Rodkin, Farmer, Pearl, and Van Acker (2000) identified a group of *model* boys that were popular, academically oriented, friendly, and athletic, but not aggressive. A

group of *tough* boys that were popular and athletic, but also aggressive emerged as well. Identical subtypes of boys emerged in an investigation of early adolescent, African American children (Farmer, Estell, Bishop, O'Neal, & Cairns, 2003). Finally, Estell, Farmer, Cairns, and Cairns (2002) described two subtypes of high status, inner city first grade boys: an academically oriented popular group low on aggression and an academically oriented popular group high on aggression.

In two studies, evidence for prosocial and antisocial high status girls has emerged. In their investigation of African American early adolescent children, Farmer et al. (2003) described a model subtype of girls that was popular, academically oriented, and not aggressive. An antisocial subtype was described as popular and academically-oriented, yet socially aggressive. Estell et al. (2002) described nearly identical subtypes within a first grade sample.

Prosocial and antisocial high status children have emerged in studies using other methods, as well. In an investigation of the psychometric properties of the Revised Class Play (Masten, Morison, & Pelligrini, 1985) with inner city, ninth grade students, Luthar and McMahon (1996) used a person-oriented approach with peer reputation nominations. Like the ICS-T, the Revised Class Play includes variables conceptually related to perceived popularity (e.g., "too bossy"), sociometric popularity (e.g., "has many friends"), and social dominance (e.g., "picks on other kids"). In their findings, the authors described a prosocial popular group high on scales representing prosocial behaviors, leadership skills, and popularity, as well as an aggressive-popular group high on scales representing aggression/disruption and popularity. Both groups were found for both genders. Hawley et al. (2002) used cut-scores ($\geq 66^{th}$ percentile) to classify children grades three to six based on self-reported use of coercive and prosocial dominance strategies. Both prosocial (i.e., *prosocial controllers*) and antisocial (i.e., *coercive*

controllers) subtypes of high status children were described. In addition, a third subtype, *bistrategic controllers*, emerged and was found to possess a combination of prosocial and antisocial characteristics (e.g., agreeable and hostile).

An integration of findings across methodology and discipline reveals extensive evidence for the existence of prosocial and antisocial subtypes of high status children. Additional evidence has suggested a subtype possessing both prosocial and antisocial characteristics. When considered within the context of multiple types of high status children, it appears that the varying disciplinary conceptualizations (i.e., sociometric popularity, perceived popularity, and social dominance) may play significant roles in a more comprehensive description of the preadolescent social status system. Variables such as assertiveness, leadership ability, and social precocity have historically been associated with social dominance (see Paikoff & Savin-Williams, 1983; Savin-Williams, 1979) and were consistently related to high status across the studies reviewed. Consideration of prosocial characteristics consistent with sociometric-popularity (e.g., likeability, kindness, and trustworthiness) and antisocial behaviors consistent with perceived-popularity (e.g., physical and relational aggression) allowed for subtypes of high status children to be further distinguished.

Conjecture regarding the possible roles of sociometric popularity, perceived popularity, and social dominance within a depiction of preadolescent social status is somewhat limited by the methodologies of a large number of the studies reviewed. The majority of the investigations (e.g., Estell et al., 2002; Farmer et al., 2003; Rodkin et al., 2000) classified children using a combination of status and behavioral variables (e.g., “popular with boys/girls” and “wins a lot,” Cairns et al., 1995). As the subtypes that emerged from these studies were at least partially defined by their behaviors, the ability to investigate behavioral and personality profiles

associated exclusively with social status position was limited. A study by Lease, Musgrove, et al. (2002), however, demonstrated that multiple types of high status children could be found using social status dimensions without the use of behavioral information.

A Multidimensional Model of Social Status

Lease, Musgrove, et al. (2002) developed a multi-dimensional typology (i.e., a conceptually-based classification of objects; Hair, Anderson, Tatham, & Black, 1998) of social status within a preadolescent sample. Using peer-reported likeability, perceived popularity, and social dominance as clustering variables, the authors cluster analyzed a sample of over 500 children into seven subtypes. Peer nominations were used to assess likeability (i.e., Who do you like to play with the most? Who do you like to play with the least?) and perceived popularity (i.e., Who are the most popular students?). Social dominance was assessed using a forced choice, paired-comparison method: children were requested to circle the child within each pair that possessed more "influence and power" (Lease, Musgrove, et al., 2002). This method was used instead of peer nominations because paired comparisons have been found to be superior to peer nominations when assessing dominance (Axelrod, 2000).

The seven subtypes that emerged from the cluster analysis included three high status groups, three low status groups, and one average group. The high status groups included a group that was high on likeability, popularity, and dominance (High Status); a group with high likeability and dominance, but average popularity (Well-Liked/Dominant); and a group high on popularity and dominance, but average likeability (Perceived Popular/Dominant). The low status groups included a group that was average on likeability, but was low on popularity and dominance (Low Dominant/Unpopular); a group with low likeability, but average popularity and dominance (Disliked); and a group with low scores on all three variables (Low Status). A final

group (Average) presented with average range scores on all three variables. Each subtype displayed a distinct pattern of behavior and personality characteristics. Importantly, social dominance and perceived popularity appear to be distinct constructs in the Lease, Musgrove, et al. (2002) model. For example, the Well-Liked/Dominant group is high on dominance, but not perceived popularity. This finding suggested that social dominance – but not perceived popularity - is a requirement of high status position.

Compared to unidimensional models of status, the Lease, Musgrove, et al. (2002) multidimensional model appears to be more comprehensive. For example, sociometric methods have resulted in one type of child clearly at the upper end of the social status hierarchy (i.e., popular). In contrast, the multidimensional model differentiated between High Status, Perceived Popular/Dominant, and Well-Liked/Dominant children at the top of the social status hierarchy. These subtypes correspond to high status types within the various research traditions, as well as the subtypes of children found in more recent exploratory studies (e.g., Luthar & McMahon, 1996; Rodkin et al., 2000). Lease, Musgrove, et al. (2002) noted, however, that the validity and predictive utility of the typology remained in question. To our knowledge, no previous person-oriented typology of social status has been externally validated to see if internal structure was consistent across samples. The current study will attempt to address this issue.

External Validation

In the current study, we attempted to determine the degree of external support for the typology developed by Lease, Musgrove, et al. (2002). The social status classification scheme was developed using cluster analysis, which is a procedure that assigns units of a heterogeneous sample into smaller homogenous groups that minimize within group variance while maximizing between group variance (DiStefano, Kamphaus, Horne, & Winsor, 2003). It is not a perfect tool,

however. It is able to create, as well as reveal, internal structure (DiStefano et al., 2003). Thus, a cluster analysis does not necessarily reveal a structure based on true similarities and differences, but is capable of *creating* a structure given the data entered. For example, the procedure has been noted to generate a group of clusters even when applied to random data (see Huberty, DiStefano, & Kamphaus, 1997). Further analyses are imperative, then, to determine if the cluster solution reported by Lease, Musgrove, et al. (2002) is reproducible across populations. In the current study, we chose to investigate the external validity of the Lease, Musgrove, et al. (2002) typology. Thus, our analyses involve a data set beyond the data set of interest (DiStefano et al., 2003).

Current Study

In the current study, two methods of external validation (see Aldenderfer & Blashfield, 1984; Bailey, 1994; Milligan & Cooper, 1987) were pursued: (1) model replication via cluster analysis of an independent sample (DiStefano et al., 2003; Milligan, 1996; Milligan & Cooper, 1987), and (2) cross-classification among grouping procedures (DiStefano et al., 2003).

The first procedure is an attempt to replicate the Lease, Musgrove, et al. (2002) typology through a cluster analysis of an independent sample. Replication of a cluster typology refers to a comparison made between a cluster typology attained from one data set with a typology attained using an independent data set (Aldenderfer & Blashfield, 1984; Bailey, 1994; Huberty et al., 1997; Milligan, 1996). Comparisons with an independent sample are necessary in order to determine if the cluster solution identified in one sample exists within a separate sample (DiStefano et al., 2003). In the current study, then, we first developed a typology by cluster analyzing an independent sample. Second, we used the typology developed from the independent sample to evaluate the relation between the clusters and a number of external behavioral

correlates obtained via peer- and teacher-report. These descriptions were used to flesh out the clusters with additional descriptions and to see whether or not the clusters are meaningful. We then compared the resulting groups with those reported by Lease, Musgrove, et al. (2002) based on cluster number and description.

In the second procedure, we compared cluster assignments from two methods of classification: (a) cluster analysis of the independent sample and (b) a classification rule developed using the Lease, Musgrove, et al. (2002) typology. We hoped to determine if the methods resulted in similar classifications for children of the sample. Ultimately, we hoped to determine if the Lease, Musgrove, et al. (2002) cluster solution is consistent across different samples.

Method

Participants

As a part of a larger study of children's peer relations, 473 elementary school children were recruited from 26 fourth through fifth grade self-contained classrooms in the southeastern region of the United States. Participants' ages ranged from 9 to 13 years. Of the total sample, 47.6% were male. 54.1% of the sample was "White;" 43.1% was "Black;" and 2.8% was "Asian," "Hispanic," or "Mixed." Eighty-one percent of the participants were in classrooms in which their ethnic group was the numerical majority (i.e., majority-race). Class sizes ranged from 12 to 27 members.

Procedure

Data was collected during the late spring of the school year. A parent consent form sent home with students allowed parents to give or deny consent for their child to participate in the study. In addition to this form, child assent was determined within the classroom. Children with parent consent to participate were read aloud an assent form describing the study and were

allowed to decide whether or not to participate. Child participation required both parental consent and child assent. Of 533 possible participants, we obtained active consent/assent for 473 (88.7%). The total sample included 26 classrooms. Peer nominations were limited to peers within the child's classroom. Children, whose names appeared on the measures and, therefore, were allowed to be nominated, had received parental consent to participate.

Group-administered questionnaires were read aloud by researchers in each classroom. An assistant moved about the classroom to help individuals experiencing difficulty and to answer any questions. Class members that did not participate were asked to draw or read quietly at their desks or complete activities assigned by their teacher. Participants completed questionnaires in three sessions: two one-hour sessions and a third fifteen-minute session. Three sessions were used to minimize fatigue. Students were informed that their responses to the questionnaire items would be kept confidential and were encouraged to cover their answers with a cover sheet. To minimize student opportunity to discuss the questionnaire, teachers were encouraged to schedule a structured academic activity immediately following the sessions. At the end of data collection each day, a small gift was distributed to all children by the researchers, regardless of whether they participated.

Measures

Peer nominations of social status.

Three variables related to social status were collected: (a) *sociometric popularity*, (b) *perceived popularity*, and (c) *social dominance*. To determine sociometric popularity, each child was requested to nominate three peers who they like the most ("Which children do you like to play with the most?") and three peers who they like the least ("Which children do you like to play with the least?") from a class roster. The number of like-most and like-least nominations

received by each participant was summed and standardized by classroom and gender according to the procedure established by Coie et al. (1982). Standardization within classroom and gender was included for two reasons: (a) to allow for comparison across classrooms that have different numbers of participants and (b) because children tend to nominate same-gender peers for social status items and the majority of classrooms have an unequal number of boys and girls. A social preference variable was calculated (like-most score minus like-least score) for each participant and standardized to a mean of 0 and a standard deviation of 1. The standardized social preference scores were used as a measure of *likeability*. Perceived popularity was determined by requesting each child to nominate three peers who they perceived as the most popular ("Which of your classmates are the most popular at school?"). The number of nominations received by each individual was summed and standardized within classroom and gender.

Social dominance was determined using a paired comparison procedure. This method was used instead of peer nominations because paired comparisons have been found to be superior to peer nominations when assessing dominance (Axelrod, 2000). The paired comparison procedure requires participants to choose the child who has more "influence and power" in each of a series of pairs of children. Only same-gender dyads were used as evidence suggests that cross-gender dyads tend to favor boys (Axelrod, 2000). Using the Ross (1934) order method to balance potential time and space effects, a list of all possible pairs of same-gender participants was generated for each classroom and gender. Participants were instructed to circle the child in each pair who possesses more influence and power over the other (i.e., 'Some kids have influence and power over other kids – they get others to do what they want'). Rankings of dominance were determined based on the number of times a child was chosen as the more

dominant member of the pair. Finally, the number of nominations each child received was standardized within both classroom and gender.

Peer-nominated prerogatives of social status.

Peer nomination data was collected through a modified Revised Class Play(Masten et al., 1985) procedure: "Pretend that you are assigning roles in the upcoming class play. We would like for you to nominate three children who fit each role as listed below. You can nominate a person for more than one role." Through this method, each participant nominated up to three participating classmates for five items believed to represent the advantages of possessing high relative social status within the classroom (i.e., the prerogatives of social status; Lease, Musgrove, et al., 2002). The number of nominations received by each participant for each descriptor was summed and standardized by classroom and gender. Standardization by gender was included due to the belief that children are more likely to nominate same-gender than opposite-gender peers for these items. The items used to assess the prerogatives of social status are presented in Table 1.

Peer nominations of behavioral/personality characteristics.

Classmates also nominated peers for a number of roles related to behavior and personality characteristics. Thirteen were chosen for analyses in the current study. Like the prerogatives of social status, data was collected through the modified Revised Class Play (Masten et al., 1985) procedure. Each participant nominated up to three participating classmates for each item. The number of nominations received by each participant for each descriptor was summed and standardized by classroom. The peer-nominated behavioral descriptors were selected from previous research (e.g., Adler & Adler, 1998; Lease, Musgrove, et al., 2002; Masten et al., 1985; Rodkin et al., 2000) due to their relevance to preadolescent social status. All

but two of the characteristics were assessed using one item. To assess overt aggression and relational aggression (see Crick & Grotpeter, 1995), subscales of behavior were created by combining items. The items, subscales, and associated alpha coefficients are presented in Table 2.

The psychometric properties of peer nominations and ratings, such as temporal stability and concurrent validity, have been extensively investigated. Studies of the temporal stability of peer nominations with elementary and middle school children have revealed low to moderate correlations following two-year (.32 to .46; Terry & Coie, 1991) and four-year (.28 to .45; Coie & Dodge, 1983; Roff, Sells, & Golden, 1972) intervals. Findings for preschool children following an eight-week interval revealed high stability (r = .77; Wu, Hart, Draper, & Olsen, 2001). The concurrent validity of peer nominations and ratings of a number of characteristics has been corroborated by studies describing the relation between sociometric measures and other measures of social and behavioral functioning (e.g., teacher ratings, observations). Supporting evidence has been presented for peer-perceived popularity (Wu et al., 2001), aggression and withdrawal (Serbin, Lyons, Marchessault, & Schwartzman, 1987), and factors related to academic ability, attractiveness, and behavior (Cole & White, 1993). Fewer studies addressing the internal consistency of peer nominations and ratings have been conducted. The single study that was found indicated high reliability (reliability coefficient = .79; Wu et al., 2001).

Teacher ratings of behavioral/personality characteristics.

Teacher ratings of behavioral and personality characteristics were obtained using the teacher-rated version of the Inventory of Child Individual Differences – Short Form (ICID-S; Halverson, Havill, Deal, Baker, Victor, Paulopoulous, et al., 2003). The ICID-S is a 15-scale temperament/personality inventory composed of 61 items for children ages two through fourteen.

Teachers are requested to answer the items by circling the number that corresponds to the degree to which the statement describes the child in comparison to other children their age. Within the Likert scale format, "1" represents "much less than the average child or not at all;" "4" represents "same as in the average child;" and "7" represents "much more than the average child." Scores were standardized by classroom and reported in the form of z-scores. Nine ICID-S dimensions were included in the analyses: Considerate, Positive Emotions, Distractible, Antagonism, Strong-Willed, Shy, Openness, Sociable, and Negative Affect**.** The scales used for the present study are described in Table 3.

The ICID-S is a relatively new measure; therefore, its psychometric properties have yet to be fully investigated. The only data available at the time of this manuscript revealed internal consistencies ranging from .70 to .85 for the fifteen individual scales of the measure (Deal, 2005). These findings suggested that the items of the individual scales measure the same underlying construct. No further data was readily available regarding inter-rater reliability, temporal stability, or construct validity. It is notable that the full version of the parent-rated ICID has demonstrated strong reliability and validity (see Goldberg, 2001; Halverson et al., 2003; Mervielde, 1994; Slotboom & Elphick, 1997).

Despite the lack of psychometric data, the ICID-S was used for the current study given its sound theoretical foundation. Most measures of psychological constructs are "top-down" and theory-driven. In other words, they are constructed based on the information that researchers or theorists have determined to be important. The study of individual differences has been plagued by a lack of consensus regarding the names and numbers of traits that compose child personality, however (see Strelau, 1991, for a review). To address the lack of agreement, Halverson et al. (2003) adopted a "bottom-up" free-language-based approach in their investigation. The ICID

was based on the constructs that informants such as teachers and parents gave as frequent descriptors of children. Over 50,000 descriptors of children were collected from eight different countries. Focus groups were used to sort and reduce the number of descriptors and to create homogenous, representative scales of constructs. The resulting instrument, the full version of the ICID, is a 144-item measure containing scales assessing 14 temperament dimensions and the five primary factors of personality (i.e., Neuroticism, Extraversion, Openness, Agreeableness, and Conscientiousness). The number of items in each scale is proportional to the number of phrases reported by parents for each trait or factor.

Results

In the first section of our results, we report on a cluster analysis with a large independent sample using an identical methodology as that used by Lease, Musgrove, et al. (2002). The resulting solution was compared with the typology reported by Lease, Musgrove, et al. (2002) based on cluster number and description. In the second section, we compared the classifications of the cluster analysis of the independent sample results with classifications made using a predictive discriminant rule developed from the Lease, Musgrove, et al. (2002) typology.

Cluster Analysis of an Independent Sample

The first goal of the study was to attempt to replicate the multidimensional typology developed by Lease, Musgrove, et al. (2002) using an independent sample. This was accomplished by (1) developing an independent typology using cluster analysis and (2) comparing the resulting typology with that developed by Lease, Musgrove, et al. (2002). The clustering procedure used was identical to the one used by Lease, Musgrove, et al. (2002) in order that any differences in findings could not be attributed to contrasting methodologies. Seven children were not included in the cluster analysis due to missing data on the dominance variable;

thus, 466 children were included. The clustering variables used were standardized scores of sociometric popularity, perceived popularity, and social dominance rank. Correlations between the three clustering variables ranged from 0.23 (between the social dominance variable and the sociometric popularity variable) to 0.56 (between the social dominance variable and the perceived popularity variable).

Whereas a variety of different methods exist for classifying children into subgroups, the method applied in the current study was recommended by Huberty et al. (1997) and others (Aldenderfer & Blashfield, 1984; Bridger, 1998; DiStefano et al., 2003; Kamphaus, Huberty, DiStefano, & Petoskey, 1997). A two-step procedure was followed that includes both a hierarchical agglomerative procedure and an iterative partitioning procedure.

Ward's method is a hierarchical clustering procedure commonly used in the social sciences (DiStefano et al., 2003). The procedure begins with each individual case (i.e., child) serving as its own cluster and proceeds to group cases by similarity (Hair et al., 1998; Huberty et al., 1997). Ward's method is particularly useful because it reduces within group variation and has demonstrated consistent cluster recovery ability (Huberty et al., 1997). The method is limited, however, due to its inability to reclassify cases. Once a case has been assigned to a cluster, that case cannot be reassigned to a cluster that emerges later, even if it is more similar to the cluster that emerges later (Huberty et al., 1997). For this reason, the Ward method is used only to determine the "seeds" (i.e., starting points) for the formation of the clusters. Thus, whereas the Ward method is used to determine the initial cluster solution, the cluster centroids serve simply as prespecified starting points for the subsequent iterative partitioning procedure.

The second step of the cluster analytic method is iterative cluster partitioning using a K-means analysis. A benefit of the K-means procedure is that, unlike the Ward procedure, it allows

for cases to be reassigned (DiStefano et al., 2003). The K-means analysis requires predetermined cluster centroids and begins with those identified by the Ward procedure. Cases are initially assigned to the nearest cluster centroid, and, after all cases have been assigned (i.e., a pass is made), new cluster centroids are calculated. Cases are then reassigned to the nearest cluster centroid, and, after the second pass has been completed, new centroids are recalculated again. The process continues until no cases are reassigned (Huberty et al., 1997).

The type of measure used to determine similarity between cases and centroids was squared Euclidean distance. Euclidean distance is the most commonly used measure of similarity between two cases, and refers to the length of the straight line drawn between them (Hair et al., 1998). Cases are assigned to clusters such that the squared Euclidean distance between the case and the cluster centroid is minimized (DiStefano et al., 2003).

The next step in cluster analysis was to determine the number of clusters underlying the data set. The decision is somewhat subjective and involves both empirical and theoretical considerations. Empirically, the cubic clustering criterion (CCC; Aldenderfer & Blashfield, 1984; Huberty et al., 1997) was used to determine the solutions to consider. A CCC statistic greater than 2 or 3 indicates a strong solution, with higher statistics indicating better solutions (SAS Institute Inc., 1999). Given the number of clustering variables (i.e., 3), the sample size (i.e., 466), and the CCC statistics obtained for the solutions run, six-, seven-, and eight-cluster solutions were retained. The means, standard deviations, and CCC's of the solutions are presented in Tables 4, 5, and 6.

To determine which of the selected cluster solutions best represented the underlying structure, theoretical factors were also considered. Evaluations of centroid information, as well as cluster information (e.g., gender characteristics, sample size), were used to determine if the

cluster profiles identified reasonable clusters when considering previous research (Huberty et al., 1997). The eight-cluster solution was discarded because it was deemed to delineate too many clusters, making several difficult to justify given previous findings (e.g., a purely dominant group with average likeability and perceived popularity). The six- and seven-cluster solutions were kept for further evaluation.

After narrowing the considered cluster solutions to two, a split-half clustering procedure (Huberty et al., 1997) was used to determine the most internally consistent cluster solution. Split-half evaluations of differing whole sample solutions were used to determine which solution yields the most consistent emergence of clusters. The sample was randomly split into two equal-sized data sets. This random split was conducted with the whole sample three different times, resulting in six half-samples. The Ward and K-means procedures were conducted on each half-sample to see if the underlying cluster structure that emerged in the whole sample was found in the half-samples. The number of times that a cluster found in the whole sample emerged in each half-sample was tallied, with a maximum of six tallies for each whole sample cluster (Musgrove, 2003). Tallies for each half-sample cluster that emerged are reported in Table 7.

The six-cluster solution demonstrated the most consistent re-emergence of clusters and was thus deemed to be the most internally consistent solution. Clusters were subsequently named through analysis of the profile of mean scores that represent the cluster centroid (Breckenridge, 2000). As in the case of Lease, Musgrove, et al. (2002), a general cut off of +/- .50 standard deviations was used, with defining characteristics falling above +.50 standard deviations or below -.50 standard deviations.

Overall, the analyses revealed similar clustering of children within both the independent sample and the original Lease, Musgrove, et al. (2002) sample. Six of the seven clusters of the

Lease, Musgrove, et al. (2002) solution were present in the independent sample: *Low Status*, *Low Dominant/Unpopular*, *Well-Liked/Dominant*, *High Status*, *Disliked*, and *Perceived Popular/Dominant*. The Lease, Musgrove, et al. (2002) *Average* cluster (average-range scores on likeability, perceived popularity, and social dominance) was not found in the independent sample.

In the independent sample, Cluster 1 was named *Low Status* based on its low scores on likeability, perceived popularity, and social dominance (48.2% male, 73.5% majority race in the classroom). Cluster 2 was named *Low Dominant/Unpopular* due to its low scores on social dominance and perceived popularity, but average likeability (45.9% male, 81.6% majority-race). Cluster 3 was labeled *Well-Liked/Dominant* given its high likeability and social dominance scores and average perceived popularity (49.4% male, 88.9% majority-race). Cluster 4 was considered the *High Status* cluster due to its high mean scores across all three dimensions (52.2% male, 88.1% majority-race). Cluster 5 was labeled *Disliked* because of its low likeability score, yet average perceived popularity and social dominance scores (49.4% male, 74.1% majority-race). Cluster 6 was labeled *Perceived Popular/Dominant* due to its high scores for perceived popularity and social dominance and average likeability (38.5% male, 76.9% majority-race). Whereas there was some minor variation in absolute level of cluster centroid patterns across the half-samples, the *High Status* and *Low Dominant/Unpopular*clusters were found in all six half-samples, the *Low Status* cluster was found in five half-samples, and the *Well-Liked/Dominant, Perceived Popular/Dominant*, and *Disliked* clusters were all found in four half-samples.

Comparisons of centroid information between the independent and Lease, Musgrove, et al. (2002) solutions revealed no notable differences in shape (i.e., pattern of cluster means) or level (degree of elevation of cluster means) for five of the clusters (i.e., *Low Status*, *Well-*

Liked/Dominant, *Disliked*, *Perceived Popular/Dominant, High Status*). The *Low Dominant/Unpopular* cluster of the independent sample, however, had a mildly elevated, positive likeability *z*-score ($z = .45$), whereas the Lease, Musgrove, et al. (2002) *Low Dominant/Unpopular* cluster had a mildly depressed, negative likeability *z*-score ($z = -.26$). This resulted in a minor difference in centroid shape, but was not considered significantly deviant from the original.

When considering the six-cluster solution had one fewer cluster in which cases could be placed, the relative cluster sizes of the independent and Lease, Musgrove, et al. (2002) solutions were generally equivalent. The *Perceived Popular/Dominant* cluster was the smallest of each solution (current: 11%, Lease, Musgrove, et al.: 8%). The *Low Dominant/Unpopular* (current: 21%, Lease, Musgrove, et al.: 17%), *Well-Liked/Dominant* (current: 17%, Lease, Musgrove, et al.: 18%), and *High Status* (current: 14%, Lease, Musgrove, et al.: 13%) clusters included virtually identical percentages. The *Low Status* (current: 18%, Lease, Musgrove, et al.: 11%) and *Disliked* (current: 18%, Lease, Musgrove, et al.: 11%) clusters of the independent sample encompassed a greater percentage of the total participants than in the Lease, Musgrove, et al. (2002) solution, likely due to the absence of the *Average* cluster in the independent solution.

A chi-square test of association for gender distribution revealed no deviation from expectation across the six clusters (gender: χ^2 [5, n = 466] = 2.66, $p = .753$). This finding was consistent with the Lease, Musgrove, et al. (2002) solution. It was noted that the *Perceived Popular/Dominant* cluster of the independent sample was 38.5% male. Given that the Lease, Musgrove, et al. (2002) *Perceived Popular/Dominant* cluster was 51.4% male and equal gender distributions were expected, it appeared that the finding might be due to variations in the sample.

In contrast to the Lease, Musgrove, et al. (2002) solution, significant chi-square tests indicated that the racial and majority-race distributions of the six clusters were not equivalent to the total sample distributions (race: χ^2 [10, n = 466] = 32.91, $p < .001$; majority-race: χ^2 [5, n = 466] = 11.36, $p < .05$). Follow-up chi-square analyses conducted for each level of race indicated an uneven distribution of White and Black students across the six clusters. More White children than expected were classified as *Low Status* and *Low Dominant/Unpopular*, and fewer were classified as *Disliked* and *Perceived Popular/Dominant*. In contrast, more Black children than expected were classified as *Disliked*, and fewer than expected were classified as *Low Status* and *High Status*. Further analyses for each level of majority-race status revealed that both students of the majority race and those not of the majority race were distributed unevenly across the six clusters. More majority-race students than expected were identified as *Low Dominant/Unpopular* and *Well-Liked/Dominant*, whereas as fewer than expected were identified as *Perceived Popular/Dominant*. More students of the minority race of a classroom were identified as *Low Status* and *Disliked* than expected. Fewer than expected were identified as *High Status* and *Well-Liked/Dominant*.

An additional comparison revealed that the clusters of the independent solution had lower proportions of majority-race students than the clusters of the Lease, Musgrove, et al. (2002) solution in all cases except for the *High Status* cluster, which was equivalent for both samples. The lower proportions may be due in part to the higher percentage of minority participants within the independent sample, creating a situation in which the numerical difference between majority and minority students was less defined. It was noted that the *Well-Liked/Dominant* cluster had the highest proportion of majority-race students and the *Low Status* cluster had the lowest proportion of majority-race in both solutions.

Description and Differentiation of Clusters Based on Prerogatives of Social Status

The external validity of the independent cluster solution was evaluated by comparing the members of each cluster with regard to external indicators unrelated to the clustering variables. If a cluster solution truly represents differing profiles of child social status, then external indicators unrelated to the clustering variables should vary by cluster (DiStefano et al., 2003). Initially, we investigated the differences between the clusters on the five peer-nominated prerogatives of social status: influence, admiration, cool, leadership, and social control. A MANOVA was conducted with cluster assignment as the between-subjects factor and the prerogatives of social status as the dependent variables. The data for males and females was treated as one sample because gender differences were not of interest at this time. Significant differences were found among the clusters on the five dependent variables, Wilks' $\Lambda = .42$, F (25, 1695.47) = 17.75, p = .000. Means and standard deviations on the prerogatives by cluster are listed in Table 8 in the form of z-scores with a mean of 0 and a standard deviation of 1. In addition, results of follow-up univariate analyses of variance are indicated.

The relative status of each cluster on the social prerogatives of status was determined using pairwise comparisons. In order to control for the Type I comparison-wise error rate, Duncan multiple range tests were used. The hierarchical structure was found to be similar to that of the Lease, Musgrove, et al. (2002) structure. Overall, the *High Status* and *Perceived Popular/Dominant* children received the most nominations for the five items. They received an equivalent number of nominations as "cool." The *High Status* children were the most admired by peers, perceived as possessing the best leadership skills, and as having the most influence over peers. In a contrast to the Lease, Musgrove, et al. (2002) findings, the *Perceived Popular/Dominant* group appeared to have more control than the *High Status* group over who

gets to be in the "in crowd" or popular group. This finding was not surprising because it seemed reasonable that *High Status* children, with their broad interests (e.g., sports, academics) and prosocial characteristics, might be less interested in "controlling" the members of the popular group when compared to *Perceived Popular/Dominant* children. A third upper status cluster, the *Well-Liked/Dominant* group, presented with a less distinct position in the social status hierarchy than was reported by Lease, Musgrove, et al. (2002). Within the Lease, Musgrove, et al. (2002) findings, *Well-Liked/Dominant* children received significantly higher scores on the social prerogatives of status than all three low status clusters (i.e., *Disliked*, *Low Dominant/Unpopular*, *Low Status*). Within the independent clustering, the *Well-Liked/Dominant* group was perceived as possessing better leadership skills than all three low status subtypes, more coolness and social control than *Low Status* and *Low Dominant/Unpopular* children, and more influence and admiration than the *Low Status* group. In contrast to the Lease, Musgrove, et al. (2002) findings, the *Well-Liked/Dominant* group was equivalent to the *Low Dominant/Unpopular* group on influence and admiration, and equivalent to the *Disliked* group on all social status prerogatives with the exception of leadership skills.

The lower portion of the hierarchy included the *Disliked*, *Low Dominant/Unpopular*, and *Low Status* groups. The *Disliked* and *Low Dominant/Unpopular* children were perceived as possessing equivalent leadership skills, influence over peers, admiration from peers, and coolness. *Disliked* children, however, were seen as possessing more social control than *Low Dominant/Unpopular* children, perhaps consistent with their higher dominance scores. The *Low Status* group consistently received the fewest nominations for all prerogatives of social status.

Description and Differentiation of Clusters Based on Peer-Nominated Behavioral/Personality Characteristics

In the next evaluation of external correlates, children of the clusters were compared based on peer-nominated behavioral and personality characteristics. A two-way MANOVA was conducted with cluster and gender as the between-subjects variables and the thirteen peer-nominated items/scales as the dependent variables. A significant cluster x gender interaction was found, Wilks' $\Lambda = .657$, $F (65.00, 2092.75) = 2.99$, $p < .001$, and thus further analyses were conducted by gender. The MANOVA's indicated a significant effect for boys, Wilks' $\Lambda = .237$, $F (65.00, 968.01) = 5.30$, $p < .001$, and girls, Wilks' $\Lambda = .257$, $F (65.00, 1071.98) = 5.49$, $p < .001$. Means and standard deviations for peer-nominations by cluster are listed in the form of *z*-scores for boys in Table 9. Means and standard deviations for peer-nominations by cluster are listed in the form of *z*-scores for girls in Table 10. Results of follow-up univariate analyses of variance are indicated, as well.

As in the previous analyses, the relative position of each cluster based on the peer-nominated behavioral and personality variables was determined using pairwise comparisons and Duncan multiple range tests. The cluster profiles that emerged were generally consistent with predictions based on the Lease, Musgrove, et al. (2002) peer descriptions. Analysis of prosocial characteristics (i.e., "cheerful" and "fun to hang around") indicated that *High Status* boys were happier and more fun to be around than the boys of all other groups. The other five groups were perceived as similar to each other in happiness. Peers described *Perceived Popular/Dominant*, *Well-Liked/Dominant*, and *Low Dominant/Unpopular* boys as more fun to hang around than *Low Status* and *Disliked* boys. *High Status* boys were also deemed the most athletic in sports such as soccer, basketball, and football. They were followed by the *Perceived Popular/Dominant*, *Well-Liked/Dominant*, and *Disliked* groups. *Low Status* and *Low Dominant/Unpopular* boys were not considered athletic.

Analysis of peer-perceived antisocial characteristics (i.e., "bossy," "overt aggression," "relational aggression") indicated that *Perceived Popular/Dominant* boys were by far the most bossy of the boys' groups. The scores for all other groups fell below the average range, with only the *Low Dominant/Unpopular* group receiving scores significantly below those of other groups. *Perceived Popular/Dominant* boys were by far the most verbally, physically, and relationally aggressive, as well. The *Disliked* and *High Status* groups were the next most likely to use overt or relational aggression, though score magnitudes suggested that both groups more often employed threats and physical attacks than excluding and ignoring others. Based on their scores, *Low Dominant/Unpopular*, *Well-Liked/Dominant*, and *Low Status* boys were not considered overtly or relationally aggressive. In a difference between the current and Lease, Musgrove, et al. (2002) findings, the *Low Status* group of the Lease, Musgrove, et al. (2002) sample was described as mildly aggressive.

Low Status boys were the only group to receive an above average score as "sad." They, along with the members of the *Low Dominant/Unpopular* group, were also perceived as the most "shy." Notably low scores indicated that the *High Status*, *Perceived Popular/Dominant*, and *Well-Liked/Dominant* groups were not perceived as sad or shy.

Analysis of findings for girls revealed that *High Status* girls were significantly more happy and considerate than all other groups. In addition, they placed more emphasis on school achievement than all other groups. Beyond the *High Status* group, the remaining girls appeared to value school to an equivalent degree. Whereas *Low Dominant/Unpopular* girls received the second highest ratings as "considerate" and significantly more so than *Disliked* girls, they were not considered significantly more considerate than *Perceived Popular/Dominant*, *Low Status*, and *Well-Liked/Dominant* girls. *Well-Liked/Dominant* girls were rated as less cheerful than *High*

Status girls, but significantly more cheerful than *Low Status* and *Disliked* girls. *Low Dominant/Unpopular* and *Perceived Popular/Dominant* girls were deemed to be about as happy as the *Well-Liked /Dominant* girls. *High Status* girls were judged by peers to be the most fun to be around, followed by *Perceived Popular/Dominant* and *Well-Liked/Dominant* girls.

Peer-ratings revealed the *Perceived Popular/Dominant* girls to be the most bossy, relationally aggressive, and overtly aggressive group. *Disliked* and *High Status* girls were the second most likely groups to display such antisocial behaviors, though *High Status* girls were significantly less likely to use direct threats and physical aggression than *Disliked* girls were. *Low Dominant/Unpopular* and *Low Status* girls were rated the least likely to use overt or relational aggression. The clusters of girls rated as the shyest and saddest were the *Low Status* and *Low Dominant/Unpopular groups*. In contrast, the *High Status* and *Perceived Popular/Dominant* girls were considered the least sad and the least shy.

High Status and *Perceived Popular/Dominant* girls were considered the most athletic in sports such as volleyball and gymnastics. *Well-Liked/Dominant* and *Low Dominant/Unpopular* girls were also rated as moderately athletic, though not to the extent of the *High Status* cluster. *Disliked* girls were considered the least athletic in the less aggressive sports. *High Status* girls were also identified as the most athletic group when considering rougher sports, such as soccer and basketball; however, their *z*-score of .05 was the only above zero. The generally low scores suggested that aggressive sports were less significant to the social lives of girls than to those of boys.

Description and Differentiation of Clusters Based on Teacher-Rated Behavioral/Personality Characteristics

In the last set of comparisons, the clusters were compared using teacher-ratings of behavior and personality characteristics. Teacher ratings were not a part of the original Lease, Musgrove, et al. (2002) analyses and were included to provide an alternative source of information regarding the social status subtypes. A two-way MANOVA was conducted with the six clusters of the solution and gender as the between subjects variables and the nine teacher-rated dimensions of the ICID-S as the dependent variables. The cluster x gender interaction term statistic was not significant, Wilks' $\Lambda = .873$, $F (45.00, 1931.07) = 1.33$, p = ns; thus, further analyses were conducted disregarding gender. A significant main effect was found for the cluster variable, Wilks' $\Lambda = .629$, $F (45.00, 1931.07) = 4.69$, $p < .001$. Means and standard deviations for teacher-ratings by cluster are listed in Table 11 in the form of *z*-scores. Results of follow-up univariate analyses of variance also are indicated.

The relative position of each cluster on the teacher-rated behavioral and personality characteristics was determined using pairwise comparisons. Once again, Duncan multiple range tests were used to control for the Type I comparison-wise error rate. Teacher descriptions were found to be generally consistent with those provided by peers, providing additional support for the stability of the subtypes. Analysis of prosocial characteristics (i.e., "considerate," "positive emotions," "sociable") indicated that teachers perceived the *Low Dominant/Unpopular* and *High Status* children to be the most sensitive, caring, and cheerful. *High Status* children were significantly more friendly and outgoing than *Low Dominant/Unpopular* children, however. Surprisingly, *Well-Liked/Dominant* children were described by teachers as portraying average happiness, sociability, and sensitivity towards others. *Disliked* and *Low Status* groups were not described as cheerful, sociable, or considerate, though *Disliked* children were slightly more sociable than *Low Status* children. *Perceived Popular/Dominant* children were rated as friendly,

outgoing, and cheerful as *High Status* children, but their score for "considerate" was the second lowest and equivalent to that of the *Disliked* and *Low Status* groups. Thus, *Perceived Popular/Dominant* children appeared to be as fun-loving and sociable as *High Status* children, but were not nearly as considerate of the feelings of others.

When considering antisocial characteristics (i.e., "antagonism," "negative affect," "strong-willed"), the *Perceived Popular/Dominant* and *Disliked* children were described by teachers as significantly meaner and more irritable than *Well-Liked/Dominant* and *Low Status* children, two groups who received average scores for the items. The *Low Dominant/Unpopular* and *High Status* groups were considered the least mean and irritable. The *Perceived Popular/Dominant* group was the most "strong-willed," indicating they were the most stubborn, manipulative, and demanding of all the clusters. The *Low Dominant/Unpopular* group was described as the least strong-willed. The *Disliked*, *Well-Liked/Dominant*, *High Status*, and *Low Status* groups were about average in their ratings as stubborn and manipulative, though *Disliked* children were significantly more strong-willed than the *Low Status* children.

Other characteristics assessed included "shy" and "distractible." The *Low Status* group was described as the shyest, followed by the *Low Dominant/Unpopular* and *Disliked* groups. The *Well-Liked/Dominant*, *High Status*, and *Perceived Popular/Dominant* groups were not considered shy. *Low Status* and *Disliked* children were perceived by teachers to be the most distractible. *Perceived Popular/Dominant* children were considered average, followed by *Low Dominant/Unpopular* and *Well-Liked/Dominant* children with lower, yet equivalent scores. The *High Status* group was considered the most attentive.

Cross-Classification

To further assess the external validity evidence of the Lease, Musgrove, et al. (2002) typology, we attempted to determine if the cluster analysis of the independent sample resulted in similar classifications as the analyses of Lease, Musgrove, et al. (2002). To address this goal, the cross-classification procedure of DiStefano et al. (2003) was followed. The first step of the procedure was to develop a rule for predicting cluster membership using a predictive discriminant analysis (PDA; Huberty et al., 1997). PDA refers to a collection of procedures in which measures on multiple independent variables are used to define a rule to classify cases into groups. The rule uses a linear or quadratic classification function to predict the membership of a case that has not previously been assigned to a group. Cases are assigned to the clusters to which they are most similar (DiStefano et al., 2003; Huberty, 1994; Huberty et al., 1997). In other words, each case is assigned to the group for which its observed vector of scores has the greatest likelihood of occurrence.

The classification rule was developed using information from the original (i.e., Lease, Musgrove, et al., 2002) sample. In our case, a linear classification rule was used despite the presence of a significant Box's Test because the log determinants of the covariance matrices were deemed to be equivalent (see Huberty, 2002). The classification rule thus included linear combinations of the predictor variables and estimates of the prior probability of membership relative to the population as a whole. Prior probabilities refer to the likelihood of a case falling into one group or another given the relative frequency within the population. The prior probabilities for the current study were estimated based on rates from published sociometric, perceived popularity, and social dominance research (i.e., Farmer et al., 2003; Hawley, 2003; LaFontana & Cillessen, 1999; Lease, Musgrove, et al., 2002; Newcomb & Bukowski, 1983; Parkhurst & Hopmeyer, 1998)**.** An evaluation of the efficacy of the classification rule using the

external analysis titled leave-one-out (L-O-O; Huberty, 1994) revealed a hit rate of 95.7%. With this method, one case was removed from the sample and a classification rule was built on the remaining cases. The rule was then applied to the removed case. The process was repeated for each case, and the total number of "hits" or correct classifications was determined.

After applying the classification rule to the independent sample, the final step involved comparison of the two distinct classification methods and sought to determine if cases were classified in a similar manner when made by independent cluster analysis and by the classification rule developed using the previous cluster solution. Following the recommendations of DiStefano et al. (2003), results are presented in a seven by six table (Table 12) that indicates the number of "hits" (i.e., cases classified into the same cluster by both methods) and misses. The columns of the table represent the cluster solution of Lease, Musgrove, et al. (2002). The rows of the table correspond to the cluster solution of the independent sample. Thus, by reading down the columns, it is possible to determine the classifications of the independent sample made using the classification rule developed from the Lease, Musgrove, et al. (2002) sample. By reading across the rows, it is possible to determine the classifications made by the cluster analysis of the independent sample (DiStefano et al., 2003). Hits are found on the main diagonal, whereas misses are found on the off-diagonal. Hit rates were calculated by dividing the number of hits (i.e., cases classified into the same cluster by both methods) by the cluster sizes as predicted by the Lease, Musgrove, et al. (2002) cluster rule.

The degree of agreement between the two classification methods was determined using criteria developed by DiStefano et al. (2003). Seventy-five percent agreement between the two methods was described as high agreement; 50% to 74% agreement was described as moderate; 30% to 49% agreement was described as fair; and below 30% agreement was described as poor

(DiStefano et al., 2003). An analysis of the cross-classification results suggested a high degree of agreement was found for five of the six clusters (i.e., *High Status*, *Perceived Popular/Dominant*, *Well-Liked/Dominant*, *Disliked*, *Low Status*). Three clusters had hit rates of over 90% (i.e., *High Status*, *Disliked*, *Low Status*). The *Perceived Popular/Dominant* and *Well Liked/Dominant* clusters had hit rates over 75%. Only the *Low Dominant/Unpopular* group had a moderate level of agreement (52.6%). Overall, 283 of the 466 cases (60.7%) were classified into clusters with an identical definition.

Sixty-seven cases were misclassified by the independent cluster solution. Very few were classified into significantly different clusters. Only five cases from the upper hierarchy (i.e., *High Status*, *Perceived Popular/Dominant*, *Well-Liked/Dominant*) of the Lease, Musgrove, et al. (2002) typology were misclassified into the clusters of the lower portion (i.e., *Disliked*, *Low Dominant/Unpopular*, *Low Status*) of the independent typology. No cases from the lower portion of the Lease, Musgrove, et al. (2002) typology were misclassified into the clusters of the upper portion of the independent typology. The majority of the misclassified cases were classified into a cluster of a similar definition. For example, the two Lease, Musgrove, et al. (2002) *High Status* cases that were misclassified by the independent solution were identified as *Perceived Popular/Dominant*. Of all the clusters, the independent solution misclassified the Lease, Musgrove, et al. (2002) *Low Dominant/Unpopular* cases the most; however, all 37 of those were identified as *Low Status*.

It appeared likely that the misclassification of these 37 cases might account for the contrasting aggression ratings reported for the *Low Status* groups of the current and Lease, Musgrove, et al. (2002) typologies. As was previously noted, the *Low Status* group of the independent typology received very low ratings for aggression for both genders. Within the

Lease, Musgrove, et al. (2002) sample, *Low Status* boys were described as mildly aggressive. Because of the 37 misclassifications, the unaggressive *Low Dominant/Unpopular*children of the Lease, Musgrove, et al. (2002) typology accounted for nearly half (45%) of the independent typology *Low Status* cluster. Thus, it appeared that their presence within the *Low Status* group of the independent typology might have tempered any aggression elevations present in the remaining children.

As the independent cluster analysis failed to identify an *Average* group that emerged in the 2002 solution, it was interesting to determine how those 116 cases identified as *Average* by the discriminant classification rule were classified in the new solution. With centroids located the greatest distance from average, it was not surprising that only one Lease, Musgrove, et al. (2002) *Average* case fell in both the *High Status* and *Low Status* clusters. Interestingly, no *Average* cases were identified as *Perceived Popular/Dominant*. The remaining *Average* cases were identified as *Low Dominant/Unpopular* (i.e., 57), *Well-Liked/Dominant* (i.e., 29), and *Disliked* (i.e., 28). These findings suggested that *Well-Liked/Dominant*, *Disliked*, and *Low Dominant/Unpopular* cluster children had profiles less distinct from average than the *High Status*, *Low Status*, and *Perceived Popular/Dominant* clusters.

Though speculative, it appeared likely that the failure of the *Average* group to emerge in the current study was an abnormality of the independent sample and clustering. An *Average* cluster failed to emerge in the six-, seven-, and eight-cluster solutions considered in the analysis of the independent sample. This was surprising because an *Average* group of children has consistently emerged throughout investigations of preadolescent social status (e.g., Coie et al., 1982; Farmer et al., 2003; Newcomb & Bukowski, 1983). In addition, the *Average* cluster was the largest cluster in the Lease, Musgrove, et al. (2002) typology and the largest cluster found

from the application of the predictive discriminant rule to the independent solution. Given these arguments, it appears that an *Average* group of children does exist, and a valid typology of preadolescent social status must include it. Thus, the absence of the *Average* cluster within the independent typology was not deemed to invalidate the Lease, Musgrove, et al. (2002) seven-cluster solution. The presence of children with average profiles within the *High Status*, *Perceived Popular/Dominant*, *Well-Liked/Dominant*, *Disliked*, *Low Status*, and *Low Dominant/Unpopular* clusters of the independent typology only served to limit the behavioral distinctiveness of the subtypes and muddy the depiction of the hierarchy.

Overall, the cluster description, external correlates, and classifications of the independent cluster solution were highly similar to those of the Lease, Musgrove, et al. (2002) cluster solution. With the exception of the *Average* group, these findings provide strong evidence for the stability of six of the seven clusters from the multidimensional social status typology.

Discussion

The main objective of this investigation was to examine the support for a person-oriented, multidimensional model of preadolescent social status using two external validation methods: cluster analysis of an independent sample and cross-classification comparisons. Six of the seven subtypes of the Lease, Musgrove, et al. (2002) solution emerged within the independent cluster analysis: *High Status*, *Perceived Popular/Dominant*, *Well-Liked/Dominant*, *Disliked*, *Low Dominant/Unpopular*, and *Low Status*. Comparisons of the two typologies revealed highly similar centroids, equivalent hierarchical structures when considering prerogatives of social status, and consistent behavioral profiles as rated by teachers and peers. The cross-classification procedure demonstrated a high degree of similarity between the solutions of the original (Lease,

Musgrove, et al., 2002) and independent samples. The findings provide evidence that a reproducible, internally valid social status typology may underlie preadolescent peer groups.

Major Conclusions

The external validity evidence verified the Lease, Musgrove, et al. (2002) hypothesis that a multi-dimensional conceptualization of social status comprised of peer-nominated sociometric popularity, perceived popularity, and social dominance was capable of supporting and enhancing the current understanding of the preadolescent peer hierarchy. In the following section, the major contributions of the current study are further discussed. Initially, the emergence of three behaviorally distinct high status subtypes is addressed. Second, the benefits of a person-oriented approach are described. Finally, the implications of using temperament-based personality traits (i.e., ICID-S variables) in differentiating the social status subtypes are discussed.

The use of contrasting conceptualizations of social status within a person-oriented approach allowed for the development of a comprehensive depiction of the preadolescent social status hierarchy that included three distinct subtypes of high status children. The popular, antisocial profile of the *Perceived Popular/Dominant* subtype has been extensively described in the research traditions of sociology (i.e., sociologically-popular children;Adler & Adler, 1998; Eder et al., 1995), developmental psychology (i.e., sociometrically-controversial children; Coie & Dodge, 1988; Dodge, 1983; Newcomb et al., 1993; Wentzel & Asher, 1995), and ethology (i.e., coercive-controllers; Hawley et al., 2002). It also has emerged in person-oriented investigations (*tough boys*, *popular girls*; Farmer et al., 2003; *tough boys*; Rodkin et al., 2000). Likewise, the popular, prosocial profile of the *Well-Liked/Dominant* subtype has been extensively described in sociometric (i.e., sociometrically-popular children; Newcomb et al., 1993; Rubin et al., 1998) and social dominance (i.e., prosocial controllers; Hawley et al., 2002)

research. It was found in person-oriented investigations, as well (*model boys* and *girls*; Farmer et al., 2003; *model boys*; Rodkin et al., 2000).

The multi-dimensional conceptualization also provided evidence for the validity and stability of a socially successful subtype with a profile of both prosocial and antisocial behaviors. Review of the literature revealed several social status subtypes with behavioral profiles similar to the *High Status* group, but few that were able to capture its complexity. Neither sociometrically-popular (Coie & Dodge, 1988; Dodge, 1983; Newcomb et al., 1993) nor sociologically-popular (Adler & Adler, 1998; Eder et al., 1995) children present with the range of kind and callous behaviors displayed by the members of the *High Status* group. In addition, person-oriented investigations (e.g., Farmer et al., 2003; Rodkin et al., 2000) that have described both prosocial and antisocial subtypes of high status children have not identified a high status group exhibiting both prosocial and antisocial behaviors. However, children with the social sophistication and multi-faceted nature of this group have been described by studies defining social status using multiple dimensions. In two independent investigations assessing the relation between sociometric and perceived popularity, Lease, Kennedy, et al. (2002) and Parkhurst and Hopmeyer (1998) described a group that were peer-nominated as both sociometrically popular and perceived popular. Like the *High Status* children of the current study, these children were kind, trustworthy (Parkhurst & Hopmeyer, 1998), socially visible (boys), prosocial and bright (girls; Lease, Kennedy, et al., 2002), but not easy to push around (Parkhurst & Hopmeyer, 1998). A similar subtype also has been described within the ethology research. Hawley et al. (2002) developed a social dominance hierarchy based on self-reported use of both prosocial and antisocial dominance strategies. Through these two dimensions, a socially sophisticated and

successful subtype of children that employed prosocial and coercive methods (i.e., *bistrategic controllers*) was described.

The absence of the prosocial/antisocial subtype within the reviewed person-oriented investigations (e.g., Farmer et al., 2003; Rodkin et al., 2000) raised questions regarding the psychometric properties of the subtype. However, further analysis suggested that these studies are fundamentally different than those describing a socially successful group of children exhibiting both prosocial and antisocial behaviors. The current, Lease, Musgrove, et al. (2002), and Hawley et al. (2002) investigations used only social status variables to classify children, whereas the other studies used both social status and behavioral characteristics as clustering variables. It is notable that 46 of the 48 *High Status* members of the Lease, Musgrove, et al. (2002) typology were accurately identified in the typology of the current study, suggesting a very high hit rate (96%) and strong evidence of a valid subtype. The *High Status* subtype was clearly differentiated from other subtypes by peer- and teacher-ratings of behavior, as well. Overall, the current results suggest that multiple types of high status children exist, one of which demonstrates both prosocial and antisocial characteristics and wields the most influence and power within the preadolescent social status hierarchy.

A second major contribution of the current study emerged from the use of the person-oriented approach. By examining the behavioral and personality characteristics of the subtypes of children, it was apparent that the behavioral profile as whole was more predictive of social status than individual variables removed from context. For example, aggression and likeability have been historically associated with low and high social status, respectively (e.g., Coie & Dodge, 1988; Coie et al., 1982; Newcomb et al., 1993). However, within the multidimensional approach, antisocial behaviors were not associated solely with rejection, nor were prosocial

behaviors associated solely with a high status position. By comparing behavioral/personality profiles of socially successful and socially unsuccessful children, it was possible to gain insight into the combinations of characteristics that resulted in high or low status position.

Whereas both *Well-Liked/Dominant* and *Low Dominant/Popular* children were considered to be considerate and likeable, the *Well-Liked/Dominant* cluster was able to attain a higher level of social status. Analysis of behavioral/personality profiles revealed that *Low Dominant/Unpopular* children lacked several characteristics possessed by *Well-Liked/Dominant* children that have been considered by researchers to be critical to preadolescent social status. For example, *Well-Liked/Dominant* boys were significantly more athletic in rough sports (e.g., football) than *Low Dominant/Unpopular* boys. Both boys and girls of the *Well-Liked/Dominant* cluster were significantly more assertive (e.g., "strong-willed," "bossy") than *Low Dominant/Unpopular* children. They were also significantly more sociable and significantly less shy. Characteristics such as athleticism (boys), assertiveness, and sociability have been consistently identified as critical components to achieving high status within the preadolescent peer group (e.g., Adler & Adler, 1998).

Perceived Popular/Dominant children were clearly the most antisocial and aggressive of the typology, yet they achieved the second highest access to the prerogatives of social status. Further analysis of their behavioral/personality profiles revealed several characteristics that have consistently been associated with social success (see Adler & Adler, 1998; Eder et al., 1995). Beyond being aggressive, bossy, and inconsiderate, *Perceived Popular/Dominant* children were perceived to be as fun to be around as *Well-Liked/Dominant* children and significantly more fun to be around than other antisocial children (i.e., *Disliked* children). In addition, they were as

outgoing and social as *High Status* children and very low on shyness. Finally, the boys were second only to *High Status* boys in athleticism.

Like the *Perceived Popular/Dominant* group, *Disliked* children were also antagonistic, overtly and relationally aggressive (girls), and bossy (girls), yet they fell in the lower portion of the social status hierarchy based on their low access to the social prerogatives of status. When compared to the *Perceived Popular/Dominant* group, they were not considered to be outgoing or social, were not described as fun to be around, and had only average athletic ability (boys). In addition, teachers described them as possessing the lowest level of positive emotions (e.g., happy, affectionate), and peers perceived them to be highly distractible, a characteristic strongly associated with peer rejection (Stormshak, Bierman, Bruschi, Dodge, & Coie, 1999).

Though speculative, it also appeared possible that *Perceived Popular/Dominant* and *Disliked* children might differ on the type of overt aggression used. Proactive aggression refers to a purposeful aggressive behavior used to obtain a goal (Crick & Dodge, 1996). In a study by Dodge and Coie (1987), proactively aggressive children were considered disliked (i.e., sociometrically rejected), but also were considered to be good leaders. Consistent with this profile, *Perceived Popular/Dominant* children were perceived to be aggressive, but also had the second greatest access to the social prerogatives of social status. Reactive aggression refers to "an angry, defensive response to frustration or provocation" (Crick & Dodge, 1996). Given the negative affect (e.g., "is irritable," is quick-tempered," "gets angry easily," and "is moody") attributed to them by teachers, it appeared possible that *Disliked* children use reactive aggression following misinterpretation of social cues (Crick & Dodge, 1996). That is, they may attribute hostile intent when none is present and respond aggressively. Reactive aggression of this sort has been shown to be predictive of rejected status (i.e., low in likeability; Coie & Dodge, 1988; Coie

et al., 1982; Green, Vosk, Forehand, & Beck, 1981; Wentzel & Asher, 1995). Specific conclusions regarding these hypotheses were not possible given the present data. Further research in this area is needed.

An integration of the findings suggested that social status position is more strongly associated with behavioral/personality profiles than with any single variable. Individual characteristics such as aggressiveness and likeability demonstrated minimal relation with social status position when removed from the context of the individual as a whole. Likeable children who were assertive, sociable, outgoing, and athletic (boys) tended to be socially successful. Likeable children who were shy and lacking assertiveness, sociability, and athleticism (boys) were less likely to attain a socially successful position within the peer hierarchy. Thus, it appeared that being likeable, but also withdrawn and easy to push around, was more often associated with lower social status position. For antisocial children, the unpleasant aspects of their presentation seemed to be overlooked when counterbalanced by the presence of certain attractive characteristics. That is, children displaying antisocial behaviors (e.g., overt and relational aggression, antagonism) were capable of achieving a high social status position if they also were fun to be around, outgoing and social, and athletic (boys). Antisocial children lacking an outgoing nature, an enjoyable personality, and athletic skills (boys) fell to the lower portion of the social status hierarchy.

As a third major contribution of the current study, the subtypes of the multidimensional typology were found to vary on teacher-rated temperament dimensions that were drawn from a theoretically sound instrument (i.e., the ICID-S; Halverson et al., 2003). This finding was significant because these variables reflect traits that are theorized to be relatively stable during development (Martin, 1988). Thus, the temperament traits included in the current study may

provide some insight into the core characteristics that contribute to social status. Of the nine traits included in the study, two appeared to have a significant relation with high social status position. First, the three subtypes occupying the upper portion of the hierarchy received significantly higher ratings as "sociable." Thus, socially successful children (i.e., *High Status*, *Perceived Popular/Dominant*, and *Well-Liked/Dominant*) were differentiated from those with less success (i.e., *Disliked*, *Low Dominant/Unpopular*, and *Low Status*) by the degree to which they were outgoing, social, and friendly. Whereas *Perceived Popular/Dominant* children received the highest ratings on the "strong-willed" dimension, *Disliked* children received the second highest ratings and were equivalent to *High Status* and *Well-Liked/Dominant* children. Therefore, it appeared possible that being stubborn, attention-seeking, and manipulative might be characteristics that helped *Disliked* children to obtain and maintain a higher social status position than the *Low Status* and *Low Dominant/Unpopular* subtypes. "Shyness" was the only trait that appeared to be associated with low status position. This finding was not surprising given that the more sociable, outgoing children tended to be members of the upper portion of the hierarchy.

Four of the nine temperament traits included in the analyses appeared to have a stronger relation with likeability than social status position. Consistent with previous research findings (Stormshak et al., 1999), distractibility was associated with peer rejection (i.e., being disliked). The *Low Status*, *Disliked*, and *Perceived Popular/Dominant* subtypes were rated as significantly more distractible than the three likeable subtypes (i.e., *High Status*, *Well-Liked/Dominant*, and *Low Dominant/Unpopular*). Whereas these children were low on likeability, however, the *Perceived Popular/Dominant* subtype was considered socially successful. Therefore, it appeared that distractibility might be associated with being disliked, but not necessarily with low social status. The *Disliked* and *Perceived Popular/Dominant* subtypes received higher ratings for

"antagonism" (e.g., "mean," "uncooperative") and "negative affect" (e.g., "irritable," quick-tempered") than all other clusters. As other socially successful subtypes received significantly lower scores on these traits, it appeared that these characteristics were more likely associated with being disliked than with social status position. Similarly, the three likeable subtypes (i.e., *High Status*, *Well-Liked/Dominant*, and *Low Dominant/Unpopular*) were deemed the most "considerate." However, given the low status position of the *Low Dominant/Unpopular* group, simply being considerate was not enough to result in high status.

The remaining two temperament traits included in the analyses presented with unclear associations with status position and likeability. Comparisons made with the "openness" dimension (e.g., "curious," "has a sense of humor") failed to demonstrate significant differences among the clusters. Children exhibiting "positive emotions" (e.g., "is happy," "is affectionate") tended to possess either a socially dominant position (i.e., *High Status*, *Perceived Popular/Dominant*) or a relatively high degree of likeability (*Low Dominant/Unpopular*). Overall, the findings suggested that the social success of children, whether defined by likeability or access to the prerogatives of social status, might have a strong association with the temperament of the individual.

Practical Implications

Practical implications for both assessment and intervention of child maladjustment can be drawn from the current set of findings. First, the use of peer ratings of behavior appears critical to the identification of aggression within peer groups. In the current study, peers gave *High Status* children moderately high overt (boys) and relational (girls) aggression ratings. This finding was not surprising as overt and relational types of aggression are fundamental techniques employed by many socially successful children to establish and maintain a dominant social

position (Adler & Adler, 1998). However, teachers appeared unaware of the extent of the antisocial behaviors used by *High Status* children. They described *High Status* children as very low on "antagonism" (e.g., "is mean") and "negative affect" (e.g., "is irritable") and average on "strong-willed" (e.g., "manipulates to get his/her own way"). This finding also was not surprising as socially successful children are noted for high levels of social sophistication (Adler & Adler, 1998), including the ability to hide antisocial and coercive behaviors from teachers and parents. In addition, teachers do not have access to many of the contexts in which antisocial behaviors occur (Parker & Asher, 1987). Peers, however, have been shown to be excellent observers of classmates with greater access to both prosocial and antisocial interactions (Gest, Farmer, Cairns, & Xie, 2003). Thus, it is argued that peer ratings are critical to creating an accurate depiction of child behavior and personality characteristics.

Second, intervention addressing aggressive behaviors must be considered within a peer status context. The findings of the current study support previous evidence that both socially successful and unsuccessful children display some types of aggressive behaviors (e.g., Farmer et al., 2003; Lease, Musgrove, et al., 2002; Rodkin et al., 2000). Within the framework of the cross-disciplinary typology described in the current paper, it is likely that different subtypes of children use different forms of aggression, employ it for different reasons, and require different types of intervention. For example, it was argued previously that the socially unsuccessful *Disliked* children may be primarily reactive aggressive given their high ratings for irritability and moodiness and low levels of likeability. Interventions proposed for reactive aggression involve developing more accurate interpretations of social cues, recognition of body cues that signal anger, self-control techniques, and problem-solving (Crick & Dodge, 1996). In contrast, *Perceived Popular/Dominant* and *High Status* children are socially successful and shown to

employ high levels of overt and relational aggression. Given the sophisticated social skills of these groups (Lease, Musgrove, et al., 2002), it seems highly unlikely that their aggressive acts are due to failure to accurately encode social cues. It is more likely that these children employ a proactive aggression designed to attain and maintain a high level of status (see Adler & Adler, 1998). Proposed interventions for proactive aggression include altering environmental reinforcers in order that aggressive acts do not lead to positive consequences or feelings of self-efficacy (Crick & Dodge, 1996). Interventions of this type would likely prove difficult given that *Perceived Popular/Dominant* and *High Status* children are reinforced by the responses of peers in their pursuit of social position and power. As they have little concern for teacher-delivered reinforcers, it would be necessary for peers to alter the environmental reinforcers to encourage change. Nevertheless, the findings of the current study suggested that *High Status* children have the prosocial skills necessary to move towards a more adaptive behavioral style should appropriate consequences encourage more adaptive social interactions. *Perceived Popular* children, however, do not appear accustomed to using prosocial strategies for goal attainment. Whereas appropriate consequences may reduce their use of proactive aggression, these children may need to be taught prosocial methods of achieving social goals.

Future Directions

As with any typology generated using cluster analysis, the most critical component of establishing external validity is replication with independent samples (Breckenridge, 2000). The current study supported the initial Lease, Musgrove, et al. (2002) multidimensional model as replicable and internally valid. However, the participants in both studies were limited to a small geographical region in the southeast United States and were primarily either Black or White, as identified by school records. Additional cross-validation attempts with independent samples of

different geographical locations, different ethnic distributions, and different cultures would allow the examination of the reliability of the Lease, Musgrove, et al. (2002) subtypes across differing populations, as well as allow for the analysis of new subtypes that might emerge.

In replication attempts, a subtype in need of further inspection is the *Low Dominant/Unpopular* group. The members of this subtype appeared most similar to the sociometrically neglected subtype of children (Newcomb et al., 1993) because they were found to be unaggressive and likeable, but low in influence and popularity. Previous research findings have suggested that the sociometrically neglected group lacks behavioral distinctiveness when compared to the sociometrically average group (see Newcomb et al., 1993) and possesses poor reliability (see Fredrickson & Furnham, 1998). These concerns were not allayed by the current study. The members of the *Low Dominant/Unpopular* cluster were difficult to differentiate from children with average profiles, and, when compared to the other subtypes of the typology, the classifications of its members had the lowest agreement with the Lease, Musgrove, et al. (2002) classifications. Given aggression scores notably lower than average and considerate, academic, and shyness scores notably higher than average, evidence to support a unique behavioral profile was found. However, evidence suggested that this subtype might be difficult to differentiate from children with consistently low likeability, perceived popularity, and dominance or consistently average likeability, perceived popularity, and dominance. Further investigations of the psychometric properties of the subtype are needed.

Beyond attempts to replicate the typology, it is important that future investigations continue to expand on the benefits of the person-oriented approach. Whereas the clustering variables of the current study included social status conceptualizations of three research traditions (i.e., developmental psychology, sociology, and ethology), it is possible that

dimensions contributed by additional conceptualizations (e.g., social network centrality; Farmer & Rodkin, 1996; Xie, Farmer, & Cairns, 2003) might result in a more comprehensive depiction of preadolescent social status. In addition, alternative sources of external correlates might provide useful behavioral and personality information. For example, parent raters have access to children's behaviors over a wide variety of contexts and have appeared to be more sensitive to child internalizing disorders than teachers (Kamphaus, Petoskey, Cody, Rowe, & Huberty, 1999).

Investigations providing further behavioral and functional information about the subtypes of the typology would also be beneficial. Studies addressing the distribution of disruptive behavior disorders, mood disorders, and more serious psychopathology (e.g., thought disorders) might allow for more accurate prediction of those children in need of interventions. Subtype association with delinquent behaviors and substance use/abuse could be investigated, as well. Whereas the current and Lease, Musgrove, et al. (2002) studies provided some information regarding which children value education, further subtype comparisons on actual achievement, presence of learning disorders, and academic aspirations would provide insight into the association between academic performance and social status. Similarly, some information regarding the use of aggression was gathered in the Lease, Musgrove, et al. (2002) and current studies. However, a more focused investigation using variables related to proactive and reactive aggression (see Crick & Dodge, 1996), as well as overt and relational aggression is necessary. It was interesting to note that the subtypes of the typology were differentiated using teacher ratings of child temperament characteristics (i.e., ICID-S; Halverson et al., 2003). Additional studies relating temperament and personality findings to the social status subtypes might allow for progress towards early prediction of children at-risk for social maladjustment**.** Finally, the

samples used for the Lease, Musgrove, et al. (2002) typology and the current study were limited to fourth and fifth grade students. With longitudinal data, it would be possible to investigate developmental trajectories and long-term outcomes to determine if the multidimensional model is predictive of future inter- and intra-personal adjustment.

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Table 1

Peer-Nominated Prerogatives of Social Status

Scale Name	Scale Items
Influence	Somebody who others listen to – this person has a lot of influence.
Admiration	This is a person who others in class admire. Other children want to be like this person and to be around him/her.
Cool	This person is really cool. Just about everybody in school knows this person.
Leadership	This person gets chosen by the others as the leader. Other people like to have this person in charge.
Social Control	This type of person has a lot of control – they decide who gets to be in the "in crowd" or popular group.

Table 2

Peer-Nominated Behavioral/Personality Characteristics

Scale Name	Scale Items
Helps others	This child shows sympathy to a peer who is sad, hurt, or upset.
Values school	This person tries hard to do good schoolwork.
Cheerful	This person is usually happy and cheerful.
Distractible	This person seems to have a hard time paying attention in class, especially if kids are talking in the hallway or something is happening out the window.
Bossy	This person acts bossy and like a know-it-all.
Shy	This person looks like he or she wants to play with others or join in on a game, but seems afraid or shy.
Fun to hang around	Somebody who is fun to hang around because this person has a good sense of humor and has good ideas for things to do.
Seems sad	This person often seems sad or unhappy.
Odd	Somebody who just seems odd, because they say things that don't make sense.
Athletic - not rough	This person is good at sports that aren't rough, like volleyball and gymnastics.
Athletic - rough	This person is good at sports that are rough, like soccer, basketball, and football.
Overt aggression (.90)	Somebody who tries to get what he or she wants by hitting, shoving, pushing, or threatening others.
	This person says mean things to people, calls names, and teases others in a mean way.
Relational aggression (.82)	When mad at a classmate, this person will ignore him/her by looking away or pretending not to hear what he/she said.
	Some children tell others that they will stop liking them unless the friends do what they say.
	This person tries to keep certain people from being in their group during activities.

Table 3

Teacher-Rated Behavioral/Personality Characteristics: ICID-S Dimensions

Scale Name	Scale Items
Considerate	Is loving.
	Is sensitive to others' feelings.
	Is sweet.
Positive Emotions	Is happy.
	Is cheerful.
	Is affectionate.
	Is a joy to be with.
Distractible	Has a short attention span.
	Is easily distracted.
	Forgets things easily.
Antagonism	Is mean.
	Is uncooperative.
	Is selfish.
Strong-Willed	Is strong-willed.
	Is stubborn.
	Is hard-headed.
	Likes to be the center of attention.
	Wants thing his/her own way.
	Manipulates to get his/her own way.
	Likes to take charge.
	Gives in to others (reversed).
Shy	Is withdrawn.
	Is slow to warm up to new people or situations.
	Has difficulty making friends.
	Shy.
Openness	Is interested in new things.
	Is curious.
	Shows interest in everything.
	Has a sense of humor.
Sociable	Is sociable.
	Is friendly.
	Is outgoing.
	Easily adapts to new situations.
	Loves to be with other people.
	Makes friends easily.
	Has a lot of friends.
	Is lively and enthusiastic.
	Is a leader.
Negative Affect	Is irritable.
	Is quick-tempered.
	Gets angry easily.
	Is moody.

Table 4

Means and Standard Deviations for the Six-Cluster Solution

	#1	#2	#3	#4	#5	#6
Dimension	n = 83	n = 98	n = 81	n = 67	n = 85	n = 52
Likeability	-1.22	.45	.83	1.05	-.65	-.47
	(.68)	(.49)	(.51)	(.47)	(.55)	(.64)
Perceived	-.66	-.62	-.16	1.52	-.46	1.24
Popularity	(.40)	(.41)	(.41)	(.56)	(.35)	(.51)
Social	-1.17	-.83	.52	.69	.46	.98
Dominance	(.46)	(.41)	(.48)	(.64)	(.49)	(.52)
% of Sample	18%	21%	17%	14%	18%	11%
% male	48.2%	45.9%	49.4%	52.2%	49.4%	38.5%

Note: Cubic Cluster Criterion = 4.45. Standard deviations are reported in parentheses below the means.

Table 5

Means and Standard Deviations for the Seven-Cluster Solution

	#1	#2	#3	#4	#5	#6	#7
Dimension	n = 81	n = 96	n = 68	n = 63	n = 81	n = 49	n = 28
Likeability	-1.22	.47	.65	1.01	-.72	-.51	1.03
	(.68)	(.51)	(.50)	(.51)	(.55)	(.64)	(.49)
Percieved	-.65	-.65	-.31	.90	-.48	1.26	2.01
Popularity	(.40)	(.36)	(.32)	(.47)	(.37)	(.51)	(.45)
Social	-1.19	-.84	.60	.33	.44	.99	1.13
Dominance	(.44)	(.41)	(.48)	(.52)	(.50)	(.51)	(.53)
% of Sample	17%	21%	15%	14	17%	11%	6%
% male	46.9%	43.8%	51.5%	52.4%	49.4%	34.7%	60.7%

Note: Cubic Cluster Criterion = 2.63. Standard deviations are reported in parentheses below the means.

Table 6

Means and Standard Deviations for the Eight-Cluster Solution

	#1	#2	#3	#4	#5	#6	#7	#8
Dimension	n = 61	n = 99	n = 74	n = 62	n = 59	n = 38	n = 47	n = 26
Likeability	-1.44	.14	.18	.91	-.94	-.67	1.23	1.05
	(.63)	(.45)	(.36)	(.50)	(.50)	(.64)	(.45)	(.50)
Perceived	-.69	-.65	-.26	1.01	-.54	1.41	-.26	2.06
Popularity	(.41)	(.37)	(.37)	(.41)	(.38)	(.44)	(.40)	(.42)
Social	-1.22	-.93	.65	.47	.43	1.04	-.10	1.15
Dominance	(.46)	(.40)	(.46)	(.52)	(.54)	(.54)	(.51)	(.54)
% of Sample	13%	21%	16%	13%	13%	8%	10%	6%
% male	50.8%	42.4%	50.0%	41.9%	55.9%	36.8%	46.8%	65.4%

Note: Cubic Cluster Criterion = 2.78. Standard deviations are reported in parentheses below the means.

Table 7

Tallies of Cluster Occurrences Over Three Trials of a Split-Half Clustering Procedure

Cluster	6-Cluster Solution	7-Cluster Solution
High Status	**6/6**	**3/6**
Well-Liked/Dominant	**4/6**	**3/6**
Perceived Popular/Dominant	**4/6**	2/6
Low Status	**5/6**	**6/6+3***
Low Dominant/Unpopular	**6/6**	**5/6**
Disliked	**4/6**	**2/6**
Disliked/Perceived Popular/Dominant	2/6	**5/6**
Well-Liked/Perceived Popular	0/6	**3/6**
Dominant	3/6	1/6
Well-Liked	1/6	3/6
Well-Liked/Low Dominant	1/6	0/6
Disliked/Unpopular	2/6	0/6
Well-Liked/Unpopular/Low Dominant	1/6	1/6
Average	0/6	4/6
Disliked/Dominant	0/6	1/6

Note: Bolded tallies indicate clusters found in the corresponding cluster analysis of the whole sample (N = 466). * A Low Status cluster appeared twice in a cluster solution in three different half-samples.

Table 8

Means and Standard Deviations on the Social Prerogatives of Status

	LS	LD/Unpop	WL/D	HS	DL	PP/D	F(5,460)
Influence	$-.44_{a}$	$-.17_{ab}$	$-.09_{b}$	1.01_{d}	$-.32_{ab}$	$.35_{c}$	28.57^{1}
	(.74)	(.80)	(.78)	(1.10)	(.58)	(1.18)	
Admiration	$-.46_{a}$	$-.19_{ab}$	$-.14_{b}$	1.12_{d}	$-.41_{ab}$	$.51_{c}$	40.96^{1}
	(.63)	(.79)	(.80)	(1.14)	(.52)	(.98)	
Cool	$-.62_{a}$	$-.39_{ab}$	$-.08_{c}$	1.07_{d}	$-.24_{bc}$	$.84_{d}$	55.24^{1}
	(.52)	(.63)	(.57)	(1.22)	(.71)	(.97)	
Leadership	$-.58_{a}$	$-.30_{b}$	$.01_{c}$	1.18_{e}	$-.34_{ab}$	$.49_{d}$	48.54^{1}
	(.50)	(.71)	(.81)	(1.13)	(.61)	(1.00)	
Social Control	$-.54_{a}$	$-.56_{a}$	$-.05_{b}$	$.75_{c}$	$-.04_{b}$	1.14_{d}	51.96^{1}
	(.39)	(.58)	(.74)	(1.13)	(.81)	(1.06)	

Note: Means were standardized by classroom and gender (boys n = 222; girls n = 244); all measures were peer-reported. [1]Results of omnibus ANOVAs comparing six cluster means, $p<.001$. Significant ANOVAs were followed by pairwise comparisons. Within rows, means with the same subscript are not significantly different. LS=Low Status, LD/Unpop=Low Dominant/Unpopular, WL/D=Well-Liked/Dominant, HS=High Status, DL=Disliked, PP/D= Perceived Popular/Dominant. Standard deviations are reported in parentheses below the means.

Table 9

Means and Standard Deviations of Peer-Nominated Behavioral/Personality Characteristics for Boys

	LS	LD/Unpop	WL/D	HS	DL	PP/D	F(5, 216)
Helps others	-.31	-.10	-.60	-.25	-.48	-.23	2.41
	(.83)	(.87)	(.55)	(.78)	(.50)	(.98)	
Values school	-.32	.09	-.31	.18	-.46	-.21	3.40
	(.87)	(1.07)	(.93)	(.82)	(.66)	(.55)	
Cheerful	$-.46_{a}$	$-.21_{a}$	$-.37_{a}$	$.22_{b}$	$-.60_{a}$	$-.28_{a}$	5.47[1]
	(.81)	(.89)	(.58)	(.87)	(.57)	(.51)	
Distractible	.05	-.01	-.09	.41	.52	1.02	4.35
	(.98)	(1.07)	(.92)	(1.17)	(1.12)	(1.27)	
Bossy	$-.39_{ab}$	$-.71_{a}$	$-.36_{ab}$	-02_{b}	$-.03_{b}$	$.57_{c}$	10.16[1]
	(.78)	(.33)	(.57)	(.84)	(.89)	(1.07)	
Shy	$.20_{c}$	$-.02_{bc}$	$-.54_{a}$	$-.54_{a}$	$-.26_{ab}$	$-.62_{a}$	6.57[1]
	(1.18)	(.90)	(.45)	(.47)	(.72)	(.31)	
Fun	$-.55_{a}$	$-.05_{b}$	$-.03_{b}$	$.96_{c}$	$-.61_{a}$	$-.00_{b}$	15.52[1]
	(.70)	(.90)	(1.01)	(.94)	(.61)	(1.09)	
Seems sad	$.33_{c}$	$-.12_{b}$	$-.49_{ab}$	$-.67_{a}$	$-.35_{ab}$	$-.38_{ab}$	7.14[1]
	(1.22)	(.94)	(.56)	(.47)	(.62)	(.66)	
Odd	.54	.13	-.19	-.01	.23	.47	2.82
	(1.08)	(1.03)	(.93)	(.95)	.99	(.96)	
Athl.-not rough	-.33	-.42	-.46	.00	-.46	-.14	1.94
	1.06	(.68)	(.61)	(.91)	(.68)	(.87)	
Athl. - rough	$-.41_{a}$	$-.25_{a}$	$.73_{c}$	1.91_{e}	$.14_{b}$	1.37_{d}	50.27[1]
	(.41)	(.66)	(.88)	(1.01)	(.69)	(1.00)	
Overt agg.	$-.20_{ab}$	$-.40_{a}$	$-.02_{ab}$	$.25_{bc}$	$.52_{c}$	1.46_{d}	14.25[1]
	(.88)	(.69)	(.72)	(1.03)	(1.11)	(1.14)	
Relational agg.	$-.48_{a}$	$-.61_{a}$	$-.29_{ab}$	$.10_{c}$	$-.11_{bc}$	$.70_{d}$	14.39[1]
	(.56)	(.44)	(.45)	(.79)	(.70)	(1.06)	

Note: Means were standardized by classroom; all measures were teacher-reported. [1]Results of omnibus ANOVAs comparing six cluster means, $p<.001$. Significant ANOVAs were followed by pairwise comparisons. Within rows, means with the same subscript are not significantly different. LS=Low Status, LD/Unpop=Low Dominant/Unpopular, WL/D=Well-Liked/Dominant, HS=High Status, DL=Disliked, PP/D= Perceived Popular/Dominant. Standard deviations are reported in parentheses below the means.

Table 10

Means and Standard Deviations of Peer-Nominated Behavioral/Personality Characteristics for Girls

	LS	LD/Unpop	WL/D	HS	DL	PP/D	F(5, 238)
Helps others	$.10_{ab}$	$.41_{b}$	$.32_{ab}$	1.15_{c}	$-.09_{a}$	$-.01_{ab}$	7.29[1]
	(1.03)	(.95)	(.81)	(1.34)	(.80)	(.95)	
Values school	$.04_{a}$	$.21_{a}$	$.03_{a}$	1.15_{b}	$-.21_{a}$	$-.14_{a}$	9.42[1]
	(1.02)	(.89)	(.78)	(1.40)	(.65)	(.82)	
Cheerful	$-.14_{a}$	$.31_{ab}$	$.38_{b}$	1.29_{c}	$-.10_{a}$	$.05_{ab}$	10.54[1]
	(.93)	(.95)	(.81)	(1.10)	(1.02)	(.93)	
Distractible	-.09	-.49	-.38	-.27	.05	-.02	3.53
	(1.03)	(.40)	(.58)	(.57)	(.80)	(1.03)	
Bossy	$-.01_{b}$	$-.49_{a}$	$-.02_{b}$	$.30_{bc}$	$.62_{c}$	1.40_{d}	21.21[1]
	(1.04)	(.44)	(.68)	(1.02)	(1.07)	(1.02)	
Shy	1.03_{c}	$.73_{c}$	$.11_{b}$	$-.26_{ab}$	$-.24_{ab}$	$-.51_{a}$	19.34[1]
	(1.23)	(1.03)	(.87)	(.68)	(.65)	(.41)	
Fun to hang around	$-.49_{a}$	$-.07_{bc}$	$.24_{cd}$	$.98_{e}$	$-.22_{ab}$	$.33_{d}$	14.21[1]
	(.81)	(.84)	(.67)	(.99)	(.66)	(.98)	
Seems sad	$.98_{c}$	$.57_{b}$	$-.02_{a}$	$-.38_{a}$	$.02_{a}$	$-.10_{a}$	12.37[1]
	(1.31)	(.94)	(.81)	(.65)	(.81)	(.52)	
Odd	.11	-.24	-.32	-.27	-.19	-.13	1.24
	(1.20)	(.90)	(.66)	(.77)	(.81)	(.82)	
Athl. - not rough	$.09_{ab}$	$.29_{ab}$	$.35_{b}$	$.89_{c}$	$-.12_{a}$	$.50_{bc}$	4.71[1]
	(.95)	(.89)	(1.06)	(1.18)	(.74)	(1.04)	
Athl. - rough	$-.70_{a}$	$-.63_{a}$	$-.37_{bc}$	$.05_{d}$	$-.49_{ab}$	$-.19_{c}$	13.14[1]
	(.24)	(.40)	(.42)	(.73)	(.39)	(.64)	
Overt agg.	$-.37_{ab}$	$-.58_{a}$	$-.24_{b}$	$-.18_{b}$	$.27_{c}$	$.58_{d}$	15.66[1]
	(.53)	(.26)	(.61)	(.72)	(.84)	(1.07)	
Relational agg.	$-.21_{a}$	$-.39_{a}$	$.11_{b}$	$.37_{bc}$	$.44_{c}$	1.25_{d}	25.69[1]
	(.76)	(.42)	(.56)	(.81)	(.85)	(.85)	

Note: Means were standardized by classroom; all measures were teacher-reported. [1]Results of omnibus ANOVAs comparing six cluster means, $p<.001$. Significant ANOVAs were followed by pairwise comparisons. Within rows, means with the same subscript are not significantly different. LS=Low Status, LD/Unpop=Low Dominant/Unpopular, WL/D=Well-Liked/Dominant, HS=High Status, DL=Disliked, PP/D= Perceived Popular/Dominant. Standard deviations are reported in parentheses below the means.

Table 11

Means and Standard Deviations of Teacher-Rated Behavioral/Personality Characteristics

	LS	LD/Unpop	WL/D	HS	DL	PP/D	F(5, 439)
Considerate	$-.18_{ab}$	$.22_{c}$	$.09_{bc}$	$.22_{c}$	$-.23_{a}$	$-.20_{a}$	5.00[1]
	(.89)	(.87)	(.78)	(.80)	(.77)	(1.01)	
Pos. Emotions	$-.19_{ab}$	$.12_{c}$	$.07_{bc}$	$.24_{c}$	$-.28_{a}$	$.10_{c}$	4.64[1]
	(.81)	(.85)	(.78)	(.85)	(.75)	(.89)	
Distractible	$.24_{c}$	$-.10_{ab}$	$-.11_{ab}$	$-.34_{a}$	$.23_{c}$	$.00_{bc}$	5.32[1]
	(.89)	(.81)	(.79)	(.81)	(.85)	(.83)	
Antagonism	$.04_{b}$	$-.25_{a}$	$-.13_{ab}$	$-.23_{ab}$	$.33_{c}$	$.35_{c}$	7.87[1]
	(.88)	(.77)	(.75)	(.81)	(.74)	(.99)	
Strong-Willed	$-.09_{b}$	$-.39_{a}$	$.05_{bc}$	$.03_{bc}$	$.21_{c}$	$.49_{d}$	16.14[1]
	(.70)	(.55)	(.56)	(.60)	(.61)	(.69)	
Shy	$.33_{c}$	$.12_{bc}$	$-.14_{a}$	$-.28_{a}$	$.09_{b}$	$-.32_{a}$	10.18[1]
	(.79)	(.71)	(.52)	(.68)	(.60)	(.65)	
Openness	-.19	-.00	.10	.26	-.15	.09	3.61
	(.90)	(.75)	(.67)	(.78)	(.72)	(.65)	
Sociable	$-.47_{a}$	$-.11_{b}$	$.18_{c}$	$.46_{d}$	$-.14_{b}$	$.34_{cd}$	16.69[1]
	(.79)	(.77)	(.63)	(.74)	(.66)	(.65)	
Neg. Affect	$.03_{b}$	$-.30_{a}$	$-.06_{ab}$	$-.19_{ab}$	$.33_{c}$	$.34_{c}$	7.57[1]
	(.87)	(.75)	(.76)	(.91)	(.82)	(.93)	

Note: Means were standardized by classroom; all measures were teacher-reported.
[1]Results of omnibus ANOVAs comparing six cluster means, $p<.001$. Significant ANOVAs were followed by pairwise comparisons. Within rows, means with the same subscript are not significantly different. LS=Low Status, LD/Unpop=Low Dominant/Unpopular, WL/D=Well-Liked/Dominant, HS=High Status, DL=Disliked, PP/D= Perceived Popular/Dominant. Standard deviations are reported in parentheses below the means.

Table 12

Cross-Classification Results by Cluster

Independent Cluster Solution	Lease, Musgrove, et al. (2002) Cluster Solution							
	HS	PP/D	WL/D	DL	LD/ Unpop	LS	Ave	Total
HS	**46 (95.8%)**	9	11	0	0	0	1	67
PP/D	2	**50 (82.0%)**	0	0	0	0	0	52
WL/D	0	1	**51 (77.3%)**	0	0	0	29	81
DL	0	1	4	**52 (96.3%)**	0	0	28	85
LD/Unpop	0	0	0	0	**41 (52.6%)**	0	57	98
LS	0	0	0	2	37	**43 (100%)**	1	83
Total	48	61	66	54	78	43	116	466

Note: LS=Low Status, LD/Unpop=Low Dominant/Unpopular, WL/D=Well-Liked/Dominant, HS=High Status, DL=Disliked, PP/D= Perceived Popular/Dominant.

CHAPTER 4

DISCUSSION AND CONCLUSIONS

The goal of this dissertation was to investigate the stability and utility of a multidimensional conceptualization of preadolescent social status (Lease, Musgrove, & Axelrod, 2002). Within the introduction, the relevance of social status research to child social and emotional adjustment was described. Next, the three predominant conceptualizations of social status (i.e., sociometric popularity, perceived popularity, and social dominance) were introduced. This was followed by a brief presentation of the arguments for a multidimensional conceptualization. Finally, the goals of the two manuscripts of the dissertation were outlined.

Summary of Findings

In the first manuscript, the roles of sociometric popularity, perceived popularity, and social dominance within a more comprehensive, multidimensional conceptualization of preadolescent social status were investigated. A review of the research revealed relative independence between the indices and considerably different behavioral profiles associated with high status subtypes. Further, person-oriented investigations that defined social status using multiple dimensions were found to consistently identify multiple subtypes of high status children. An integration of the findings suggested that sociometric popularity, perceived popularity, and social dominance all appeared to play relevant - yet slightly different - roles when attempting to provide a thorough depiction of preadolescent social status.

Based on the findings, several broad conclusions were drawn. First, certain characteristics appeared to be consistently associated with high status attainment. These included assertiveness,

leadership ability, precocity in social skills, athletic ability, and attractiveness. Other characteristics varied across high status children. These included use of aggression, motivations for social interactions, sense of well-being, likeability, trustworthiness, kindness, and emphasis on academics. Second, findings suggested that an integrated, cross-disciplinary framework (e.g., Lease et al., 2002) might provide a more comprehensive depiction of preadolescent social status. Finally, the potential utility of such a modelwas presented. The advantages included increased sensitivity for several subtypes of children. These consisted of proactively aggressive children, reactively aggressive children, influential children who encourage antisocial behaviors in others, and those on maladaptive developmental pathways. As an additional advantage, it was hypothesized that a widely accepted, comprehensive typology would enhance generalization and cross-disciplinary communication of findings related to social status.

The goal of the second manuscript was to investigate the empirical support for a person-oriented, multidimensional model of preadolescent social status (Lease et al., 2002). The findings from two procedures (i.e., cluster analysis of an independent sample and cross-classification comparisons) revealed support for a reproducible, internally valid typology. Six of the seven subtypes identified and described by Lease et al. (2002) emerged within an independent cluster analysis: *High Status*, *Perceived Popular/Dominant*, *Well-Liked/Dominant*, *Disliked*, *Low Dominant/Unpopular*, and *Low Status*. An *Average* subtype was not found. Comparisons of the Lease et al. (2002) subtypes with the associated subtypes of the independent typology revealed highly similar centroids, equivalent hierarchical structures, and consistent behavioral profiles as rated by teachers and peers. In addition, the cross-classification procedure demonstrated a high degree of similarity between the classifications made by the original (Lease et al., 2002) and independent typologies.

Given the findings, it was concluded that a multidimensional conceptualization of social status composed of peer-nominated sociometric popularity, perceived popularity, and social dominance was capable of supporting and enhancing the current understanding of the preadolescent peer hierarchy. First, the comprehensive nature of the multi-dimensional conceptualization allowed for the identification of prosocial and antisocial subtypes of high status children, as well as a high status subtype exhibiting both prosocial and antisocial characteristics. Second, the findings of the person-oriented approach suggested that behavioral/personality profiles were more predictive of social status position than individual variables removed from context. Third, connections between temperament traits and social status position were drawn. Finally, the importance of considering both assessment and intervention within the peer context was emphasized.

Future Areas of Research

It is hoped that the findings of the studies included within the dissertation will prompt further research regarding a multidimensional conceptualization of social status. A great deal of information remains to be learned regarding the stability of the subtypes, their behavioral manifestations, and relation with additional research. The Lease et al. (2002) and current studies were conducted with fourth- and fifth-grade students from a rural area of the southeastern United States. Further cross-validation attempts are needed with independent samples representing different age groups, geographical locations, ethnic distributions, and cultures. For the typology to have intervention utility, additional information regarding external correlates is necessary. It appears likely that some subtypes may have a stronger association with disruptive behavior disorders and delinquency. By identifying the subtypes of children at-risk for such behaviors, as well as the type of aggression typically used (e.g., physical, relational, reactive, proactive), more

precise prevention and intervention mechanisms can be implemented. Similarly, other subtypes of children may have a greater risk for mood disorders, academic problems, or more serious psychopathology. Once again, with greater ability to predict the emergence of specific difficulties, the more effective prevention and intervention programs will be.

Further links to research of other disciplines may also prove useful. The subtypes of the typology were well-differentiated by teacher-rated temperament dimensions that were drawn from a theoretically sound instrument (i.e., the ICID-S; Halverson et al., 2003). Further investigations relating temperament and personality to the social status subtypes might allow for progress towards early prediction of children at-risk for social maladjustment**.**

Finally, the Lease et al. (2002) and current studies provide indicators of future adjustment, but without longitudinal data, predictions are merely speculation. With longitudinal data, it would be possible to investigate developmental trajectories and long-term outcomes to determine if the multidimensional typology is predictive of future inter- and intra-personal adjustment.

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