

LONGITUDINAL PREDICTORS OF POPULARITY AND UNPOPULARITY IN
MIDDLE CHILDHOOD AND EARLY ADOLESCENCE

by

Robert L. Altman

A Dissertation submitted to the Faculty of
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This dissertation was prepared under the direction of the candidate's dissertation advisor, Dr. Brett Laursen, Department of Psychology, and has been approved by all members of the supervisory committee. It was submitted to the faculty of the Charles E. Schmidt College of Science and was accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

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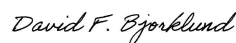
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ABSTRACT

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As children enter middle childhood, they become increasingly focused on navigating the peer system, which provides an acute awareness of the social hierarchy and their place in it (Gottman & Mettetal, 1986; Parker & Gottman, 1989). Some children even prioritize attaining social status over maintaining friendships (LaFontana & Cillessen, 2010). Status matters because it describes an individual's ability to compete for and control both physical and social resources (Hawley, 1999). Previous studies have identified two forms of affective regard, separate from the peer group and behavioral reputation, that predict popularity and unpopularity: acceptance and rejection (Marks et al., 2021). However, their relative importance has been unclear because previous studies have not included both in the same model and because most studies have been concurrent, not longitudinal. Affective markers of peer regard and behavioral markers of peer group reputation are moderately correlated, making it difficult to draw conclusions from separate studies of each. Studies which incorporate measures of each are few and

limited in scope. The current study was designed to examine the origins of popularity and unpopularity by disentangling affective regard from behavioral reputation using a sample of 292 students enrolled in grades 4 to 6 (ages 9-13) of a university-affiliated school. Participants completed peer nomination inventories about their class and grade mates in the spring of 2014. My results indicated that popularity and unpopularity were predicted by being fun, even after accounting for the impact of affective markers of peer regard and demographic variables. Academic achievement also predicted unpopularity, but only before and not after accounting for affective markers of peer regard. Acceptance was a significant predictor of popularity, but only before and not after behavioral reputation variables were added to the model. Neither acceptance nor rejection significantly predicted unpopularity at either step of either regression model. Tests of gender differences revealed moderated associations between prosociality and popularity and unpopularity. Tests of grade differences indicated moderated associations between academic achievement and popularity and unpopularity. Thus, the main results of my study indicated that behavioral reputation predicts social status after controlling for affective regard.

DEDICATION

Because I have spent the last five years of my life studying social development, it seems only appropriate that I dedicate this manuscript to my greatest sources of social support: my friends and family.

First, I would like to thank my parents (Lynn & Clifford), brother (Jonathan), and extended family for their unwavering support over the past five years. Each of you have been a tremendous support in your own way. Without your love, belief, and support, completing this degree would have been impossible.

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INTRODUCTION

Status is an important construct in the social worlds of children and adolescents. As children enter middle childhood, they become increasingly focused on navigating the peer system, which provides an acute awareness of the social hierarchy and their place in it (Gottman & Mettetal, 1986; Parker & Gottman, 1989). Some children will even prioritize attaining social status over maintaining friendships (LaFontana & Cillessen, 2010). Status matters because it describes an individual's ability to compete for and control both physical and social resources (Hawley, 1999). Previous studies have identified two forms of affective markers of peer regard, separate from the peer status and behavioral reputation, that predict popularity and unpopularity: acceptance and rejection (Marks et al., 2021). However, their relative importance is unclear because previous studies have not included both in the same model and because most studies have been concurrent, not longitudinal. Affective markers of peer regard and behavioral markers of peer group reputation are also moderately correlated, making it difficult to draw conclusions from separate studies of each. The current study will determine the degree to which affective markers (i.e., peer acceptance and rejection) and behavioral reputation are unique predictors of longitudinal changes in social status (i.e., popularity and unpopularity)

My introduction is divided into seven sections. The first section defines popularity and unpopularity and describes how they are measured. The second section reviews conceptual frameworks for understanding the function and consequences of popularity and unpopularity. The third section reviews empirical work on the consequences of popularity and unpopularity in middle childhood and early adolescence. The fourth

section describes conceptual models on the origins of popularity and unpopularity, delineating popularity and unpopularity from affective markers of peer regard, such as acceptance and rejection. The fifth and sixth sections review empirical evidence that ties peer regard and behavioral reputation to the development of popularity and unpopularity. The final section lays out the hypotheses for my investigation.

Popularity and Unpopularity: Definitions and Measurement

My goals in this section are twofold. First, I will define popularity and unpopularity and establish how these two forms of social status differ from affective markers of peer regard. Second, I will describe the measurement of popularity and unpopularity in sociometric research.

Definitions of Popularity and Unpopularity

Social status is a construct of longstanding importance to scholars of peer relationships. More than 60 years ago, Coleman (1961) described the “leading crowd” and its members, who were considered to be the “elites” of the peer group. The “leading crowd” consisted of adolescents who most strongly reflected the values held by the members of the peer group. Many of Coleman’s (1961) observations of these elites and their social crowd can be considered precursors to modern research on popular children and adolescents.

In contemporary research, the terms “popularity” and “unpopularity” describe the child’s status in the peer group. Popularity is a reputational construct that is characterized by social dominance and the ability to influence other members of the peer group (Parkhurst & Hopmeyer, 1998; Henricks et al., 2021). Popularity is a reputational construct which reflects a group consensus that specific individuals have heightened

visibility or prestige within the peer group (McDonald & Asher, 2018; Cillessen, 2008). Popular children tend to be socially central and responsible for the establishment and enforcement of group social norms (Cillessen & Rose, 2005; Parkhurst & Hopmeyer, 1998). Unpopularity is a reputational construct indicating an individual's low social status and lack of influence over peers (Schwartz et al., 2013). Unpopular youth are not necessarily socially isolated or distant from peers; rather, they are typically highly visible in the peer group (Gorman et al., 2011).

Social status constructs of popularity and unpopularity should not be conflated with affective markers of peer regard, such as peer acceptance and rejection. Moreno (1934) described individuals as “social atoms” operating within the larger peer group, and he conceptualized sociometric measures as being based on attraction and repulsion between individuals. Moreno's (1934) theory and methods became the basis for describing peer acceptance and rejection in contemporary sociometric research. In this view, peer acceptance describes the degree to which the group views the child with positive regard or liking (Coie & Dodge, 1983; Coie et al., 1982). Peer rejection describes the degree to which the peer group views the child with antipathy or disliking (LaFontana & Cillessen, 2002).

The Measurement of Popularity and Unpopularity

Traditionally, the measurement of popularity and unpopularity has been accomplished through peer nomination methods, which have their roots in the pioneering sociometric work of Moreno (1934), which was later modified by Coie and Dodge (1983). Peer nomination/rating procedures are extensions of sociometric research. Peer relationships scholars consider these procedures to be the most accurate assessments of

the child's standing in the peer groups (Cillessen & Marks, 2011). Because nomination procedures rely on information obtained from group insiders, they are considered to have high face validity (van den Berg et al., 2015). Additionally, peer nomination procedures' reliance on reports from multiple individuals, rather than single individuals providing self-reports is considered a boon to their utility (Bukowski et al., 2012).

The basic premise underlying the sociometric measurement of popularity and unpopularity involves the ordering of children and adolescents into the social hierarchy of the peer group (Cillessen & Marks, 2011). In nomination procedures, children and adolescents are presented with a question containing the nomination item (i.e., "Who is popular?" "Who is unpopular?"). Definitions and descriptions of the nomination item are not required due to high face validity (Cillessen & Marks, 2011). Descriptive labels are also discouraged in order to allow group variations in what constitutes popularity to remain relevant to participants' ages, genders, regions, etc. (Cillessen & Marks, 2011). The total number of nominations an individual receives for a nomination item are summed or averaged to calculate an individual's total score (i.e., the individual's popularity). These scores can also be standardized to account for variations in size of the nominating groups (Cillessen & Bukowski, 2018).

Peer researchers have long known that sociometric measures of peer regard (i.e., acceptance and rejection) are conceptually distinct from reputation-based measures of social status (i.e., popularity and unpopularity), despite being correlated with one another (Bukowski, 2011). Empirical evidence suggests that these constructs are moderately correlated during middle childhood, with associations declining across adolescence (Mayeux et al., 2011). The terms are often conflated because in the not-too-distant past,

scholars often defined popularity in terms of liking (Mayeux et al., 2011), however, this is no longer the case as recent work has made it clear that well-liked children and adolescents are not necessarily considered popular by classmates and vice versa. In sum, popularity and unpopularity are reputation-based measures that reflect the general consensus of an individual's social standing within the peer group, which may contrast with sociometric measures of peer acceptance and rejection that reflect the degree to which members of the peer group like or dislike the child (Cillessen & Marks, 2011).

Peer nominations of popularity and unpopularity can be combined to create composite measures of popularity (Cillessen & Marks, 2011). Difference scores are calculated, akin to social impact/preference scores, by subtracting the total number of “least popular” nominations a child receives from the total number of “most popular” nominations received (Gorman et al., 2011; LaFontana & Cillessen, 2002). Several reasons have been offered for the adoption of difference scores to measure popularity. Given that much of the business of measuring social status concerns ranking individuals from high to low positions, it makes some sense to treat popularity and unpopularity as opposite ends of a continuum (Benoit-Smullyan, 1944; Marks et al., 2012). Additionally, using two-items to compute scores should increase internal reliability over that of single-item measures (Babcock et al., 2014) and correct for the positive skew typical of many peer nomination items (Gorman et al., 2011). This strategy, however, assumes a unidimensional (Newcomb et al., 1993) view of popularity that indexes the trait as a single, continuous variable, akin to the way masculinity and femininity used to be conceptualized as opposite poles of the same construct.

Recent work suggests that popularity and unpopularity do not represent a single construct and ought not be combined into a single variable. The available evidence supports the conclusion that the two are separable constructs (Kosir & Pecjak, 2005; Lease et al., 2002). Gorman et al. (2011) reported that unpopularity is conceptually distinct from low levels of popularity among adolescents, similar to how low acceptance and outright rejection are not opposites- to be disliked is different from not being well-liked (Newcomb & Bukowski, 1983). A recent study indicated that the use of difference scores to assess popularity is unwarranted (Marks et al., 2021), in part because popularity and unpopularity are strongly related to one another, but not in a linear fashion, supporting the view that they are partially distinct constructs and not opposite ends of a spectrum as theorized in the past. The authors (previous proponents of using composite scores) conclude that treating popularity and unpopularity as separate indicators of social status is superior to the difference score approach. For this reason, I will keep popularity and unpopularity as separate constructs in the present study.

Conceptual Frameworks for Understanding the Functions and Consequences of Popularity and Unpopularity in Middle Childhood and Early Adolescence

In this section, I will provide an overview of the major conceptual frameworks for understanding the functions of popularity and unpopularity. I will also provide an overview of the major conceptual frameworks for understanding the consequences of popularity and unpopularity.

Conceptual Models of the Functions of Popularity

An evolutionary framework offers an important conceptual model for understanding the functions of popularity. Evolutionary theory is becoming a

fundamental concept in both modern psychology and development (Bjorklund, 2018) and can operate as a metatheoretical perspective providing consistent, explanatory logic for a variety of topics of interest to peer relationship scholars (Hawley & Bower, 2018). One such conceptual view under the evolutionary umbrella, Resource Control Theory (Hawley, 1999) posits that popularity represents a strategy for social dominance, which is defined as the product of naturally occurring differences in resource control by group members (Pellegrini et al., 2011). Social dominance, the underlying principle of resource control theory, is the process by which individual members of a group gain access to resources with differential levels of success (Hawley, 1999; Pellegrini, 2008). Individuals compete for access to these resources with each other and other groups (Dunbar, 1988; Pellegrini, 2008). Resources can be defined as both material and social capital. Social capital includes the ability to influence peers and group norms (Cillessen & Rose, 2005; Parkhurst & Hopmeyer, 1998), while material capital would be any physical resources an individual has a desire to obtain to support their development. The processes guiding social dominance serve the purpose of minimizing within-group conflict and allowing group members to affiliate with minimal conflict (Pellegrini et al., 2011).

Through the lens of Resource Control Theory, we are able to better understand the functions and consequences of popularity and unpopularity in childhood and adolescence. Resource Control Theory starts from the observation that individuals arrange themselves in groups according to a hierarchy, predicated on the unequal distribution of resources (Hawley, 1999). Taking a developmental perspective, Hawley applied the concepts of social dominance to children and adolescents. Hawley (1999) indicated that socially dominant children and adolescents determine the allocation of resources within their peer

groups, through the use of both prosocial and aggressive behaviors. Three types of youth are likely to attain popularity: coercive, prosocial, and bistrategic (who used both coercive and prosocial behaviors to attain status). In a recent empirical study of these three adolescent profiles, it was the bistrategic youths who were the most successful at attaining popularity (Hartl et al., 2020). Through the use of prosocial and aggressive tactics, material and social capital are accumulated by popular individuals in their roles as peer group leaders (Sandstrom, 2011).

Conceptual Models of the Consequences of Popularity

Popularity is considered a desirable outcome by most adolescents. According to Sutton et al. (2001), aggressive and domineering behavior can be viewed as a socially competent tactic to gain status and the benefits it accrues. Sutton et al.'s (2001) original argument is that bullies have been incorrectly labeled as socially unskilled, but instead, likely have superior social reasoning. Specifically, the authors argue that bullies have superior theory of mind skills which allow them to skillfully apply aggression and manipulation against their victims (Sutton et al., 2001). This operates within the framework of the social information processing model, which encompasses attending to social stimuli, encoding of social stimuli according to schemes, storage of social cue patterns in long term memory, and retrieving socially relevant memories in order to respond to others (Dodge, 1986). Crick and Dodge (1999), support Sutton et al.'s (2001) position and LaFontana and Cillessen (2010) have suggested that such processes explain why children and adolescents may pursue social status as part of normative social development- the benefits of status are too good to ignore.

Popularity carries with it a number of potentially detrimental outcomes, as framed by Schwartz and Gorman (2011) in the Popularity Risk Hypothesis. Because popularity is such a highly desired commodity among adolescents, they are likely to adopt problematic behaviors, attitudes, and norms in order to conform to the norms of their elite peers. It follows that popular youth may be no less susceptible to peer influence than their non-popular peers because they encounter greater peer pressure in their social lives. Reliance on aggression and social manipulation may also feed into the development of maladaptive behaviors by popular youth (Schwartz & Gorman, 2011). Additionally, diverging from the norms of the popular crowd may result in suffering social sanctions at the hands of elite peers, further reinforcing the development of maladaptive behaviors. The popularity Risk Hypothesis is primarily predicated on the premise that popular youth experience greater social pressures, which may result in increased problematic outcomes.

This hypothesis is echoed in the work of Allen et al. (2005), which states that popularity can make adolescents more vulnerable to peer influence. Allen et al. (2005) stated that popularity pressures individuals to demonstrate peer-valued behaviors and avoid peer-sanctioned behaviors in order to maintain their high status. Those adolescents most in sync with the norms of their peer group, and the discrepancies between high and low status peers, will alter their behaviors to align with those valued by peers. This presents a risk as popular adolescents may engage in antisocial behaviors to demonstrate their maturity to peers and maintain their status (Allen et al., 2005).

Conceptual Models of the Functions of Unpopularity

Interest in popularity has often dwarfed interest in unpopularity. The majority of studies published on the subject of popularity have collected either only measures of

popularity using a single nomination item or have calculated difference scores (Cillessen & Marks, 2011). As a result, limited theories exist that specifically address the subject of unpopularity.

Unpopularity is conceptualized as a reputation-based variable indicating a low ranking in the social hierarchy and a lack of power and influence (LaFontana & Cillessen, 2002; Gorman et al., 2011). Unpopular individuals lack control of resources and social capital. However, scholars point out that unpopularity should not be conflated with low popularity- low popularity denotes the absence of a high-status reputation, but unpopularity denotes something different, a negative reputation (Malamut et al., 2017). Unpopular individuals have often been perceived as being socially incompetent, withdrawn, unattractive, and deviating from the norms of the peer group (LaFontana & Cillessen, 2002).

According to the Incidental Model, peer rejection and its associated behaviors may be an indicator of poor social competence (Bellmore, 2011). In the incidental model, an underlying issue, such as poor social competence, can cause individuals to initiate deviant behaviors, such as aggression or withdrawal from social situations (Parker & Asher, 1987). The two consequences of these behaviors are maladjustment and rejection or low acceptance (Parker & Asher, 1987). The model could be extended to unpopularity, such that any form of low status or poor affective reaction to children and adolescents could reflect the existence of poor social skills. Thus, from poor social competence may come withdrawn/submissive behaviors that would foster unpopularity.

Conceptual Models of the Consequences of Unpopularity

Evolutionary theories suggest that withdrawal and submission may be intended to serve as self-protective mechanisms (Gilbert, 2014). However, these intentions may backfire and actually increase perceptions of the individual as an unattractive interaction partner, which could then increase the risk of lowered social status because such behaviors are interpreted as passive acquiescence to the social hierarchy (Alden & Taylor, 2004; Dodge & Feldman, 1990). Because friendly actions on the part of unpopular youth may be taken as signs of submission by socially dominant peers, they are more likely to be victimized by peers (Fox & Boulton, 2006).

The Costs and Benefits of Popularity and Unpopularity: Empirical Evidence

This section has three purposes. First, to detail the empirical literature describing the benefits of popularity. Second, to detail the empirical literature describing the consequences of popularity. Finally, to detail the empirical literature describing the consequences of unpopularity. There are no known benefits to unpopularity.

The Benefits of Popularity

Popularity confers several benefits on children and teens who acquire it. Popular children and adolescents are desired as friends (Thomas & Bowker, 2013). Therefore, one benefit of popularity is having a larger pool of potential friends and romantic partners from which to choose (Bukowski et al., 1996; Dijkstra et al., 2010). Popular individuals are often desired as friends because affiliating with them increases one's own social status and influence within the peer group and affords protection against being bullied by more aggressive peers (Dijkstra et al., 2010). Along with having access to a greater pool

of potential friends, popularity in adolescence is concurrently related to higher self-esteem and friendship support (Litwack et al., 2012).

The benefits of popularity extend beyond the immediate social environment. Popular individuals have the opportunity to improve the socio-cognitive skills which contribute to positive social adjustment, including perspective taking and conflict resolution (Duck, 2011). It would appear that by maximizing opportunities for socialization with their peers, popular children are likely to gain more opportunities for improving their own socioemotional development (Bukowski, 2011).

The Costs of Popularity

Popularity has been linked to a number of negative outcomes during adolescence. Gaining and maintaining popularity in the peer group can be stressful for some adolescents, thereby increasing the risk of developing internalizing symptoms (Sandstrom & Cillessen, 2010). According to the recently published results of a 10-year longitudinal study, children and adolescents who prioritized attaining popularity over developing close friendships experienced poorer psychological outcomes than their peers, including lower self-esteem and increased anxiety and depression during early adulthood (Narr et al., 2017). Additionally, popularity has demonstrated links to increased body image concerns among both male and female adolescents (Prinstein et al., 2018).

Popularity has also been linked to several forms of externalizing behaviors. Popularity is tied to the timing of sexual debut and sexual experimentation (Schwartz & Gorman, 2011; Prinstein et al., 2003). Similarly, popular adolescents are more likely to experiment with substances than their average-status peers. Compared to their average-status peers, highly popular adolescents are more likely to partake in drinking and

cigarette smoking (Schwartz & Gorman, 2011; Mayeux et al., 2008). They are also more likely to use marijuana (Prinstein et al., 2018). Additionally, the risk of engaging in substance abuse as an adult is moderately influenced by one's popularity in high school (Sandstrom & Cillessen, 2010).

Popular adolescents are more likely to demonstrate social and academic difficulties. Ironically, adolescents who are highly popular report poorer friendship quality (Ferguson & Ryan, 2018), as characterized by less sharing and openness between friends. Academic difficulties often encountered by popular adolescents include unexplained school absences and negative attitudes towards schooling (Schwartz & Gorman, 2011; Schwartz et al., 2006). Similarly, popularity in late childhood has been linked to increased rates of disruptive behavior during adolescence (Sandstrom & Cillessen, 2006) and increased involvement in delinquency (Goldweber et al., 2014).

The Costs of Unpopularity

The literature on unpopularity indicates that it confers no obvious positive benefits but does carry several risks for children and adolescents. The majority of studies examining the effects of unpopularity utilize popularity difference scores- meaning that conclusions about the harmful outcomes arising from unpopularity cannot be separated from those arising from low popularity. Results from these studies indicated that being unpopular as an adolescent has been linked to longitudinal increases in depressive symptoms (Malamut et al., 2017) and the same health risk behaviors that are also associated with popularity, including smoking, drinking, and early sexual debut (Mayeux et al., 2008; Schwartz & Gorman, 2011). In contrast to popular peers, being unpopular also places children and adolescents at increased risk for victimization (de Bruyn et al.,

2010). This likely stems from unpopular youths' lack of close friends, though this has not been tested.

Two studies have explored outcomes associated with explicit measures of unpopularity. These studies indicated that unpopular children experience increased depressive symptoms (Mali et al., 2019) and loneliness, likely because unpopular adolescents had fewer reciprocated friendships, despite being highly visible in the peer group (Gorman et al., 2011). Unpopular adolescents also reported more relational victimization (Gorman et al., 2011). Such results have led scholars to speculate that unpopularity may be a more distressing prospect than simply being disliked by peers (Henricks et al., 2021).

Origins and Antecedents of Popularity and Unpopularity: Conceptual Models

The purpose of this section is to describe the origins of popularity and unpopularity in middle childhood and early adolescence. Further, this section aims to delineate a conceptual framework for how affective markers of peer regard may predict popularity and unpopularity.

The Origins of Social Status in Middle Childhood and Early Adolescence

Popularity is a particularly important concept during middle childhood and early adolescence because this is the age at which children begin to take notice of stratification within the peer group and separate popularity from liking. As children enter middle childhood, they become less focused on dyadic play and more focused on integrating into the larger peer group (Gottman & Mettetal, 1986; Parker & Gottman, 1989). According to Sullivan's (1953) theory of personality development, at this age, children begin to

become increasingly preoccupied with their status in peer groups and worry about the risk of being excluded from the peer group.

Popularity and likeability demonstrate the dynamic nature of the changing social environment during middle childhood and early adolescence. Popularity and likeability are intertwined during early childhood, but they increasingly diverge during secondary school (Kosir & Pecjak, 2005; Mayeux et al., 2011). During early childhood, children do not readily distinguish liking from popularity; but by middle childhood and adolescence, the two constructs become unique such that liking is associated with affective judgements of peers and popularity is associated with peer status. At this age, children become aware that a hierarchy exists and that they occupy a potentially precarious position in it (Gottman & Mettetal, 1986; Parker & Gottman, 1989). Awareness of the emerging social hierarchy prompts children and adolescents to consider their place in the group structure and to pay closer attention to their relationships with peers. Their social goals become two-fold: status and affection.

Thus, late childhood and early adolescence are marked by an increased focus on social status (LaFontana & Cillessen, 2010; Henricks et al., 2021). Individuals strive to gain social approval (LaFontana & Cillessen, 2010) and secure a position of importance in the peer group hierarchy (Pellegrini & Long, 2002).

Social Skills as an Antecedent of Popularity and Unpopularity

Peer relationships scholars have long considered social status an observable result of social competence, in line with Ford's (1982) theory regarding how social cognition guides social behavior. According to Ford's (1982) theory, success in social situations is

fueled by successful implementation of strategies designed to attain social goals and an evaluation and refinement of the behaviors.

Popular children and adolescents are often thought of as being more socially skilled than their peers (Cillessen & Mayeux, 2004; Cillessen, 2011). This seems likely because of their ability to adeptly manipulate social relationships and their sophisticated understanding of relationship dynamics (Cillessen, 2011). This is further underscored by the fact that relational aggression, a key tool of popular children, is strongly related to social-cognitive skills (Cillessen, 2011; Andreou, 2006). Relational aggression requires a significant degree of social cognition in order to be successfully deployed against peers (Sutton et al., 1999). Similarly, LaFontana and Cillessen (2002) hypothesized that unpopular children are not necessarily disliked but are perceived as not having the social skills necessary to climb the social hierarchy. It may be that unpopularity stems from submissive, withdrawn behaviors that are caused by poor social cognition.

Popularity and the Dual-Component Model of Social Competence

Cillessen (2011) describes a dual-component model of social competence that underscores the different avenues to popularity. The dual-component model argues that the acquisition and maintenance of popularity is driven by two different types of social competence. One is communal and involves the pursuit of behavioral strategies to make others like them. The other is agentic and involves the pursuit of goals, including status and resource acquisition, and a willingness to engage in manipulative/antisocial behaviors to attain them. Being well-liked by peers maps onto the communal theme and being popular maps on to the agentic theme. This model explains processes by which an individual might be considered popular, but also disliked by their peers (Cillessen, 2011).

The model compliments the theories outlined by Hawley (2003) regarding prosocial, aggressive, and bistrategic controllers. According to both theories, the path to social success can be pursued through using prosocial, aggressive, or balanced strategies.

Cillessen's (2011) dichotomous proposition could easily be reframed to describe the impact of affective markers of peer regard and behavioral variables in the prediction of popularity. The communal theme represents the impact of peer acceptance and rejection, and the agentic theme represents strategies and behaviors. Put differently, two separate avenues to attaining popularity and unpopularity may exist: peer regard and behavioral reputation. This begs the question, which impacts popularity and unpopularity nominations more: affective markers of positive/negative regard or behavioral reputation variables?

Antecedents of Popularity: Empirical Support

Antecedents of Popularity: Affective Markers of Peer Regard

Researchers have noted trends which provide an impetus for examining affective markers of peer regard as predictors of popularity. Among elementary-aged children, popularity and likeability are positively associated with one another (Cillessen & Marks, 2011). However, the correlations between popularity and acceptance across studies tend to be low to moderate (Cillessen & Marks, 2011). Similarly, the correlation between social preference scores (acceptance – rejection) and popularity difference scores are high and positive during middle childhood and early adolescence, but decline across adolescence (Cillessen & Marks, 2011; Cillessen & Borch, 2006). A recent meta-analysis confirmed that there is a moderate, positive association between popularity and preference scores. Definitions of preference and popularity included both single-item and

combined measures of the two constructs (van den Berg et al., 2020). The meta-analysis also included longitudinal data, though a clear distinction between popularity and likeability for children in the upper grades of elementary school and the lower grades of secondary school was not observable (van den Berg et al., 2020). The authors indicate that this could be due to differences between correlational continuous and person-centered group approaches to the data.

My goal in this section is to review evidence concerning associations between affective markers of peer regard and popularity in middle childhood and early adolescence, to support the existence of a path to popularity via peer regard. Several studies have documented these associations, but most are drawn from concurrent data, which limits conclusions regarding the direction of effect given that it is plausible that popularity both shapes and is shaped by peer regard.

Associations from affective markers of peer regard to Popularity Measured as a Single Nomination Item

Two longitudinal studies demonstrate the association between affective markers of peer regard (i.e., peer acceptance and rejection) to popularity as measured by a single-item nomination score for popularity (“who is popular?”). Longitudinal findings with 4th and 5th graders failed to support the notion that acceptance predicts changes in popularity over the course of 8-12 weeks (Laursen et al., 2020). However, acceptance did predict popularity among sixth graders in this same study, contrary to what might be expected from assertions that the two constructs become increasingly separate as children enter adolescence. Similarly, in a longitudinal sample of Finnish middle school students, social preference (acceptance – rejection) was moderately, positively correlated with popularity

at two time points, but longitudinal analyses indicated that social preference did not predict changes in popularity over the course of a year (Ojanen & Findley-Van Nostrand, 2014).

Other findings from concurrent studies are consistent with the assertion that acceptance and rejection are tied to single-item measures of popularity. In a concurrent study of fourth through sixth grade children, cluster analysis demonstrated that popular/socially dominant children had a weak, negative acceptance/likeability score (Lease et al., 2002). In a concurrent study of fifth and sixth grade students comparing standard to computerized sociometric procedures, popularity was moderately to strongly correlated with acceptance in a positive direction across methods (van den Berg & Cillessen, 2012). The relation between popularity and rejection was negative and weak across procedures (van den Berg & Cillessen, 2012). Popularity also exhibited a moderate, positive association with social preference (acceptance – rejection) (van den Berg & Cillessen, 2012).

Similar results emerge from samples of youth older and younger than those included in the present study. All of these studies utilized concurrent data. Among Chinese students in the seventh through the ninth grade, strong, positive correlations between popularity and acceptance were observed within each grade (Lu et al., 2018). Two other studies of children in grades 6 to 8 reported strong, positive correlations between acceptance and popularity (Gorman et al., 2011; Marks et al., 2021). Similarly, in a sample of Slovenian students ranging from late childhood to middle adolescence, single-item nominations of popularity were found to be moderately, positively correlated to measures of social preference (acceptance – rejection) (Kosir & Pecjak, 2005).

Rejection tends to be uncorrelated or weakly, inversely correlated with popularity. For instance, two studies report weak, negative correlations between rejection and popularity in children in grades 6 to 8 (Gorman et al., 2011; Marks et al., 2021). Finally, one study of third and fourth grade children found that popularity was unrelated to concurrent rejection (Schwartz et al., 2010).

Associations from affective markers of peer regard to Popularity Measured as a Difference Score

Longitudinal associations between affective markers of peer regard and popularity difference scores appear to be more robust than those for popularity measured as a single item score, however, the evidence only comes from studies utilizing samples older and younger than the present study. Two longitudinal studies demonstrate the association of affective markers of peer regard to popularity as a difference score. In a longitudinal study of Dutch seventh and eighth grade students, likeability was moderately, positively correlated with popularity six months later (Henricks et al., 2021). In a longitudinal study of elementary students, preference in the third grade was correlated moderately and positively with popularity in the fifth grade (Rodkin et al., 2013).

Additionally, results from four concurrent studies of children the same age as those in the present study lend support to the overlap between affective markers of peer regard and popularity measured as a difference score. In one longitudinal study of children, the concurrent correlations between popularity and acceptance were strong at age 9 but decreased to almost zero by age 14 (Cillessen & Mayeux, 2004). In a concurrent study of fifth and sixth grade students, popularity was strongly correlated with acceptance in a positive direction across data collection methods (van den Berg &

Cillessen, 2012). In the same study, popularity exhibited a moderate to strong, positive association with social preference (acceptance – rejection). In two additional studies of fifth and sixth grade students, popularity and social preference exhibited moderate to strong, positive associations (Sandstrom & Cillessen, 2006; van den Berg et al., 2015). Finally, the relation between popularity and peer rejection was weak to moderately, negatively correlated across computerized and paper-pencil data collection methods in a study of fifth and sixth grade students (van den Berg, 2012).

Similar findings emerged from older samples. Two studies using samples of children and adolescents found popularity and acceptance were moderately, positively correlated (Kosir & Pecjak, 2005; Marks et al., 2021). Three studies of similarly aged participants found moderate to strong, positive correlations between popularity and social preference (acceptance – rejection) (Kosir & Pecjak, 2005; de Bruyn et al., 2010; LaFontana & Cillessen, 2002). Finally, one study utilizing three samples of seventh and eighth grade students from the United States and the Netherlands found weak to moderate, negative associations between popularity and rejection (Marks et al., 2021).

Antecedents of Popularity: Behavioral Reputation Variables

My goal in this section is to review evidence of associations between behavioral reputation and popularity in middle childhood and early adolescence. I will focus on studies that utilize a sample similar to my own, but because of the limited number of these papers, I will supplement my review of the literature with similar studies conducted in other age groups.

Aggression and Prosociality

Perhaps the best documented predictors of popularity in middle childhood and early adolescence are aggression and prosociality. Popularity is consistently associated with measures of aggression, especially relational aggression (Cillessen & Marks, 2011; Schwartz et al., 2006).

Associations from Aggression and Prosociality to Popularity Measured as a Single Nomination Item. One longitudinal study has examined the role of relational aggression in the prediction of popularity measured using a single nomination item. In a sample of third through fifth graders, both physical and relational aggression were weak, positive correlates of popularity 8-10 weeks apart. Additionally, a composite score of aggression was a significant predictor of popularity 8-10 weeks later (Yoho et al., 2022).

One longitudinal study has examined the association between prosociality and popularity (Bowker et al., 2010). The results indicated that prosociality was moderately correlated with popularity both concurrently and across the transition to middle school. Additionally, prosociality contributed to gains in popularity according to multinomial logistic regression results.

Four additional, concurrent studies using samples of children in grades four through six identify associations from aggression and prosociality to popularity measured with a single nomination item. Three studies indicated that relational aggression was positively associated with popularity (Lease et al., 2002; van den Berg et al., 2015; Laursen et al., 2020). Two studies indicated that physical aggression was positively related to popularity (van den Berg & Cillessen, 2012; Laursen et al., 2020). Finally, three studies indicated that prosocial behaviors were weakly to moderately correlated

with popularity in a positive direction (van den Berg & Cillessen, 2012; van den Berg et al., 2015; Laursen et al., 2020).

Additional studies have yielded similar results. One longitudinal study of older adolescents found a weak, positive correlation between relational aggression and popularity (Dumas et al., 2019). Five concurrent studies find evidence of positive relations between relational aggression and popularity in students from grade three to nine (Schwartz et al., 2010; Gorman et al., 2011; Lu et al., 2018; Hartl et al., 2020; Marks et al., 2021). One concurrent study found a moderate, positive association between popularity and physical aggression for students in grades seven and eight (Hartl et al., 2020). Finally, three studies found evidence of weak to strong, positive associations between popularity and prosociality among students in grades seven and eight (Gorman et al., 2011; Hartl et al., 2020; Marks et al., 2021).

Associations from Aggression and Prosociality to Popularity Measured as a Difference Score. Results from studies using popularity difference scores are similar to results of studies utilizing single-item nominations of popularity. In a longitudinal study of elementary students, results indicated that both prosocial and aggressive behavior in grade three were significant predictors of popularity in grade five (Rodkin et al., 2013).

Two additional, concurrent studies help to clarify the role aggression and prosociality play in the prediction of popularity as a difference score. Among fifth graders, popularity was moderately and positively related to both prosociality and relational aggression (Sandstrom & Cillessen, 2006). In another study of fifth and sixth grade students, popularity was moderately, positively correlated with prosocial behavior

and weakly, positively associated with physical aggression across paper-pencil and computerized data collection methods (van den Berg & Cillessen, 2012).

Similar findings emerge from concurrent studies using older samples. Three studies of students in grades four through nine found moderate to strong, positive associations between popularity and relational aggression (LaFontana & Cillessen, 2002; Malamut et al., 2020; Marks et al., 2021). Two studies found weak to moderate, positive correlations between popularity and prosociality in samples of children in grades four through eight (LaFontana & Cillessen, 2002; Marks et al., 2021).

Submissive/Withdrawn Behaviors

Some evidence exists supporting a negative association between popularity and submissive/withdrawn behaviors, though much of this work has been limited to older adolescents; less is known about associations during middle childhood and early adolescence. Additionally, one relevant study of withdrawal and popularity relied on parent and teacher ratings instead of peer nominations. The study found that parent and teacher reported withdrawal in kindergarten was weakly, negatively correlated with teacher and parent reported popularity in first grade (Eggum-Wilkens et al., 2014). The following section reviews the available empirical work using single indicator measures and difference scores for popularity.

Associations from Submissive/Withdrawn behaviors to Popularity Measured as a Single Nomination Item. No longitudinal studies have examined the role of withdrawn behavior in the prediction of popularity as a single nomination item. Two concurrent studies examine the association between withdrawn behavior and popularity measured using a single nomination measure. Among Chinese third and fourth grade

students, the association between popularity and withdrawn behavior was weak and negative (Schwartz et al., 2010). In a concurrent study of fifth and sixth grade students, popularity was moderately correlated with withdrawn social behavior in a negative direction across data collection methods (van den Berg & Cillessen, 2012).

Associations from Submissive/Withdrawn behaviors to Popularity Measured as a Difference Score. A single longitudinal study has examined the role of withdrawn behavior in the prediction of popularity as a difference score. The study found that among sixth graders, withdrawn behavior was weakly, negatively correlated with popularity 3 months later (Markovic & Bowker, 2015).

Three concurrent studies help to clarify the role withdrawn behavior plays in the prediction of popularity using difference scores. Low popular girls in early adolescence demonstrate more submissive behavior during peer interactions (Lansu & Cillessen, 2015). Among fifth graders, popularity was strongly and negatively related to withdrawal (Sandstrom & Cillessen, 2006). In a concurrent study of fifth and sixth grade students, the associations between popularity and withdrawal were strong and negative across data collection methods (van den Berg & Cillessen, 2012).

Positive Social Attributes: Academic Achievement and Being Fun

Finally, some evidence supports claims that popularity is associated with academics and positive social behaviors during middle childhood and early adolescence. Academic success is a common correlate of popularity (Parkhurst & Hopmeyer, 1998). In a large sample of African American children who participated in semi-structured interviews about their peers, “studentship,” a combination of good grades and good behavior, was positively associated with popularity among fourth graders, but not among

seventh graders (Xie et al., 2006). Despite this evidence, Cluster analysis has indicated that among subgroups of popular girls some are “studious”, and others are “disengaged” (de Bruyn & Cillessen, 2006).

Associations from Positive Social Attributes to Popularity Measured as a Single Nomination Item. Two longitudinal study have examined the role of being fun and academic achievement in the prediction of popularity as measured using a single-nomination item. Among fourth through sixth graders in the United States, being fun was positively related to popularity both concurrently and longitudinally (Laursen et al., 2020). In a second study, results indicated that among early adolescents in China and the United States, prosociality predicted popularity over three waves of data (Zhang et al., 2018). Additionally, in a concurrent sample of Colombian fourth through sixth graders, popularity was positively correlated with concurrent perceptions of being fun (Laursen et al., 2020).

Two longitudinal studies examine the prediction of popularity from academic engagement. The results indicate that among Chinese early adolescents, academic engagement predicted popularity across three waves of data (Zhang et al., 2018). The same study employed a sample of adolescents from the United States, but the results of this model did not replicate (Zhang et al., 2018). In a large study of Dutch adolescents, GPA measured at Time 1 had negative associations, both concurrently and longitudinally, with popularity (Lanina-Wijnen et al., 2019).

Concurrent studies may help to clarify the role academic achievement plays in the prediction of popularity using a single nomination item. In a concurrent sample of Colombian fourth through sixth graders, popularity was positively correlated with

academic achievement (Laursen et al., 2020). Results from a sample of fourth through sixth graders in the United States indicated that academic achievement was concurrently, positively related to popularity in fourth and fifth graders, though the correlation was weaker for sixth grade students (Laursen et al., 2020).

Associations from Positive Social Attributes to Popularity Measured as a Difference Score. No longitudinal studies appear to have examined the role of academic achievement in the prediction of popularity measured as a difference score. Two concurrent studies provide information on the associations between academic achievement and popularity when measured as a difference score. In one study of children in grades four through eight, academic ability was weakly correlated with popularity (LaFontana & Cillessen, 2002). The second study attempted to predict popularity from social intelligence and academic achievement (Meijs et al., 2010). Hierarchical regression results indicated that social intelligence was a significant predictor of popularity, but not academic achievement.

Antecedents of Unpopularity: Empirical Support

Antecedents of Unpopularity: Affective Markers of Peer Regard

My goal in this section is to review evidence of associations between affective markers and unpopularity in middle childhood and early adolescence. I will focus on studies with participants in grades four through six, but because these papers may be limited in number, I will supplement my review of the literature with similar studies conducted with younger children and older adolescents. The previous sections delineated between studies using single nomination measures and difference scores to assess popularity, but no such distinction is needed in the assessment of empirical research on

unpopularity. All measures of unpopularity are single item nominations; difference scores are assumed to measure popularity, not unpopularity. Unpopularity has been documented to have some relation to acceptance and rejection, though work with this construct is quite limited.

One longitudinal study has examined the role of peer rejection in the prediction of unpopularity. Results from a short-term longitudinal study of middle adolescents found significant, but weak positive correlations between peer rejection measured at the end of grade nine and unpopularity measured at the end of grade ten (Schwartz et al., 2013).

Three additional, concurrent studies help to clarify the association between affective markers of peer regard and concurrent unpopularity. In a concurrent study of fourth through sixth grade children, cluster analysis demonstrated that unpopular children tended to have average acceptance/likeability scores (Lease et al., 2002). In a concurrent study of fifth and sixth grade students, unpopularity was strongly correlated with both acceptance and social preference (acceptance – rejection) in a negative direction (van den Berg & Cillessen, 2012). In two separate studies of early adolescents, unpopularity was moderately to strongly correlated with rejection in a positive direction (Gorman et al., 2011; van den Berg, 2012).

Results from studies conducted using mid and late adolescents were mixed. In a recent concurrent study utilizing three samples of seventh and eighth grade students from the United States and the Netherlands, there were moderate, negative associations between unpopularity and acceptance, and moderate, positive associations between unpopularity and rejection (Marks et al., 2021). Unexpectedly, in a sample of Slovenian students ranging from late childhood to middle adolescence, measures of unpopularity

were moderately, positively correlated with both peer acceptance and social preference (acceptance – rejection) measures (Kosir & Pecjak, 2005).

Antecedents of Unpopularity: Behavioral Reputation Variables

My goal in this section is to review evidence of the association between behavioral reputation and unpopularity during middle childhood and early adolescence. I will focus on studies during middle childhood and early adolescence, but because these papers may be limited in number, I will supplement my review of the literature with similar studies conducted on older age groups.

Withdrawn and Submissive Behaviors

The limited evidence available suggests that withdrawn and submissive behaviors are strong correlates of unpopularity, although no longitudinal studies have examined the role of withdrawn and submissive behaviors in the prediction of unpopularity. Two concurrent studies documented positive associations between unpopularity and withdrawn social behaviors in fourth through sixth grade students (Lease et al., 2002; van den Berg & Cillessen, 2012).

Results from studies that included older adolescents were mixed. In a concurrent study of fourth through eighth grade students, withdrawal was moderately, negatively correlated with popularity (LaFontana & Cillessen, 2002). However, in a sample of sixth and seventh grade students, withdrawal was moderately, positively correlated with unpopularity (Gorman et al., 2011). Finally, older adolescents who peers identified as withdrawn also received more unpopular nominations (Pouwels et al., 2016).

Aggression and Prosociality

Aggression and prosociality are also correlated with unpopularity. In semi-structured interviews, the defining feature of unpopularity among children in grades four through eight, was perceptions of antisocial behavior (LaFontana & Cillessen, 2002). Children in grades four and five associate physical aggression more with unpopularity than with popularity (LaFontana & Cillessen, 2002). Similarly, boys in grades four through six associated relational aggression with unpopular, but not popular peers (LaFontana & Cillessen, 2002). This trend began to reverse in grades seven and eight.

No longitudinal studies have examined the role of aggression or prosociality in the prediction of unpopularity. In a concurrent study of fifth and sixth grade students, unpopularity was moderately, negatively correlated with prosocial behavior (van den Berg & Cillessen, 2012). The association between unpopularity and physical aggression had mixed results, such that the association was statistically significant for data collected using the computerized procedure but not the paper-pencil procedure (van den Berg & Cillessen, 2012). Additional studies have examined associations among older adolescents. In sixth and seventh graders, unpopularity was weakly, positively correlated with prosociality (Gorman et al., 2011). In a recent concurrent study utilizing three samples of seventh and eighth grade students from the United States and the Netherlands, there were weak, negative associations between unpopularity and relational aggression and weak to moderate, negative associations between unpopularity and prosociality (Marks et al., 2021).

Academic Achievement

Finally, academic prowess has been linked to unpopularity in middle childhood and early adolescence. Unpopular children in grades four through five have been described as being less academically competent by their peers in semi-structured interviews (LaFontana & Cillessen, 2002). Given the limited number of studies that address middle childhood and early adolescence, we must also consider evidence from studies utilizing older adolescent samples.

Two longitudinal studies have examined the role academic achievement plays in the prediction of unpopularity. Results of the first study suggested that prioritizing academics during the ninth grade can lead to increased unpopularity by the end of the tenth grade (Schwartz et al., 2021). In a large study of Dutch adolescents, GPA measured at Time 1 had positive associations, both concurrently and longitudinally, with unpopularity (Laninga-Wijnen et al., 2019). No concurrent studies were found examining relations between unpopularity and academic achievement.

Antecedents of Popularity and Unpopularity in Studies Using Both Affective Markers of Peer Regard and Behavioral Reputation Variables: Empirical Evidence

No longitudinal studies exist in which both affective markers of peer regard and behavioral reputation variables were used to predict popularity or unpopularity. Only two concurrent studies did. With regard to behavioral variables, both studies focused exclusively on measures of aggression, ignoring potential predictors such as prosociality, withdrawn behaviors, and academic achievement.

In the first study, popularity was measured using a difference score, as opposed to a single nomination item. The study used hierarchical regression models to find that

among children and adolescents in grades five and six, relational aggression and physical aggression, entered in a later step, were both weak, positive indicators of popularity, after controlling for the contribution of social preference (acceptance – rejection), which, entered at an earlier step, was positively associated with popularity (Cillessen & Mayeux, 2004). The order of entry was not reversed, so it is not clear whether social preference predicted popularity after controlling for the contribution of aggression.

In the second study, popularity was measured using a single nomination item. Using regression analyses to predict concurrent popularity in a cohort of Chinese adolescents in middle and high school, researchers found that after controlling for gender and acceptance, overt and relational aggression were significant predictors of popularity during the seventh and eighth grade (Lu et al., 2018). However, relational aggression was only a significant predictor of popularity among students in the eighth grade.

The Current Study

The Literature Gap

The evidence suggests that affective markers of peer regard may predict changes in popularity and unpopularity among children and adolescents. A quick summary of the literature indicates that popularity is both longitudinally and concurrently associated with peer acceptance and preference, but not rejection. Unpopularity is longitudinally associated with peer rejection and is concurrently associated with peer acceptance and preference.

Additionally, strong longitudinal and concurrent evidence suggests that peer reputation predicts changes in popularity and unpopularity. Popularity is associated positively with relational aggression and being fun, according to longitudinal and

concurrent evidence. Additional concurrent evidence associates popularity positively with prosociality and academic success and negatively with withdrawal. The majority of research on unpopularity involves concurrent data and indicates that unpopularity is positively correlated with withdrawn behaviors. Unpopularity may also be related to differing forms of aggression, but the evidence is mixed. Limited evidence ties unpopularity to academic success and (inversely) prosociality.

Few studies include both affective markers of peer regard and behavioral reputation variables, making it difficult to determine the true origins of popularity and unpopularity. Both of these studies have been reliant on concurrent data and focused primarily on aggressive behaviors. Acceptance and rejection are also strongly correlated with behavioral predictors of popularity. As a consequence, the relative importance of each cannot be gleaned from separate studies of different predictors. Thus, the main point of my study is to determine the relative importance of affective markers of peer regard and behavioral reputation in predicting longitudinal changes in popularity and unpopularity. In so doing, we will better understand the origins of popularity and unpopularity and the factors that lead to changes in status over the course of a semester.

The Current Study

The current study was designed to disentangle the effects of affective markers of peer regard from behavioral reputation variables in the prediction of popularity and unpopularity. It was essential that longitudinal data be used to address this topic as it allowed me to establish the order of effects, a necessary precondition to causality (Bukowski & Newcomb, 1984). In the first step of the procedure, cross-lagged panel models utilizing two waves of data were used to identify reputational measures that

predict changes in popularity and unpopularity. Cross-lagged panel models are often useful for identifying relations between variables in a longitudinal framework (Selig & Little, 2012). In the second step of the procedure, the identified predictors were used in a hierarchical regression. Hierarchical regression analyses were used to separate the unique contributions of affective markers of peer regard from those of behavioral reputation variables in the longitudinal prediction of popularity and unpopularity. By using a hierarchical approach, the current study sequentially tested the contributions of affective markers and behavioral reputation variables, isolating the unique contributions each set of predictors made towards social status.

Research Questions and Hypotheses

Which measures of behavioral reputation predict changes in popularity?

Consistent with previous evidence of associations between popularity and aggression/prosociality (Yoho et al., 2022; van den Berg & Cillessen, 2012), withdrawn behaviors (Schwartz et al., 2010; van den Berg et al., 2015), being fun (Laursen et al., 2020), and academic success (LaFontana & Cillessen, 2002), I hypothesized that both physical and relational aggression, prosociality, and being fun would be positively associated with changes in popularity and that shyness and academic achievement would be negatively associated with changes in popularity.

Which measures of behavioral reputation predict changes in unpopularity?

Consistent with previous findings of evidence of associations between unpopularity and withdrawn behaviors (Lease et al., 2002; van den Berg & Cillessen, 2012; Gorman et al., 2011), aggression and prosociality (van den Berg & Cillessen, 2012; Gorman et al., 2011; Marks et al., 2021), and academic success (Schwartz et al., 2013), I hypothesized that

physical aggression and shyness would be positively associated with changes in unpopularity and that relational aggression, prosociality, academic achievement, and being fun would be negatively associated with changes in unpopularity.

Does behavioral reputation predict changes in popularity over and above the contributions of affective markers of peer regard? Consistent with previous concurrent findings (Cillessen & Mayeux, 2004; Lu et al., 2018), I hypothesized that the behavioral reputation variables which emerge from the cross-lag analyses would remain significant predictors of popularity after accounting for the contribution of affective markers. These results would indicate that behaviors are uniquely important drivers of popularity, with contributions that extend past variance shared with affective markers of peer regard.

Does behavioral reputation predict changes in unpopularity over and above the contributions of affective markers of peer regard? Consistent with previous findings (Cillessen & Mayeux, 2004; Lu et al., 2018), which found that measures of aggression better explained variance in popularity than did measures of peer acceptance, I hypothesized that the behavioral reputation variables which emerge from the cross-lag analyses would remain significant predictors of unpopularity after accounting for the contribution of affective markers. These results would indicate that behaviors are uniquely important drivers of unpopularity, with contributions that extend past variance shared with affective markers of peer regard.

Do affective markers of peer regard predict changes in popularity over and above the contributions of behavioral reputation? Given the limited availability of studies which explore the prediction of popularity using both behavior and affective markers, it was necessary to explore the possibility that affective markers of peer regard may predict

changes in popularity more effectively than behavioral reputation. If peer regard was a greater predictor of social status than behavioral reputation variables, I would expect affective markers to remain significant predictors of popularity after accounting for the effects of behavioral variables. These results would indicate that peer regard is a uniquely important driver of popularity, with contributions that extend past variance shared with behavioral reputation.

Do affective markers of peer regard predict changes in unpopularity over and above the contributions of behavioral reputation? Given the limited availability of studies which explore the prediction of popularity using both behavior and affective markers, it was necessary to explore the possibility that affective markers of peer regard may predict changes in popularity more effectively than behavioral reputation. If peer regard was a greater predictor of social status than behavioral reputation variables, I would expect affective markers to remain significant predictors of unpopularity after accounting for the effects of behavioral variables. These results would indicate that peer regard is a uniquely important driver of unpopularity, with contributions that extend past variance shared with behavioral reputation.

METHOD

Participants

Participants included 292 students (168 girls, 124 boys) drawn from a university-affiliated public-school representative of the state of Florida in terms of ethnicity and socioeconomic status. Participants were enrolled in grades 4 through 6. There were 48 fourth-grade boys, 42 fourth-grade girls, 41 fifth-grade boys, 66 fifth-grade girls, 35 sixth-grade boys, and 60 sixth-grade girls. Fourth graders ranged in age from 9 to 11 years old ($M=9.52$ years, $SD=0.52$), fifth graders ranged in age from 10 to 12 years old ($M=10.58$ years, $SD=0.55$), and sixth graders ranged in age from 11 to 13 years old ($M=11.47$ years, $SD=0.54$).

Procedure

Letters describing the study and requesting consent for participation were sent to the parents of all students. Both parental consent and student assent were required for participation. School officials and the university IRB approved the project (#392587). Valid and reliable unlimited peer nomination data requires participation rates of at least 60% of all potential same-sex participants within a class (Grades 4 and 5) or within a grade (Grade 6) (Cillessen, 2009). Classrooms (4 out of 28) that did not meet this criterion were excluded from the study. In the 24 remaining classrooms, participation rates ranged from 64% to 100% ($M=74.13\%$).

Two waves of data were collected in February and April 2014. The assessments were spaced 8 weeks apart. This short-term longitudinal design is advantageous because significant changes in peer status and relationships can occur over the course of a school year (Bowker et al., 2006; Schwartz et al., 2006). While 8 weeks seems short, this timeframe (approximately half of a semester) represents a significant amount of time in the lives of children and early adolescents (Laursen et al., 2020).

Researchers and trained research assistants administered the questionnaires in class during regular school hours. Each testing session took approximately 45 minutes for participants to complete. Students were provided with testing shields to ensure their privacy. Students who were absent on the testing day completed the assessments the following week.

287 students participated at Wave 1 and 289 students participated at Wave 2. A total of 284 students participated in both waves of data collection. There were no statistically significant differences between students who participated in one or both waves of data collection on any study or demographic variables.

Measures

At each wave of data collection, participants completed a peer nomination inventory (Bukowski et al., 2012). For each nomination item, students were given a roster of classmates (Grades 4 and 5) or grade-mates (Grade 6), on which they circled the names of those who best fit the description. Unlimited same-sex nominations were permitted, but self-nominations were not. Same-sex nominations were used to limit the effects of gender stereotyping and (for 6th graders) to prevent taxing students by

providing too many potential nominees (Rubin et al., 2006). Additionally, children are more knowledgeable of same-sex peers than cross-sex peers (Cillessen & Marks, 2011). A regression-based procedure that accounts for potential biases in scores due to variations in the size of the group was used to standardize participant scores and to adjust for the number of participants in each class (Velasquez et al., 2013).

Popularity and Unpopularity. Participants nominated *popular* classmates (“Someone who is popular”) and *unpopular* classmates (“Someone who is not popular”) (LaFontana & Cillessen, 2002).

Behavioral Reputation. Participants nominated *physically aggressive* classmates (“Someone who hits, pushes, or shoves people”) and *relationally aggressive* classmates (“Someone who talks bad about others behind their backs to hurt them”) (Bukowski et al., 2009). Participants also nominated *prosocial* classmates (“Someone who helps others with their problems”) (Masten et al., 1985), *fun* classmates (“Someone who is fun to be around”) (Laursen et al., 2020), *shy* classmates (“Someone who is shy”) (Burgess et al., 2003), and classmates who demonstrate *academic achievement* (“Someone who does well in school”) (Graham, et al., 1998).

Affective Markers of Peer Regard. Peer regard was assessed using a roster and rating procedure (Singleton & Asher, 1977). Participants were provided with a list of same-sex classmates (Grades 4 and 5) or grade-mates (Grade 6) and were instructed to rate how much they liked each on a scale that ranged from 1 (“do not like this person”) to 5 (“like this person very much”). Ratings were transformed into dichotomous nominations to parallel nomination data (Cillessen et al., 1992; Erdley et al., 1998). Ratings of “5” were scored as a liked-most nomination, which were used to assess *peer*

acceptance. Ratings of “1” were scored as a liked-least nomination, which were used to assess *peer rejection*. This method is considered sound as individuals with high or low average liking ratings have homogenous high or low numbers of acceptance and rejection scores, respectively (Bukowski et al., 2000). Further, whereas a liking scale incorporates and combines two affective measures which are related, but not entirely oppositional into one measure (Bukowski et al., 2000), converting ratings to separate indicators allows each affective measure to represent itself.

Plan of Analysis

The analyses were designed to explore the degree to which affective markers of peer regard and behavioral reputation are unique predictors of longitudinal changes in popularity and unpopularity. The first set of analyses described the longitudinal associations from Time 1 behavioral reputation variables to Time 2 popularity and unpopularity. The goal of these cross-lagged panel models was to identify, out of several potential candidates, the classroom variables that uniquely predicted changes in popularity and unpopularity. Each model included physical aggression, relational aggression, prosociality, fun, shyness, and academic achievement as predictor variables. The variables identified from these analyses were then be used in the second set of analyses, which explored the prediction of unpopularity and popularity using affective markers of peer regard and behavioral reputation variables. The goal of the regression analyses was to disentangle the contributions of behavioral reputation from the contributions of acceptance and rejection in the prediction of popularity and unpopularity. In addition to popularity or unpopularity, the regressions included all statistically

significant behavioral reputation variables identified in the cross-lagged analyses as predictors of popularity or unpopularity.

Cross-lagged panel models. Path analyses were conducted in a structural equation-modeling framework using Mplus v8.0 (Muthén & Muthén, 2017) ML estimation with robust standard errors. In these models, the autoregressive paths represent over time stability and the cross-lagged paths represent the extent to which one variable predicts change in the other (Selig & Little, 2012; Little, 2013). Random intercept cross-lagged panel models would have been preferred to autoregressive cross-lagged panel models but are not possible with only two waves of data (Ludtke & Robitzsch, 2021).

Which measures of behavioral reputation predict longitudinal changes in popularity? Figure 1 depicts the model. The analyses described longitudinal associations from six behavioral reputation variables at Time 1 to popularity at Time 2. Statistically significant predictors of popularity indicated that these variables predict change in popularity, exclusive of the contribution of affective markers of peer regard. All statistically significant variables were included in subsequent regression analyses.

Which measures of behavioral reputation predict longitudinal changes in unpopularity? Figure 2 depicts the model. The analyses described longitudinal associations from six behavioral reputation variables at Time 1 to unpopularity at Time 2. Statistically significant predictors of unpopularity indicated that these variables predict change in unpopularity, exclusive of the contribution of affective markers of peer regard. All statistically significant variables were included in subsequent regression analyses.

In addition to the two models outlined above, I conducted the same cross-lagged panel analyses including both popularity and unpopularity in the same model to control for the overlap between the two. Figure 3 depicts the measurement model. All statistically significant variables were included in subsequent regression analyses.

Regression analyses. The second set of analyses identified the unique contributions of behavioral reputation and affective markers of peer regard in the prediction of popularity and unpopularity. These analyses were conducted using IBM SPSS. Hierarchical regression analyses were conducted in order to disentangle (by entering variables on different steps) the unique contributions of affective markers of peer regard and behavioral reputation in the prediction of changes in popularity and unpopularity.

Does behavioral reputation predict changes in popularity over and above the contributions of affective markers of peer regard? Baseline measures of popularity were included in step 1 of the model along with student grade and gender. Step 2 of the model included peer acceptance and rejection. The behavioral reputation variables that emerged as significant predictors in the cross-lagged panel models were included in step 3. Should the behavioral reputation variables be statistically significant after accounting for the effect of affective markers of peer regard, it would indicate that behavioral reputation uniquely predicts popularity with variance that is distinct from that of peer regard. Should the results be non-significant after accounting for the effects of affective markers of peer regard, it would indicate that behavioral reputation variables only anticipate popularity to the extent that they share variance with affective markers of peer regard.

Does behavioral reputation predict changes in unpopularity over and above the contributions of affective markers of peer regard? Baseline measures of unpopularity were included in step 1 of the model along with student grade and gender. Step 2 of the model included peer acceptance and rejection. The behavioral reputation variables that emerged as significant predictors in the cross-lagged panel models were included in step 3. Should the behavioral reputation variables be statistically significant after accounting for the effect of affective markers of peer regard, it would indicate that behavioral reputation uniquely predicts unpopularity with variance that is distinct from that of peer regard. Should the results be non-significant after accounting for the effects of affective markers of peer regard, it would indicate that behavioral reputation variables only anticipate unpopularity to the extent that they share variance with affective markers of peer regard.

Do affective markers of peer regard predict changes in popularity over and above the contributions of behavioral reputation? Baseline measures of popularity were included in step 1 of the model along with student grade and gender. The behavioral reputation variables that emerged as significant predictors in the cross-lagged panel models will be included in step 2. Step 3 of the model included peer acceptance and rejection. Should the affective markers of peer regard be statistically significant after accounting for the effect of behavioral reputation variables, it would indicate that affective markers of peer regard uniquely predict popularity with variance that is distinct from that of behavioral measures. Should the results be non-significant after accounting for the effects of behavioral variables, it would indicate that affective markers only

anticipate popularity to the extent that they share variance with associated behavioral variables.

Do affective markers of peer regard predict changes in unpopularity over and above the contributions of behavioral reputation? Baseline measures of unpopularity were included in step 1 of the model along with student grade and gender. The behavioral reputation variables that emerged as significant predictors in the cross-lagged panel models were included in step 2. Step 3 of the model included peer acceptance and rejection. Should the affective markers of peer regard be statistically significant after accounting for the effect of behavioral reputation variables, it would indicate that affective markers of peer regard uniquely predict unpopularity with variance that is distinct from that of behavioral measures. Should the results be non-significant after accounting for the effects of behavioral variables, it would indicate that affective markers only anticipate unpopularity to the extent that they share variance with associated behavioral variables.

Supplemental analyses for regression models. Additional analyses explored participant sex and grade as potential moderators of the hypothesized relationships by including each in interaction terms in the final step of the regression models.

The first model included Time 1 popularity, gender, and grade at Step 1, Time 1 acceptance and rejection at Step 2, and Time 1 measures of behavioral reputation at Step 3. At Step 4, interactions composed of the predictor variables (Time 1 popularity, acceptance, rejection, and behavioral reputation measures) multiplied by the potential moderator (gender) were entered into the model.

The second model included Time 1 unpopularity, gender, and grade at Step 1, Time 1 acceptance and rejection at Step 2, and Time 1 measures of behavioral reputation at Step 3. At Step 4, interactions composed of the predictor variables (Time 1 unpopularity, acceptance, rejection, and behavioral reputation measures) multiplied by the potential moderator (gender) were entered into the model.

The third model included Time 1 popularity, gender, and grade at Step 1, Time 1 measures of behavioral reputation at Step 2, and Time 1 measures of acceptance and rejection at Step 3. At Step 4, interactions composed of the predictor variables (Time 1 popularity, acceptance, rejection, and behavioral reputation measures) multiplied by the potential moderator (grade) were entered into the model.

The fourth model included Time 1 unpopularity, gender, and grade at Step 1, Time 1 measures of behavioral reputation at Step 2, and Time 1 measures of acceptance and rejection at Step 3. At Step 4, interactions composed of the predictor variables (Time 1 unpopularity, acceptance, rejection, and behavioral reputation measures) multiplied by the potential moderator (grade) were entered into the model.

Additional supplemental regression models included both measures of popularity and unpopularity. These models repeated the steps of all previously outlined models but also included the opposite measure of social status at Step 2. For example, in a model testing the prediction of popularity, the model included the Time 1 popularity, gender, and grade at Step 1, the Time 1 measure of unpopularity at Step 2, Time 1 measures of acceptance and rejection at Step 3, and Time 1 measures of behavioral reputation at Step 4. In models testing for interactions, interaction terms composed of the predictor variables (Time 1 un/popularity, acceptance, rejection, and behavioral reputation

measures) multiplied by the potential moderator (grade) were entered into the models at Step 5.

Missing Data

Wave level missingness was minimal (less than 1%). Little's MCAR test (Little & Rubin, 1987) indicated that data were missing completely at random, $\chi^2 (20) = 18.13, p = .58$. Because all participants were the subject of peer nominations, data were available for all participants at each wave despite absences.

RESULTS

Preliminary Analyses

Table 1 presents the concurrent correlations between all study variables. There were statistically significant ($p < .05$) negative correlations between popularity and unpopularity at both time points. Popularity was positively correlated with acceptance, prosociality, being fun, and academic achievement at both time points, and negatively correlated with rejection, physical aggression, and shyness at both time points. Unpopularity was positively correlated with rejection, physical aggression, and shyness at both time points and with relational aggression at Time 1 only. Unpopularity was negatively correlated with acceptance, prosociality, and being fun at both time points.

Table 2 presents the longitudinal correlations for all study variables. Time 2 popularity was significantly, positively correlated with acceptance, prosociality, being fun, and academic achievement at Time 1. Time 2 popularity was significantly, negatively correlated with unpopularity, rejection, physical aggression, and shyness at Time 1. Time 2 unpopularity was significantly, positively correlated with rejection, physical aggression, and shyness at Time 1. Time 2 unpopularity was negatively correlated with popularity, acceptance, prosociality, and being fun at Time 1. All autocorrelations were significant and positive.

Mixed model ANOVAs were conducted with gender (boys, girls) and grade (4, 5, 6) as between-subjects factors and time (Time 1 and 2) as the repeated measure. Given

the absence of hypotheses concerning differences, a Bonferroni adjustment was applied to protect against Type I error.

There was a main effect of time on acceptance, which decreased from Time 1 to Time 2, $F(2, 286) = 30.829, p < .001, d = 0.19$. There was a statistically significant time by gender interaction for unpopularity, $F(2, 286) = 14.131, p < .001$. Follow-up *t*-tests revealed a significant increase from Time 1 to Time 2 in unpopularity among boys ($d = 0.36$) but not among girls ($d = 0.03$). Finally, there were time by grade interactions for popularity, $F(2, 286) = 5.612, p = .004$, acceptance, $F(2, 286) = 6.071, p = .003$, and academic achievement, $F(2, 286) = 5.632, p = .004$. There was a significant decrease from Time 1 to Time 2 in popularity among fifth graders ($d = 0.14$) and sixth graders ($d = 0.10$), but not among fourth graders ($d = 0.12$). There was a significant decrease from Time 1 to Time 2 in acceptance among fifth graders ($d = 0.19$) and sixth graders ($d = 0.25$), but not among fourth graders ($d = 0.10$). There was a significant decrease in academic achievement from Time 1 to Time 2 among fifth graders ($d = 0.19$) and a significant increase among sixth graders ($d = 0.10$); there was no significant change in academic achievement among fourth graders ($d = 0.01$).

Cross-lagged Panel Models to Identify Behavioral Reputation Variables that Predict Popularity and Unpopularity

Table 3 presents the results from the fully saturated model examining the longitudinal prediction of popularity from behavioral measures. Statistically significant positive associations emerged for Time 1 being fun to Time 2 popularity ($\beta = .14, p = .004$), and from Time 1 prosociality to Time 2 popularity ($\beta = .07, p = .02$); a negative association emerged from Time 1 academic achievement to Time 2 popularity ($\beta = -.08,$

$p = .02$). There were no borderline ($p < .10$) statistically significant predictors of Time 2 popularity.

Table 4 presents the results of the model examining the longitudinal prediction of unpopularity from behavioral measures. A statistically significant negative association emerged for Time 1 prosociality to Time 2 unpopularity ($\beta = -.09, p = .03$) and a statistically significant positive association emerged from Time 1 academic achievement to Time 2 unpopularity ($\beta = .09, p = .03$). A borderline significant negative association emerged for Time 1 being fun to Time 2 unpopularity ($\beta = -.07, p = .09$).

Table 5 presents the results of the model examining the longitudinal prediction of popularity and unpopularity from behavioral measures. There was a statistically significant positive association from Time 1 being fun to Time 2 popularity ($\beta = .13, p = .01$) and a negative association from Time 1 unpopularity to Time 2 popularity ($\beta = -.18, p < .001$). A statistically significant positive association emerged for Time 1 academic achievement to Time 2 unpopularity ($\beta = .10, p = .03$). A statistically significant negative association emerged for Time 1 prosociality to Time 2 unpopularity ($\beta = -.09, p = .02$) and from Time 1 popularity to Time 2 unpopularity ($\beta = -.13, p = .04$). There were no borderline ($p < .10$) statistically significant predictors of popularity or unpopularity. The full results of the cross-lagged panel model are presented in Table 5.

Taken together, these results indicated that prosociality, being fun, and academic achievement had statistically significant associations with either popularity or unpopularity and should therefore be included in the regression analyses. Neither measure of aggression nor shyness demonstrated statistically significant or borderline

significant associations with popularity or unpopularity. Therefore, these variables were excluded from the regression analyses.

Hierarchical Regression Analyses to Assess the Relative Contributions of Affective Markers and Behavioral Reputation Variables to Changes in Popularity and Unpopularity

A hierarchical regression model was created to assess the degree to which behavioral reputation variables are unique predictors of change in popularity, after controlling for the contribution of affective markers of peer regard. To this end, demographic variables (grade, gender) and Time 1 popularity were entered in step 1 of the model, Time 1 affective markers of peer regard (acceptance, rejection) were entered at step 2 of the model, and Time 1 behavioral reputation variables (fun, academic achievement, prosociality) were entered in step 3 of the model. Table 6 summarizes the results. The regression model predicted 77% of the variance at step 1, $F(3, 291) = 322.39$, $p < .001$; 78% of the variance at step 2, $F(5, 291) = 200.68$, $p < .001$; and 78% of the variance at step 3, $F(9, 291) = 128.36$, $p < .001$. In step 1, grade was a negative predictor of popularity, indicating that popularity increased more in younger than in older students. In step 2, acceptance was a positive predictor of popularity, such that higher levels of initial acceptance predicted greater increases in popularity. In step 3, fun was a positive predictor of popularity, such that higher initial levels of fun predicted greater increases in popularity, after controlling for the contribution of demographic variables and affective markers of peer regard.

A hierarchical regression model was created to assess the degree to which behavioral reputation variables are unique predictors of change in unpopularity, after

controlling for the contribution of affective markers of peer regard. To this end, demographic variables (grade, gender) and Time 1 unpopularity were entered in step 1 of the model, Time 1 affective markers of peer regard (acceptance, rejection) were entered at step 2 of the model, and Time 1 behavioral reputation variables (fun, academic achievement, prosociality) were entered in step 3 of the model. Table 7 summarizes the results. The regression model predicted 68% of the variance at step 1, $F(3, 291) = 202.93$, $p < .001$; 68% of the variance at step 2, $F(5, 291) = 121.26$, $p < .001$; and 70% of the variance at step 3, $F(9, 291) = 81.14$, $p < .001$. In step 1, grade was a positive predictor of unpopularity, indicating that unpopularity increased more in older than in younger students. Gender was also a positive predictor in step 1, indicating that increases in unpopularity were greater for boys than for girls. In step 2, neither acceptance nor rejection were significant predictors of unpopularity. In step 3, fun was a negative predictor of unpopularity, such that lower initial levels of fun predicted greater increases in unpopularity, after controlling for the contribution of demographic variables and affective markers of peer regard.

A hierarchical regression model was created to assess the degree to which affective markers of peer regard are unique predictors of change in popularity, after controlling for the contribution of behavioral reputation variables. To this end, demographic variables (grade, gender) and Time 1 popularity were entered in step 1 of the model, Time 1 behavioral reputation measures (fun, academic achievement, prosociality) were entered at step 2 of the model, and Time 1 affective markers of peer regard (acceptance, rejection) were entered in step 3 of the model. Table 8 summarizes the results. The regression model predicted 77% of the variance at step 1, $F(3, 291) =$

322.39, $p < .001$; 78% of the variance at step 2, $F(5, 291) = 171.17$, $p < .001$; and 78% of the variance at step 3, $F(9, 291) = 128.36$, $p < .001$. In step 1, grade was a negative predictor of popularity, indicating that popularity increased more in younger than in older students. In step 2, fun was a positive predictor of popularity, such that higher initial levels of fun predicted greater increases in popularity. In step 3, neither acceptance nor rejection were significant predictors of popularity after controlling for the contributions of demographic variables and behavioral reputation variables.

A hierarchical regression model was created to assess the degree to which affective markers of peer regard are unique predictors of change in unpopularity, after controlling for the contribution of behavioral reputation variables. To this end, demographic variables (grade, gender) and Time 1 unpopularity were entered in step 1 of the model, Time 1 behavioral reputation measures (fun, academic achievement, prosociality) were entered at step 2 of the model, and Time 1 affective markers of peer regard (acceptance, rejection) were entered in step 3 of the model. Table 9 summarizes the results. The regression model predicted 68% of the variance at step 1, $F(3, 291) = 202.93$, $p < .001$; 69% of the variance at step 2, $F(5, 291) = 107.42$, $p < .001$; and 70% of the variance at step 3, $F(9, 291) = 81.14$, $p < .001$. In step 1, grade was a positive predictor of unpopularity, indicating that unpopularity increased more in older than in younger students. Gender was also a positive predictor in step 1, indicating that increases in unpopularity were greater for boys than for girls. In step 2, fun was a negative predictor of unpopularity, such that lower initial levels of fun predicted greater increases in unpopularity. Additionally, academic achievement was a borderline significant positive predictor in step 2, indicating that greater initial levels of academic engagement

predicted greater increases in unpopularity. Neither acceptance nor rejection were significant predictors of unpopularity in step 3, after controlling for the contribution of demographic variables and behavioral reputation variables.

In sum, popularity was positively predicted by being fun, even after accounting for the impact of affective markers of peer regard. Fun was the only significant predictor from the cross-lagged panel model predicting popularity to remain a significant predictor of popularity after accounting for the impact of affective markers of peer regard and demographic variables. Acceptance was a significant predictor of popularity, but only before and not after behavioral reputation variables were added to the model.

Unpopularity was negatively predicted by being fun, even after accounting for the impact of demographic variables and affective markers of peer regard. Academic achievement also predicted unpopularity, but only before and not after accounting for affective markers of peer regard. In contrast to the cross-lagged panel models, prosociality was not a significant predictor of unpopularity in step 2 of the regression models, indicating that the association between prosociality and unpopularity is likely moderated by one or both of the demographic variables. Neither acceptance nor rejection significantly predicted unpopularity at either step of either regression model.

Hierarchical Regression Analyses to Assess the Relative Contributions of Affective Markers and Behavioral Reputation Variables to Changes in Popularity and Unpopularity: Tests of Moderation

Gender as a Moderator. A hierarchical regression model was created to determine if the associations predicting popularity tested in step 3 of the regression models were moderated by gender. To this end, demographic variables and Time 1

popularity were entered in step 1 of the model, Time 1 affective markers of peer regard were entered at step 2 of the model, Time 1 behavioral reputation variables were entered in step 3 of the model, and interaction terms for gender (gender*acceptance, gender*rejection, gender*fun, gender*academics, gender*prosociality) were entered in step 4. Table 10 summarizes the results. The regression model predicted 77% of the variance at step 1, $F(3, 291) = 322.39, p < .001$; 78% of the variance at step 2, $F(5, 291) = 200.68, p < .001$; 78% of the variance at step 3, $F(8, 291) = 128.36, p < .001$; and 79% of the variance at step 4, $F(13, 291) = 79.66, p < .001$. In step 1, grade was a negative predictor of popularity, indicating that popularity increased more in younger than in older students. In step 2, acceptance was a positive predictor of popularity, indicating that higher initial levels of acceptance predicted greater increases in popularity. In step 3, fun was a positive predictor of popularity, such that higher initial levels of fun predicted greater increases in popularity. In step 4, there was a significant interaction between gender and prosociality. Figure 4 reports the results from a follow-up simple slope analysis. Prosociality was a statistically significant positive predictor of Time 2 popularity for boys ($\beta = .12, p = .02$) but not for girls ($\beta = -.05, p = .38$).

A hierarchical regression model was created to determine if the associations for unpopularity tested in step 3 of the regression models were moderated by gender. To this end, demographic variables and Time 1 unpopularity were entered in step 1 of the model. Time 1 affective markers of peer regard were entered at step 2 of the model, Time 1 behavioral reputation variables were entered in step 3 of the model, and interaction terms for gender were entered in step 4 (gender*acceptance, gender*rejection, gender*fun, gender*academics, gender*prosociality). Table 11 summarizes the results. The regression

model predicted 68% of the variance at step 1, $F(3, 291) = 202.93, p < .001$; 68% of the variance at step 2, $F(5, 291) = 121.26, p < .001$; 70% of the variance at step 3, $F(8, 291) = 81.14, p < .001$; and 72% of the variance at step 4, $F(13, 291) = 53.49, p < .001$. In step 1, grade was a positive predictor of unpopularity, indicating that unpopularity increased more in older than in younger students. Gender was also a positive predictor in step 1, indicating that increases in unpopularity were greater for boys than for girls. In step 2, neither acceptance nor rejection were significant predictors of unpopularity. In step 3, fun was a negative predictor of unpopularity, such that lower initial levels of fun predicted greater increases in unpopularity. In step 4, there was a significant interaction between gender and rejection. Figure 5 reports the results from a follow-up simple slope analysis. Rejection was a statistically significant positive predictor of Time 2 unpopularity for boys ($\beta = .17, p = .01$) but was a nonsignificant negative predictor for girls ($\beta = -.07, p = .15$). There was also a significant interaction between gender and prosociality. Figure 6 reports the results from a follow-up simple slope analysis. Prosociality was a statistically significant negative predictor of Time 2 unpopularity for boys ($\beta = -.24, p < .001$) but not for girls ($\beta = .06, p = .32$).

Grade as a Moderator A hierarchical regression model was created to determine if the associations for popularity tested in step 3 of the regression models were moderated by grade. To this end, demographic variables and Time 1 popularity were entered in step 1 of the model, Time 1 affective markers of peer regard were entered at step 2 of the model, Time 1 behavioral reputation variables were entered in step 3 of the model, and interaction terms for grade (grade*acceptance, grade*rejection, grade*fun, grade*academics, grade*prosociality) were entered in step 4. Table 12 summarizes the

results. The regression model predicted 77% of the variance at step 1, $F(3, 291) = 322.39$, $p < .001$; 78% of the variance at step 2, $F(5, 291) = 200.68$, $p < .001$; 78% of the variance at step 3, $F(8, 291) = 128.36$, $p < .001$; and 79% of the variance at step 4, $F(13, 291) = 79.42$, $p < .001$. In step 1, grade was a negative predictor of popularity, indicating that popularity increased more in younger than in older students. In step 2, acceptance was a positive predictor of popularity, indicating that higher initial levels of acceptance predicted greater increases in popularity. In step 3, fun was a positive predictor of popularity, such that higher initial levels of fun predicted greater increases in popularity. In step 4, there was only a borderline significant interaction between grade and academic achievement.

A hierarchical regression model was created to determine if the associations for unpopularity tested in step 3 of the regression models were moderated by grade. To this end, demographic variables and Time 1 popularity were entered in step 1 of the model, Time 1 behavioral reputation measures were entered at step 2 of the model, Time 1 affective markers of peer regard were entered in step 3 of the model, and interaction terms for grade (grade*acceptance, grade*rejection, grade*fun, grade*academics, grade*prosociality) were entered in step 4. Table 13 summarizes the results. The regression model predicted 68% of the variance at step 1, $F(3, 291) = 202.93$, $p < .001$; 68% of the variance at step 2, $F(5, 291) = 121.26$, $p < .001$; 70% of the variance at step 3, $F(8, 291) = 81.14$, $p < .001$; and 71% of the variance at step 4, $F(13, 291) = 50.67$, $p < .001$. In step 1, grade was a positive predictor of unpopularity, indicating that unpopularity increased more in older than in younger students. Gender was also a positive predictor in step 1, indicating that increases in unpopularity were greater for boys

than for girls. In step 2, neither acceptance nor rejection were significant predictors of unpopularity. In step 3, fun was a negative predictor of unpopularity, such that lower initial levels of fun predicted greater increases in unpopularity. In step 4, there was a significant interaction between grade and academic achievement. Despite the statistically significant interaction, none of the follow-up associations between academic achievement and unpopularity were significant at any grade: 4th graders ($\beta = -.03, p = .84$), 5th graders ($\beta = -.10, p = .18$), and 6th graders ($\beta = .05, p = .47$).

In summary, tests of gender differences revealed moderated associations between prosociality and popularity and between prosociality and unpopularity. Additionally, tests of grade differences indicated that there was a significant moderated association between academic achievement and popularity and a borderline significant moderated association between academic achievement and unpopularity. These moderated results provide a partial explanation for why neither academic achievement nor prosociality were significant main effect predictors of popularity or unpopularity in the regression models despite being significant predictors in the cross-lagged panel models.

Supplemental Analyses for Hierarchical Regressions: Initial Popularity and Unpopularity in the same Model as Predictors

Additional hierarchical regression analyses were conducted in which both Time 1 popularity and Time 1 unpopularity were included in each model as predictors, in order to determine the contribution of initial unpopularity on changes in popularity and the contribution of initial popularity on changes in unpopularity. Entered in the first step of the model, these analyses are especially conservative tests of behavioral and affective

predictors of changes in status, given the strong correlation between popularity and unpopularity.

A hierarchical regression model was created to assess the degree to which behavioral reputation variables are unique predictors of change in popularity, after controlling for the contribution of affective markers and initial unpopularity. To this end, demographic variables and Time 1 popularity were entered in step 1 of the model, Time 1 unpopularity was entered in step 2 of the model, Time 1 behavioral reputation measures were entered at step 3 of the model, and Time 1 affective markers of peer regard were entered in step 4 of the model. Table 14 summarizes the results. The regression model predicted 77% of the variance at step 1, $F(3, 291) = 322.39, p < .001$; 79% of the variance at step 2, $F(4, 291) = 266.08, p < .001$; 79% of the variance at step 3, $F(7, 291) = 179.87, p < .001$, 80% of the variance at step 4, $F(9, 291) = 122.32, p < .001$. In step 1, grade was a negative predictor of popularity, indicating that popularity increased more in younger than in older students. In step 2, Time 1 unpopularity was a significant, negative predictor, indicating that higher initial unpopularity predicted subsequent decreases in popularity. In step 3, acceptance was a positive predictor of popularity, indicating that higher initial levels of acceptance predicted greater increases in popularity. In step 4, fun was a positive predictor of popularity, such that higher initial levels of fun predicted greater increases in popularity.

A hierarchical regression model was created to assess the degree to which behavioral reputation variables are unique predictors of change in unpopularity, after controlling for the contribution of affective markers and after controlling for popularity. To this end, demographic variables and Time 1 unpopularity were entered in step 1 of the

model, Time 1 popularity was entered in step 2 of the model, Time 1 behavioral reputation measures were entered at step 3 of the model, and Time 1 affective markers of peer regard were entered in step 4 of the model. Table 15 summarizes the results. The regression model predicted 68% of the variance at step 1, $F(3, 291) = 202.93, p < .001$; 70% of the variance at step 2, $F(4, 291) = 169.47, p < .001$; 70% of the variance at step 3, $F(7, 291) = 113.22, p < .001$, and 71% of the variance at step 4, $F(9, 291) = 77.16, p < .001$. In step 1, grade was a positive predictor of unpopularity, indicating that unpopularity increased more in older than in younger students. Gender was also a positive predictor in step 1, indicating that increases in unpopularity were greater for boys than for girls. In step 2, Time 1 popularity was a significant, negative predictor, indicating that higher initial popularity predicted subsequent decreases in unpopularity. In step 3, neither acceptance nor rejection were significant predictors of unpopularity. In step 4, fun was a negative predictor of unpopularity, such that lower initial levels of fun predicted greater increases in unpopularity.

A hierarchical regression model was created to assess the degree to which affective markers are unique predictors of change in popularity, after controlling for the contribution of behavior and after controlling for unpopularity. To this end, demographic variables and Time 1 popularity were entered in step 1 of the model, Time 1 unpopularity was entered in step 2 of the model, Time 1 behavioral variables were entered at step 3 of the model, and affective markers were entered in step 4 of the model. Table 16 summarizes the results. The regression model predicted 77% of the variance at step 1, $F(3, 291) = 322.39, p < .001$; 79% of the variance at step 2, $F(4, 291) = 266.08, p < .001$; 80% of the variance at step 3, $F(6, 291) = 157.65, p < .001$, and 80% at step 4, $F(9, 291)$

= 122.32, $p < .001$. In step 1, grade was a negative predictor of popularity, indicating that popularity increased more in younger than in older students. In step 2, Time 1 unpopularity was a significant, negative predictor, indicating that higher initial unpopularity predicted subsequent decreases in popularity. In step 3, fun was a positive predictor of popularity, such that higher initial levels of fun predicted greater increases in popularity. In step 4, neither acceptance nor rejection were significant predictors of popularity.

A hierarchical regression model was created to assess the degree to which affective markers are unique predictors of change in unpopularity, after controlling for the contribution of behaviors and after controlling for popularity. To this end, demographic variables and Time 1 unpopularity were entered in step 1 of the model, Time 1 popularity was entered in step 2 of the model, Time 1 behavioral variables were entered at step 3 of the model, and Time 1 affective markers were entered in step 4 of the model. Table 17 summarizes the results. The regression model predicted 68% of the variance at step 1, $F(3, 291) = 202.93, p < .001$; 70% of the variance at step 2, $F(4, 291) = 169.47, p < .001$; 71% of the variance at step 3, $F(6, 291) = 97.47, p < .001$, and 71% at step 4, $F(9, 291) = 77.16, p < .001$. In step 1, grade was a positive predictor of unpopularity, indicating that unpopularity increased more in older than in younger students. Gender was also a positive predictor in step 1, indicating that increases in unpopularity were greater for boys than for girls. In step 2, Time 1 popularity was a significant, negative predictor, indicating that higher initial popularity predicted subsequent decreases in unpopularity. In step 3, there were no new predictors. In step 4,

acceptance was a significant predictor of unpopularity, indicating that greater initial acceptance predicted subsequent increases in unpopularity.

In summary, the results of the popularity models remain unchanged with the addition of unpopularity as a predictor in step 2. The inclusion of popularity, however, altered findings for the prediction of unpopularity. Acceptance became a significant predictor of unpopularity at step 4, after the inclusion of behavioral predictors. Similarly, in the alternative unpopularity model, fun became a significant predictor at step 4, after the inclusion of the affective markers of peer regard. No issues with multicollinearity were detected (Tolerance range for all variables: .25 - .77; VIF range for all variables: 1.30 – 3.88). Therefore, it is logical to assume that these predictors became significant due to controlling for the high correlation between popularity and unpopularity.

Supplemental Analyses for Hierarchical Regressions: Initial Popularity and Unpopularity in the same Model as Predictors with Tests of Moderation

Gender as a Moderator. A hierarchical regression model was created to determine if the associations for popularity tested in step 3 of the regression models including both status measures were moderated by gender. To this end, demographic variables and Time 1 popularity were entered in step 1 of the model, Time 1 unpopularity was entered in step 2 of the model, Time 1 affective markers were entered at step 3 of the model, Time 1 behavioral reputation variables were entered in step 4 of the model, and interaction terms were entered into step 5 of the model. Table 18 summarizes the results. The regression model predicted 77% of the variance at step 1, $F(3, 291) = 322.39, p < .001$; 79% of the variance at step 2, $F(4, 291) = 266.08, p < .001$; 79% of the variance at step 3, $F(6, 291) = 179.87, p < .001$; 80% of the variance at step 4, $F(9, 291) = 122.32, p$

< .001, and 80% of the variance at step 5, $F(14, 291) = 79.47, p < .001$. In step 1, grade was a negative predictor of popularity, indicating that popularity increased more in younger than in older students. In step 2, Time 1 unpopularity was a significant, negative predictor, indicating that higher initial unpopularity predicted subsequent decreases in popularity. In step 3, acceptance was a significant predictor, indicating that higher initial acceptance predicted subsequent increases in popularity. In step 4, being fun was a significant predictor, indicating that higher initial fun nominations predicted subsequent increases in popularity. In step 5, there was a significant interaction between gender and prosociality. Figure 7 reports the results from a follow-up simple slope analysis. There were significant differences in the associations between prosociality and Time 2 unpopularity for boys ($\beta = .11, p = .04$), but not for girls ($\beta = -.04, p = .47$).

A hierarchical regression model was created to determine if the associations for unpopularity tested in step 3 of the regression models including both status measures were moderated by gender. To this end, demographic variables and Time 1 unpopularity were entered in step 1 of the model, Time 1 popularity was entered in step 2 of the model, Time 1 affective markers of peer regard variables were entered in step 3 of the model, Time 1 behavioral reputation measures were entered at step 4 of the model, and interaction terms were entered into step 5 of the model. Table 19 summarizes the results. The regression model predicted 68% of the variance at step 1, $F(3, 291) = 202.93, p < .001$; 70% of the variance at step 2, $F(4, 291) = 169.47, p < .001$; 70% of the variance at step 3, $F(6, 291) = 113.22, p < .001$; 71% of the variance at step 4, $F(9, 291) = 77.16, p < .001$, and 73% of the variance at step 5, $F(14, 291) = 52.99, p < .001$. In step 1, grade was a positive predictor of unpopularity, indicating that unpopularity increased more in older

than in younger students. Gender was also a positive predictor in step 1, indicating that increases in unpopularity were greater for boys than for girls. In step 2, Time 1 popularity was a significant, negative predictor, indicating that higher initial popularity predicted subsequent decreases in unpopularity. In step 3, neither acceptance nor rejection were significant predictors of popularity after controlling for the contributions of demographic variables and behavioral reputation variables. In step 4, being fun was a significant, negative predictor, indicating that higher initial fun nominations predicted subsequent decreases in unpopularity. In step 5, a significant interaction emerged for gender and rejection. Figure 8 reports the results from a follow-up simple slope analysis. There were significant differences such that rejection was a significant predictor of Time 2 unpopularity for boys ($\beta = .19, p = .004$), but not for girls ($\beta = -.05, p = .26$). There was also a significant interaction for gender and prosociality. Figure 9 reports the results from a follow-up simple slope analysis. Follow-up simple slope analysis indicated that prosociality was a significant predictor of Time 2 unpopularity for boys ($\beta = -.37, p < .001$), but not for girls ($\beta = .05, p = .35$).

Grade as a Moderator A hierarchical regression model was created to determine if the associations for popularity tested in step 3 of the regression models including both status measures were moderated by grade. To this end, demographic variables and Time 1 popularity were entered in step 1 of the model, Time 1 unpopularity was entered in step 2 of the model, Time 1 affective markers were entered at step 3 of the model, Time 1 behavioral reputation variables were entered in step 4 of the model, and interaction terms were entered into step 5 of the model. Table 20 summarizes the results. The regression model predicted 77% of the variance at step 1, $F(3, 291) = 322.39, p < .001$; 79% of the

variance at step 2, $F(4, 291) = 266.08, p < .001$; 79% of the variance at step 3, $F(6, 291) = 179.87, p < .001$; 80% of the variance at step 4, $F(9, 291) = 122.32, p < .001$, and 80% of the variance at step 5, $F(14, 291) = 79.25, p < .001$. In step 1, grade was a negative predictor of popularity, indicating that popularity increased more in younger than in older students. In step 2, Time 1 unpopularity was a significant, negative predictor, indicating that higher initial unpopularity predicted subsequent decreases in popularity. In step 3, acceptance was a significant predictor, indicating that higher initial acceptance predicted subsequent increases in popularity. In step 4, being fun was a significant predictor, indicating that higher initial fun nominations predicted subsequent increases in popularity. In step 5, there were no significant interaction terms.

A hierarchical regression model was created to determine if the associations for unpopularity tested in step 3 of the regression models including both status measures were moderated by grade. To this end, demographic variables and Time 1 unpopularity were entered in step 1 of the model, Time 1 popularity was entered in step 2 of the model, Time 1 affective markers of peer regard variables were entered in step 3 of the model, Time 1 behavioral reputation measures were entered at step 4 of the model, and interaction terms were entered into step 5 of the model. Table 21 summarizes the results. The regression model predicted 68% of the variance at step 1, $F(3, 291) = 202.93, p < .001$; 70% of the variance at step 2, $F(4, 291) = 169.47, p < .001$; 70% of the variance at step 3, $F(6, 291) = 113.22, p < .001$; 71% of the variance at step 4, $F(9, 291) = 77.16, p < .001$, and 72% of the variance at step 5, $F(14, 291) = 50.53, p < .001$. In step 1, grade was a positive predictor of unpopularity, indicating that unpopularity increased more in older than in younger students. Gender was also a positive predictor in step 1, indicating

that increases in unpopularity were greater for boys than for girls. In step 2, Time 1 popularity was a significant, negative predictor, indicating that higher initial popularity predicted subsequent decreases in unpopularity. In step 3, there were no new predictors. In step 4, being fun was a significant, negative predictor, indicating that higher initial fun nominations predicted subsequent decreases in unpopularity. Acceptance was also a significant predictor of unpopularity in step 4, indicating that greater initial acceptance predicted increases in unpopularity. In step 5, there was a significant interaction for grade and academic achievement. Despite the statistically significant interaction effect, none of the associations between academic achievement and unpopularity were significant at any grade: 4th graders ($\beta = -.10, p = .19$), 5th graders ($\beta = -.10, p = .41$), and 6th graders ($\beta = .01, p = .87$).

After controlling for unpopularity, the significant interaction between prosociality and grade in the prediction of popularity remained, however, the interaction between grade and academic achievement for popularity was nonsignificant. Similarly, the interactions for gender with grade and prosociality remained in the prediction of unpopularity after accounting for the impact of popularity. The previously borderline significant interaction between grade and academic achievement in the prediction of unpopularity became significant after accounting for the impact of popularity. These moderated results provide a further explanation for why neither academic achievement nor prosociality were significant main effect predictors of popularity or unpopularity in the regression models despite being significant predictors in the cross-lagged panel models.

DISCUSSION

Summary of Main Findings

The current study was designed to disentangle the effects of affective markers of peer regard from behavioral reputation in the prediction of popularity and unpopularity. The main results indicated that behavioral variables, such as being fun, predicted both popularity and unpopularity after accounting for affective markers of peer regard. In contrast, affective markers did not predict either measure of social status after accounting for behavioral reputation variables in the main analyses. A gender interaction indicated that rejection predicts unpopularity for boys, but not girls, after controlling for behavioral indicators and initial unpopularity. The study is unique because although separate studies have indicated that both affective markers of peer regard and behavioral reputation may play a role in changes in peer status, their relative contributions have not yet been identified. The study is important because the results imply that social status researchers should focus on the contributions of behaviors in the prediction of popularity, disregarding affective markers, whose contribution appears to be a product of their overlap with behaviors. The picture is less clear cut for unpopularity, which was driven by both behaviors and (for boys) peer rejection.

Which measures of behavioral reputation predict changes in popularity and unpopularity?

Results of the cross-lagged panel models indicated that being fun and prosociality were positive predictors of popularity, whereas academic achievement was a negative

predictor of popularity. Academic achievement was a positive predictor of unpopularity, whereas prosociality was a negative predictor of unpopularity. In this section, my goal will be to review the findings in light of previous concurrent and longitudinal work, saving the interpretation and description of mechanisms for a later section.

Popularity. My results confirm previous findings indicating that variables such as being fun and prosociality were positive predictors of changes in popularity. The finding that being fun predicts popularity longitudinally directly replicates prior work (Laursen et al., 2020), which is not surprising given that the present study includes a subsample of the participants from that publication. At least two previous longitudinal studies have found that prosociality predicts changes in popularity among early adolescents. One study found that prosociality predicted popularity across three waves of data (Zhang et al., 2018). A second study found evidence of prosociality predicting increases in popularity over time, however, their study used a composite measure of popularity composed of popularity, unpopularity (reverse scored), and an item using the term “cool” (Rodkin et al., 2013). Finally, one additional study examined longitudinal associations from prosociality to gains in a popularity measure operationalized as “Someone everyone likes to be with” (Bowker et al., 2010). Given that “popularity” was not explicitly addressed in these last two studies, it was not clear whether these studies directly measured changes in status across in middle childhood and early adolescence. In sum, my results confirm the importance of prosocial behavior and being fun in the prediction of changes in popularity over time.

Academic achievement was a negative predictor of changes in popularity, such that lower initial levels of achievement predicted greater increases in popularity. Previous

findings on this association were mixed. Results from the present study are consistent with findings from studies using a sample older than my own. In a sample of Dutch adolescents, measures of GPA negatively correlated with popularity, both concurrently and longitudinally (Laninga-Wijnen et al., 2019). However, the findings run counter to other longitudinal (Zhang et al., 2018) and concurrent (Laursen et al., 2020) studies of children and early adolescents that indicated a positive association between academic achievement and popularity. Given the importance of the topic and the mixed nature of previous results, I suspect that these findings will not be the final word on the topic.

Despite prior evidence indicating longitudinal associations (e.g., Yoho et al., 2022; van den Berg et al., 2015) among children and early adolescents, neither relational nor physical aggression was significantly related to changes in popularity in my sample of pre- and early adolescents. Differences in time frame are also unlikely. Surprisingly, even concurrent correlations were weak or nonexistent. These findings were contrary to my predictions.

Similarly, shyness was also not significantly associated with popularity in the cross-lagged panel model, contrary to previous longitudinal (Eggum-Wilkens et al., 2014; Markovic & Bowker, 2014) and concurrent evidence (Schwartz et al., 2010; van den Berg & Cillessen, 2012). In the present study, however, there were negative concurrent and longitudinal correlations between shyness and popularity. The cross-lagged findings for shyness may have been nonsignificant because it was included in the model with several other, stronger predictors. It may be that the associations differ by age as the strongest prior evidence comes from a sample younger than my own.

Unpopularity. No previous longitudinal studies have examined associations from prosociality to unpopularity. Previous concurrent correlations have been mixed, indicating both negative (Marks et al., 2021) and positive (Gorman et al., 2011) directions among students in grades seven to eight. My study is the first to examine longitudinal pathways. I found that prosociality is negatively related to unpopularity, with higher levels of prosociality anticipating decreases in unpopularity over the course of the semester.

My results confirm previous findings concerning academic achievement and unpopularity. I found that higher initial levels of academic achievement predict increases in unpopularity, similar to previous findings indicating that unpopularity increases over time for school-oriented adolescents (Schwartz et al., 2021) and that greater GPA predicts increases in adolescent unpopularity (Laninga-Wijnen et al., 2019).

No prior studies have examined associations between being fun and unpopularity. My results were inconclusive: Being fun was a borderline negative longitudinal predictor of changes in unpopularity. These suggestive findings will not settle the question as to whether unpopularity has origins in whether or not a child is perceived as being someone who is fun to be around.

Relational aggression and physical aggression were not statistically significant predictors of unpopularity in the cross-lagged panel models. No longitudinal studies have examined these variables as predictors of unpopularity, although prior, concurrent research suggests that relational aggression is positively correlated with unpopularity among adolescents (Gorman et al., 2011; Marks et al., 2021). In my study, there was a significant negative concurrent correlation between relational aggression and

unpopularity at the first but not the second time point. Nor were the longitudinal correlations significant. Because my sample is considerably younger than those used in most prior studies of unpopularity and relational aggression, it is entirely feasible that age-related differences might explain my null results. Previous studies indicated that physical aggression might be related to unpopularity. Semi-structured interviews indicated that antisocial behavior was a defining aspect of unpopularity in grades four and five (LaFontana & Cillessen, 2002). In another study, there was a statistically significant correlation between physical aggression and unpopularity when data were collected using computers but not with a paper-pencil procedure (van den Berg & Cillessen, 2012). In my study, there was a significant positive concurrent correlation between physical aggression and unpopularity longitudinally and at the first but not the second time point. Together, the findings point to modest associations that appear to have been subsumed under stronger predictors in longitudinal cross-lagged models.

Similarly, previous concurrent findings suggest that shyness was positively correlated with unpopularity in samples the same age as my own (Lease et al., 2002; van den Berg & Cillessen, 2012). My concurrent and longitudinal correlations also revealed a weak, positive association between shyness and unpopularity. Here too the existing evidence points to modest associations that failed to materialize when stronger predictors were also included in longitudinal cross-lagged models.

Interpretation of findings. The cross-lagged panel results focus on behavioral predictors of change in popularity and unpopularity. I used these results to narrow down the number of variables to be included in regression analyses, which also included acceptance and rejection as predictors of popularity and unpopularity. Before proceeding

to the regression analyses, I will offer a few words of discussion about the statistically significant findings that emerged from the cross-lagged panel models.

In the cross-lagged panel models, the key predictors of popularity were being fun, being prosocial, and (inversely) being focused on academics. Being fun is a relative newcomer to the behavioral reputation literature. One previous study (that included participants from the present study in addition to many more), indicated that being fun predicted increases in both peer acceptance and popularity (Laursen et al., 2020). It is perhaps not surprising that being fun curates popularity. Fun children and adolescents are likely to be fun companions, providing novel and rewarding experiences to peers (Laursen et al., 2020), which inevitably leads to increases in social status (Hartup et al., 1967). The significance of prosociality supports Hawley's (1999) assertion that prosocial youth leverage cooperation and good deeds into popularity and status. Thus, it is also not a surprising finding. Prosociality is a key component to successfully gaining social status for both prosocial-popular and bistrategic youths (Hartl et al., 2020; Sandstrom, 2011). The association between academic engagement and popularity indicates doing well in school may not be important to gaining popularity. de Bruyn and Cillessen (2006) noted that different types of popular children ("studious" vs. "disengaged") valued schoolwork in different ways. Additionally, evidence suggests that the characteristics of popular and unpopular adolescents can set the behavioral norms for school environments (Laninga-Wijnen et al, 2019). Thus, in my sample it may be that popular children have established a norm which does not value schoolwork and disregard for academic achievement helps individuals gain popularity.

In the cross-lagged panel models, the key indicators of unpopularity included school achievement and (inversely) being prosocial. Evolutionary theories indicate that being prosocial and friendly may incur negative social status because more popular peers may interpret these actions as acquiescence to the established group hierarchy (Alden & Taylor, 2004; Dodge & Feldman, 1990), rather than attempts to climb the hierarchy. Surprisingly, academic achievement was a positive predictor of unpopularity. It has been suggested that unpopular children and adolescents are unintelligent (LaFontana & Cillessen, 2002), therefore it would seem that proving to be academically competent would help decrease perceptions of unpopularity. According to my results, this is not the case. My results align with findings from Schwartz et al. (2021), who noted that academic achievement may serve as a substitutionary attribute for other characteristics peers link to poor social status.

Does behavioral reputation predict changes in popularity and unpopularity over and above the contributions of affective markers of peer regard?

The present study is unique in that it is the first to predict longitudinal changes in popularity and unpopularity from behavioral reputation after controlling for affective markers of peer regard. Many behavioral reputation variables are strongly correlated with acceptance and rejection, making it difficult to determine which is uniquely responsible for popularity and unpopularity. Across middle childhood, liking becomes increasingly distinct from popularity (Kosir & Pecjak, 2005; Mayeux et al., 2011). At this age, children become aware that a hierarchy exists and that they occupy a potentially precarious position in it (Gottman & Mettetal, 1986; Parker & Gottman, 1989).

The main results of my study indicated that behavior, specifically being fun, predicts social status after controlling for affective markers of peer regard including acceptance and rejection. Gender moderated the associations between prosociality and popularity and unpopularity, whereas grade moderated the association between academic achievement and unpopularity. Findings from the present study indicate that after accounting for the shared variance of affective markers of peer regard, popularity and unpopularity can be predicted by perceptions of being fun, prosociality, and academic achievement. This seems to align best with LaFontana and Cillessen's (2010) suggestion that children and adolescents might pursue the benefits of popularity using whatever aggressive or prosocial tactic they deem most useful.

Previous concurrent studies examining affective and behavioral predictors of popularity focused exclusively on aggression and acceptance or social preference (Cillessen & Mayeux, 2004; Lu et al., 2018). Both studies reported that aggression predicted concurrent popularity after controlling for acceptance or social preference; neither examined whether acceptance or preference predicted concurrent popularity after controlling for aggression. Age-related differences and their reliance on concurrent data could explain why their findings differ from my own.

The current results indicate that changes in popularity and unpopularity among children and adolescents are driven by perceptions of being fun and by prosociality and academic achievement as moderated by grade and gender. Regarding being fun, this would support the conclusion that being fun represents a unique aspect of development which is key to social status (Laursen et al., 2020). Being fun is likely the only predictor not moderated by gender or grade because it is a universal boon to the status of all

children and adolescents. As previously stated, fun children and adolescents likely provide novel and rewarding experiences to peers (Laursen et al., 2020), inevitably leading to increases in social status (Hartup et al., 1967). By providing benefits to the group, children and adolescents reinforce their position in the group (Sullivan, 1953). Conversely, not being fun could hinder an individual's ability to contribute to the group and thus make them unpopular.

Prosociality and academic achievement were also associated with changes in social status, albeit with moderation by gender and grade. Specifically, prosociality moderated by gender was predictive of popularity and unpopularity. Hawley (1999) theorized that prosociality was an avenue by which individuals gained status and controlled resources, often in conjunction with aggression. It may be that aggression was decoupled from prosociality in my results because classroom norms dictated a more prosocial, less aggressive environment (Laninga-Wijnen et al, 2019). The associations between academic achievement and social status were moderated by grade. Schwartz et al. (2021) indicated that measures of academic achievement might serve as vicarious indicators of other reputational constructs. It may be that the reason academic achievement was related to popularity (inversely) and unpopularity is its association with other undesirable traits or behaviors.

Do affective markers of peer regard predict changes in popularity and unpopularity over and above the contributions of behavioral reputation?

My results indicated that acceptance, but not rejection, significantly predicted popularity before the inclusion of behavioral variables in step 3 of the main models. After behavioral reputation items were entered into the model, acceptance dropped to non-

significance. Neither acceptance nor rejection were significant predictors of popularity or unpopularity if entered into the model after behavioral variables. This indicates that the shared variance between acceptance and behavioral measures rendered acceptance nonsignificant. There was a significant interaction between gender and rejection for unpopularity after controlling for behavior and initial unpopularity. Follow-up analyses indicated that gender moderated rejection such that rejection significantly predicted unpopularity for boys, but not for girls. Thus, it can be assumed that unpopularity is driven by both behaviors and peer rejection (for boys only).

Thus, acceptance is not a maker of anything tangible. Moreno (1934) described individuals as “social atoms” operating within the larger peer group, and he conceptualized sociometric measures as being based on attraction and repulsion between individuals. This principle became the basis for modern concepts of peer acceptance and rejection. In sociometry, acceptance is a positive view that others have of the child that is derived from the child's behaviors (Coie & Dodge, 1983; Coie et al., 1982). Based on my results, acceptance only predicts status to the extent that it shares variance with behaviors that predict both status and acceptance. Remove those behaviors and there is nothing left that leads to popularity. For this reason, peer nomination scholars should rely on behaviors as predictors of popularity and not affective markers of peer regard.

The association between rejection and unpopularity is complicated by the effect of gender. Similarly, rejection has been linked more strongly to boy's aggressive behaviors than girl's aggressive behaviors (McDougall et al., 2001). According to the Incidental Model, peer rejection and associated behaviors, such as aggression could indicate poor social competence (Bellmore, 2011), an underlying cause which is also

associated with perceptions of unpopularity among children and adolescents (LaFontana & Cillessen, 2002). Prior work indicates that boys and girls demonstrate differences in the development of social skills from an early age (Benenson, 1996; Roberts & Strayer, 1996). It would seem that gender differences in social competency do indeed underscore gender differences in peer rejection and differentially predict to unpopularity.

The contribution of popularity to the prediction of unpopularity and vice versa

In the models which included Time 1 measures of both popularity and unpopularity, both measures significantly predicted social status. Specifically, Time 1 unpopularity significantly, negatively predicted Time 2 popularity and Time 1 popularity significantly, negatively predicted Time 2 unpopularity. It is important to note that the main effects for each were small, indicating that while these two forms of social status are divergent, they are not oppositional. This finding lends support to assertions made that popularity and unpopularity are distinct forms of social status, much like how acceptance and rejection are distinct forms of peer regard (Gorman et al., 2011; Newcomb & Bukowski, 1983). Further, this supports the practical recommendations of Marks et al. (2021) which indicated that measures of both popularity and unpopularity should be incorporated into research as separate indicators of status instead of being combined to create a difference score.

After controlling for both popularity and likeability, the core findings remained the same: being fun significantly predicted popularity and unpopularity after accounting for demographic variables and affective markers of peer regard. Specifically, being fun predicted popularity and unpopularity after controlling for demographics, both forms of social status, and affective markers of peer regard in the main models. In the alternative

model for unpopularity, acceptance predicted unpopularity after controlling for demographics, both forms of social status, and behavioral reputation. Potentially, this indicates that after controlling for both forms of social status, being fun and acceptance may each possess enough unique variance to predict unpopularity. Curiously, the main effect indicated that acceptance was a positive predictor of unpopularity. The same pattern of interactions emerged as in the main findings

The inclusion of these models undoubtedly strengthens the core findings of my study. Because popularity and unpopularity are not oppositional measures (Gorman et al., 2011; Marks et al., 2021), but are related to one another, it is important that both forms of status were tested in the regression models in order to parcel out potential shared variance, much as I did for affective and behavioral measures. By doing this, we gain an even clearer view of the origins of social status in middle childhood and early adolescence.

Differences between the cross-lagged models and the regression models

Differences emerged between the cross-lagged panel models and the regression models in behavioral reputation variables that significantly predicted popularity and unpopularity. Specifically, prosociality and academic achievement were significant predictors of popularity in the cross-lagged models but were not significant predictors of popularity in step two of the regression models. Prosociality and academic achievement were significant predictors of unpopularity in the cross-lagged models but were not significant predictors of unpopularity in step two of the regression models. As a consequence, being fun was the only behavioral reputation variable to remain a significant main effect predictor at step two. Statistically significant step four interactions

also emerged for gender and prosociality as a predictor of popularity and gender and prosociality and grade and academic achievement as predictors of unpopularity. What accounts for these differences? Most obviously, the cross-lagged models did not include grade and gender as unique predictors. Interactions accounted for some but not all of the differences, as the prosociality predictor of cross-lagged popularity was significantly moderated by gender. Similarly, the prosociality predictor of cross-lagged unpopularity was moderated by gender and the academic achievement predictor of cross-lagged unpopularity was moderated by grade. Thus, the only difference between the cross-lagged and regression models that cannot be explained by moderated effects was the main effect association from academic achievement to popularity. This remaining difference is not readily discounted but may perhaps arise because of differences in the way that variance is apportioned in path analyses, which can give them greater power than regression analyses to detect small effects (Selig & Little, 2012).

Implications

The primary implications of my study involve exploring the origins of popularity and unpopularity in middle childhood and early adolescence, but it is not without practical implications for parents, teachers, and practitioners who work with children.

My findings support the argument that being focused on schoolwork undermines social status (Schwartz et al., 2021; Laninga-Wijnen et al., 2019). Given the superseding importance of social status in the lives of children and adolescents (LaFontana & Cillessen, 2010; Henricks et al., 2021), this undermines the academic missions of schools. Because evidence suggests that behavioral norms in classrooms can be affected by the characteristics of popular and unpopular children (Laninga-Wijnen et al, 2019), it

may be that the best path forward for school staff is to work with exemplars in the peer group to encourage academic achievement be adopted as a value for popular children. This would likely prove to be a challenge, given that high status adolescents, who typically engage in acts and attitudes of rebellion to demonstrate independence from adult authority, likely view academically successful peers as conforming to adult norms (Schwartz et al., 2013). Regardless, it behooves parents and schools to encourage children and adolescents to pursue the improvement of their social status alongside their educational goals, as it would provide other social benefits related to the school environment including being a more desirable friend (Thomas & Bowker, 2013), having more potential friends (Bukowski et al., 1996; Dijkstra et al., 2010), protection from bullying (Dijkstra et al., 2010), and improving socioemotional development (Dijkstra et al., 2010; Bukowski, 2011).

For practitioners who work with children, implications seem to be more aimed at mitigating poor status to avoid the associated consequences. Unpopularity is associated with a host of negative physical, mental, and socioemotional health risks. Encouraging children and adolescents at risk of unpopularity to be more mindful of their behaviors with peers and to engage in positive social behaviors would be an excellent start. By doing so, children and adolescents can improve their social skills through improving coordination between their social cognition and behaviors (Ford, 1982). As a result, children and adolescents could improve their status and avoid the negative pitfalls associated with unpopularity, such as increased depression (Malamut et al., 2017) and loneliness (Gorman et al., 2011), fewer friendships (Gorman et al., 2011), health risk

behaviors (Mayeux et al., 2008; Schwartz & Gorman, 2011), and bullying (de Bruyn et al., 2010).

Limitations & Future Directions

This study is not without limitations. First, the time between datapoints in this study was quite brief (8 weeks). While significant changes in peer status and relationships can occur over the course of a school year (Bowker et al., 2006; Schwartz et al., 2006) and while 8 weeks seems short, this timeframe represents a significant amount of time in the lives of children and early adolescents (Laurson et al., 2020). It is feasible that a longer time frame might have revealed a different pattern of results simply because more change in the variables might occur.

Second, a primary limitation of the current study is the use of an autoregressive cross-lagged panel model. Random intercepts cross-lagged panel models would be preferred to autoregressive cross-lagged panel models but are not possible with only two waves of data (Ludtke & Robitzsch, 2021). Such a model would allow the partitioning of within-person processes from stable between-person differences through the inclusion of a random intercept (Hamaker et al., 2015).

Third, the study relied entirely on single-item measures, which are valid indicators in sociometric studies, but may not be as effective as two-item measures. Multi-item measures may be needed to fully assess all aspects of behaviors under examination and improve validity of the measures (Cillessen & Marks, 2017). For highly visible behaviors, such as physical aggression, this is not necessary, but for more subtle, heterogeneous behaviors like relational aggression and prosociality, including a second item is often desirable (Cillessen & Marks, 2017). Combining multiple items assessing

the same behaviors into a single measure can often make the composite score more reliable than the best single indicator (Babcock et al., 2014). Additionally, other measures including leadership, athleticism, attractiveness, and more have been linked to popularity and unpopularity in previous studies. These variables were not available in the archival dataset used in this study.

With an eye to future directions, it is entirely possible that mediation processes might be the responsible mechanism for the prediction of social status. For example, acceptance may predict popularity indirectly via being fun. Further testing using half-longitudinal mediation models is recommended in order to test for mediation effects. Full longitudinal mediation models utilizing three waves of data would be ideal and build upon the importance of my first limitation.

Conclusion

The current study was designed to examine the origins of popularity and unpopularity by disentangling the overlap between peer regard and behavioral reputation. The main results of my study indicated that behavioral reputation predicts social status after controlling for affective markers of peer regard. Thus, there is nothing unique about peer regard that predicts popularity or unpopularity. The most pertinent point raised in this study is that scholars interested in social status should stop using affective markers to predict popularity and unpopularity and instead focus on individuals' behaviors. Possible applications of these findings can help parents, schools, and professionals who work with children and adolescents to develop interventions and activities which promote the development of social status through positive behaviors.

Table 1. Bivariate Correlations, Means, and Standard Deviations

Variables	1	2	3	4	5	6	7	8	9	10	<i>M</i>	<i>SD</i>
	[95% CI]	[95% CI]	[95% CI]	[95% CI]	[95% CI]	[95% CI]	[95% CI]	[95% CI]	[95% CI]	[95% CI]		
1. Popular		-.67**	.55**	-.36**	-.18**	-0.06	.19**	.73**	-.33**	.33**	1.56	1.19
2. Unpopular	-.65**		-.40**	.42**	.08	.04	-.24**	-.48**	.21**	-.07	3.14	3.08
3. Acceptance	-.62**	-.49**		-.41**	-.31**	-.28**	.60**	.69**	-.12*	.49**	3.39	2.67
4. Rejection	-.31**	.42**	-.44**		.32**	.43**	-.34**	-.44**	.03	-.30**	0.37	0.64
5. P Agg	-.20**	.12*	-.23**	.37**		.43**	-.29**	-.27**	.01	-.33**	0.21	0.49
6. R Agg	-.10	.12*	-.26**	.45**	.32**		-.30**	-.29**	-.12*	-.39**	0.53	.76
7. Prosocial	.26**	-.28**	.59**	-.31**	-.21**	-.26**		.35**	.02	.43**	3.58	2.31
8. Fun	.72**	-.48**	.74**	-.40**	-.23**	-.27**	.39**		-.28**	.58**	5.71	3.77
9. Shyness	-.35**	.27**	-.12*	.03	-.05	-.14*	.05	-.29**		-.06	0.48	.78
10. Academic	.32**	-.10	.53**	-.31**	-.23**	-.40**	.44**	.56**	-.02		6.53	5.00
<i>M</i>	1.62	2.91	3.88	0.38	0.15	0.51	3.59	5.99	0.50	6.50		
<i>SD</i>	1.14	2.90	2.81	0.66	0.44	0.73	2.31	3.87	0.79	4.58		

Note. *N* = 292. Time 2 correlations reported above the diagonal, Time 1 correlations reported below the diagonal. Popular = popularity, Unpopular= unpopularity, P Agg= physical aggression, R Agg= relational aggression, Prosocial= prosociality, Academic= Academic achievement. **p* < .05, ***p* < .01, two-tailed.

Table 2. *Longitudinal and Autocorrelations*

Time 1 Variables	Time 2 Variables									
	1	2	3	4	5	6	7	8	9	10
	[95% CI]	[95% CI]	[95% CI]	[95% CI]	[95% CI]	[95% CI]	[95% CI]	[95% CI]	[95% CI]	[95% CI]
1. Popularity	.88** [.85, .90]	-.60** [-.67, -.52]	.54** [.45, .61]	-.34** [-.44, -.23]	-.22** [-.32, -.10]	-.80 [-.19, .04]	.21** [.10, .32]	.74** [.68, .79]	-.34** [-.44, -.23]	.39** [.28, .48]
2. Unpopularity	-.68** [-.74, -.61]	.81** [.77, .85]	-.45** [-.53, -.35]	.47** [.38, .55]	.05 [-.06, .17]	.09 [-.02, .20]	-.25** [-.36, -.14]	-.52** [-.60, -.43]	.21** [.10, .32]	-.15** [-.26, -.04]
3. Acceptance	.60** [.52, .67]	-.40** [-.49, -.30]	.83** [.79, .86]	-.40** [-.49, -.30]	-.26** [-.37, -.15]	-.22** [-.33, -.11]	.52** [.43, .60]	.73** [.67, .78]	-.14* [-.25, -.03]	.57** [.48, .64]
4. Rejection	-.31** [-.41, -.21]	.36** [.26, .46]	-.43** [-.52, -.33]	.66** [.59, .72]	.29** [.19, .40]	.41** [.31, .51]	-.40** [-.49, -.30]	-.43** [-.52, -.33]	.004 [-.11, .12]	-.31** [-.41, -.21]
5. P Aggression	-.18** [-.29, -.07]	.15** [.04, .26]	-.25** [-.35, -.13]	.33** [.22, .43]	.53** [.45, .61]	.26** [.15, .36]	-.21** [-.31, -.09]	-.21** [-.32, -.10]	-.03 [-.15, .08]	-.25** [-.36, -.14]
6. R Aggression	-.09 [-.20, .03]	.05 [-.06, .17]	-.24** [-.35, -.13]	.35** [.24, .45]	.34** [.24, .45]	.66** [.59, .72]	-.26** [-.36, -.15]	-.24** [-.34, -.13]	-.14* [-.25, -.03]	-.38** [-.48, -.28]
7. Prosociality	.29** [.18, .39]	-.28** [-.38, -.17]	.54** [.45, .61]	-.29** [-.39, -.18]	-.19** [-.30, -.08]	-.25** [-.36, -.14]	.62** [.55, .69]	.40** [.30, .49]	.03 [-.08, .15]	.44** [.34, .53]
8. Fun	.69** [.62, .74]	-.42** [-.51, -.32]	.65** [.57, .71]	-.39** [-.48, -.29]	-.27** [-.37, -.16]	-.26** [-.37, -.15]	.31** [.20, .41]	.89** [.87, .92]	-.29** [-.39, -.18]	.59** [.51, .66]
9. Shyness	-.32** [-.42, -.21]	.25** [.14, .35]	-.11 [-.22, .01]	.04 [-.08, .15]	.02 [-.09, .14]	-.12* [-.24, -.01]	.04 [-.08, .15]	-.28** [-.38, -.17]	.80** [.75, .84]	-.03 [-.15, .08]
10. Academics	.28** [.17, .38]	-.06 [-.17, .06]	.42** [.32, .51]	-.29** [-.38, -.18]	-.31** [-.41, -.20]	-.37** [-.46, -.27]	.39** [.29, .48]	.51** [.42, .59]	-.04 [-.16, .07]	.91** [.89, .93]

Note. $N = 292$. Autocorrelations on the diagonal. P Aggression= Physical aggression, R Aggression= Relational aggression, Academics= Academic achievement.

* $p < .05$, ** $p < .01$, two-tailed.

Table 3. Results from the Cross-Lagged Panel Model for Popularity

Time 1 Variables	Time 2 Variables						
	1 [95% CI]	2 [95% CI]	3 [95% CI]	4 [95% CI]	5 [95% CI]	6 [95% CI]	7 [95% CI]
1. Popularity	.78** [.71, .85]	-.06 [-.20, .08]	.07 [-.06, .20]	.04 [-.09, .17]	.20** [.12, .27]	-.03 [-.14, .07]	.08* [.01, .15]
2. P Aggression	.01 [-.05, .07]	.45** [.36, .54]	.04 [-.06, .13]	-.04 [-.13, .06]	.01 [-.04, .06]	.00 [-.07, .07]	-.02 [-.07, .03]
3. R Aggression	-.004 [-.07, .06]	.15** [.04, .26]	.58** [.49, .66]	-.06 [-.16, .04]	-.01 [-.06, .05]	-.05 [-.13, .03]	-.02 [-.07, .04]
4. Prosociality	.07* [.01, .13]	.02 [-.09, .13]	-.03 [-.13, .07]	.55** [.45, .64]	.05† [-.003, .11]	.02 [-.06, .10]	.02 [-.04, .07]
5. Fun	.14** [.04, .23]	-.01 [-.17, .16]	-.10 [-.25, .05]	-.03 [-.18, .13]	.72** [.64, .79]	-.07 [-.19, .05]	.06 [-.03, .14]
6. Shyness	-.01 [-.07, .05]	.04 [-.07, .14]	-.05 [-.14, .05]	.01 [-.09, .11]	-.01 [-.06, .05]	.76** [.70, .82]	.02 [-.03, .08]
7. Academics	-.08* [-.15, -.01]	-.13* [-.25, -.003]	-.08 [-.20, .03]	.12* [.004, .24]	.02 [-.04, .09]	-.01 [-.10, .08]	.83** [.78, .88]

Note. $N = 292$. Standard beta weights reported. R Aggression= Relational aggression, P Aggression= Physical aggression, Academics= Academic achievement. † $p < .10$, * $p < .05$, ** $p < .01$, two-tailed.

Table 4. Results from the Cross-Lagged Panel Model for Unpopularity

Time 1 Variables	Time 2 Variables						
	1 [95% CI]	2 [95% CI]	3 [95% CI]	4 [95% CI]	5 [95% CI]	6 [95% CI]	7 [95% CI]
1. Unpopularity	.76** [.70, .82]	-.09 [-.20, .02]	-.02 [-.12, .09]	-.11* [-.21, -.003]	-.12** [-.18, -.06]	-.04 [-.12, .04]	-.01 [-.07, .04]
2. P Aggression	.07 [-.003, .14]	.46** [.37, .55]	.03 [-.06, .12]	-.04 [-.13, .06]	-.01 [-.06, .05]	.003 [-.07, .08]	-.03 [-.08, .02]
3. R Aggression	-.06 [-.13, .02]	.15** [.04, .26]	.59** [.50, .67]	-.05 [-.15, .05]	.02 [-.04, .08]	-.05 [-.13, .03]	-.01 [-.06, .05]
4. Prosociality	-.09* [-.16, -.01]	-.002 [-.11, .11]	-.03 [-.13, .07]	.53** [.43, .62]	.04 [-.02, .09]	.01 [-.07, .09]	.02 [-.04, .07]
5. Fun	-.07† [-.17, .03]	-.09 [-.23, .04]	-.06 [-.18, .07]	-.05 [-.18, .08]	.80** [.74, .86]	-.11* [-.21, -.01]	.10** [.03, .17]
6. Shyness	.03 [-.05, .10]	.06 [-.04, .16]	-.05 [-.15, .04]	.02 [-.08, .12]	-.01 [-.07, .04]	.77** [.72, .83]	.02 [-.04, .07]
7. Academics	.09* [.004, .18]	-.09 [-.22, .03]	-.09 [-.20, .03]	.15** [.03, .27]	.04 [-.03, .11]	.01 [-.09, .10]	.83** [.78, .88]

Note. $N = 292$. Standard beta weights reported. R Aggression= Relational aggression, P Aggression= Physical aggression, Academics= Academic achievement. † $p < .10$, * $p < .05$, ** $p < .01$, two-tailed.

Table 5. Results from the Cross-Lagged Panel Model for Popularity and Unpopularity

Time 1 Variables	Time 2 Variables							
	1 [95% CI]	2 [95% CI]	3 [95% CI]	4 [95% CI]	5 [95% CI]	6 [95% CI]	7 [95% CI]	8 [95% CI]
1. Popularity	.67** [.59, .76]	-.13* [-.24, -.02]	-.15† [-.31, .01]	.08 [-.07, .23]	-.04 [-.19, .12]	.17** [.08, .25]	-.08 [-.20, .04]	.09* [.01, .17]
2. Unpopularity	-.18** [-.25, -.11]	.71** [.63, .79]	-.15* [-.28, -.02]	.02 [-.10, .13]	-.12* [-.25, -.001]	-.05 [-.12, .02]	-.07 [-.17, .02]	.02 [-.04, .09]
3. P Aggression	.002 [-.05, .06]	.06 [-.01, .13]	.44** [.35, .54]	.04 [-.06, .13]	-.04 [-.14, .05]	.01 [-.04, .06]	-.003 [-.08, .07]	-.02 [-.07, .03]
4. R Aggression	.02 [-.04, .08]	-.04 [-.12, .03]	.17** [.06, .28]	.58** [.49, .66]	-.04 [-.15, .06]	-.001 [-.06, .06]	-.04 [-.12, .04]	-.02 [-.07, .04]
5. Prosociality	.04 [-.03, .10]	-.09* [-.17, -.02]	-.01 [-.12, .10]	-.03 [-.13, .07]	.52** [.43, .62]	.04 [-.01, .10]	.01 [-.07, .09]	.02 [-.03, .08]
6. Fun	.13** [.04, .22]	-.003 [-.11, .11]	-.01 [-.17, .15]	-.10 [-.25, .05]	-.03 [-.18, .12]	.71** [.64, .79]	-.07 [-.19, .05]	.06 [-.03, .14]
7. Shyness	-.002 [-.06, .06]	.02 [-.05, .09]	.05 [-.05, .15]	-.05 [-.14, .05]	.02 [-.08, .11]	-.002 [-.06, .05]	.76** [.71, .82]	.02 [-.03, .07]
8. Academics	-.04 [-.11, .04]	.10* [.01, .19]	-.09 [-.21, .04]	-.09 [-.20, .03]	.15* [.03, .27]	.04 [-.03, .10]	.01 [-.08, .10]	.83** [.78, .88]

Note. $N = 292$. Standard beta weights reported. R Aggression= Relational aggression, P Aggression= Physical aggression, Academics= Academic achievement. † $p < .10$, * $p < .05$, ** $p < .01$, two-tailed.

Table 6. Hierarchical Regression Results for Time 2 Popularity

Variable	<i>B</i>	95% CI for <i>B</i>		<i>SE B</i>	β	<i>R</i> ²	ΔR^2	<i>F</i>
		<i>LL</i>	<i>UL</i>					
Step 1						.77	.77**	322.39**
Constant	0.56**	0.12	1.00	0.22				
Grade	-0.10*	-0.19	-0.01	0.05	-.07*			
Gender	-0.04	-0.18	0.10	0.07	-.02			
Time 1 Popularity	0.94**	0.88	1.00	0.03	.90**			
Step 2						.78	.01**	200.68**
Constant	0.55**	0.12	0.99	0.22				
Grade	-0.11**	-0.20	-0.03	0.04	-.08**			
Gender	-0.01	-0.14	0.13	0.07	-.003			
Time 1 Popularity	0.87**	0.79	0.94	0.04	.83**			
Acceptance	0.05**	0.01	0.08	0.02	.11**			
Rejection	-0.02	-0.13	0.09	0.06	-.01			
Step 3						.78	.01**	128.36**
Constant	0.61*	0.09	1.12	0.26				
Grade	-0.13*	-0.23	-0.02	0.05	-.08*			

Gender	-0.06	-0.20	0.09	0.07	-.02
Time 1 Popularity	0.81**	0.72	0.90	0.04	.77**
Acceptance	0.03	-0.02	0.07	0.02	.06
Rejection	-0.01	-0.12	0.10	0.06	-.01
Fun	0.04**	0.01	0.08	0.02	.14**
Academics	-0.01	-0.03	0.01	0.01	-.05
Prosociality	0.01	-0.03	0.04	0.02	.01

Note. $N = 292$. B = unstandardized beta coefficient; β = standardized beta coefficient, CI = confidence interval; LL = lower limit; UL = upper limit Gender: girls

= 0, boys = 1; Grade: 4, 5, 6. † $p < .10$, * $p < .05$, ** $p < .01$.

Table 7. Hierarchical Regression Results for Time 2 Unpopularity

Variable	<i>B</i>	95% CI for <i>B</i>		<i>SE B</i>	β	R^2	ΔR^2	<i>F</i>
		<i>LL</i>	<i>UL</i>					
Step 1						.68	.68**	202.93**
Constant	-1.21†	-2.55	0.13	0.68				
Grade	0.31*	0.05	0.56	0.13	.08*			
Gender	0.67**	0.25	1.09	0.21	.11**			
Time 1 Unpopularity	0.87**	0.80	0.94	0.04	.82**			
Step 2						.68	.00**	121.26**
Constant	-1.25†	-2.59	0.10	0.68				
Grade	0.34*	0.05	0.62	0.14	.09*			
Gender	0.65**	0.22	1.07	0.22	.10**			
Time 1 Unpopularity	0.85**	0.76	0.94	0.05	.80**			
Acceptance	-0.02	-0.12	0.07	0.05	-.02			
Rejection	0.08	-0.27	0.43	0.18	.02			
Step 3						.70	.02**	81.14**
Constant	-1.42†	-2.99	0.16	0.80				

Grade	0.48**	0.14	0.82	0.18	.12**
Gender	0.87**	0.42	1.31	0.23	.14**
Time 1 Unpopularity	0.80**	0.70	0.89	0.05	.75**
Acceptance	0.11	-0.02	0.23	0.06	.10
Rejection	0.04	-0.31	0.40	0.18	.01
Fun	-0.18**	-0.27	-0.09	0.05	-.22**
Academics	0.05	-0.01	0.11	0.03	.07
Prosociality	-0.06	-0.18	0.06	0.06	-.05

Note. $N = 292$. B = unstandardized beta coefficient; β = standardized beta coefficient; CI = confidence interval; LL = lower limit; UL = upper limit; Gender: girls = 0, boys = 1; Grade: 4, 5, 6. † $p < .10$, * $p < .05$, ** $p < .01$.

Table 8. Hierarchical Regression Results for Time 2 Popularity, Alternative Model

Variable	B	95% CI for B		SE B	β	R^2	ΔR^2	F
		LL	UL					
Step 1						.77	.77**	322.39**
Constant	0.56**	0.12	1.00	0.22				
Grade	-0.10*	-0.19	-0.01	0.05	-.07*			
Gender	-0.04	-0.18	0.10	0.07	-.02			
Time 1 Popularity	0.94**	0.88	1.00	0.03	.90**			
Step 2						.78	.01**	171.17**
Constant	0.60*	0.09	1.11	0.26				
Grade	-0.13*	-0.23	-0.03	0.05	-.09*			
Gender	-0.07	-0.21	0.07	0.07	-.03			
Time 1 Popularity	0.82**	0.74	0.91	0.04	.79**			
Fun	0.05**	0.02	0.08	0.02	.17**			
Academics	-0.01	-0.03	0.01	0.01	-.04			
Prosociality	0.02	-0.02	0.05	0.02	.03			
Step 3						.78	.00**	128.36**
Constant	0.61*	0.09	1.12	0.26				

Grade	-0.13*	-0.23	-0.02	0.05	-.08*
Gender	-0.06	-0.20	0.09	0.07	-.02
Time 1 Popularity	0.81**	0.72	0.90	0.04	.77**
Fun	0.04**	0.01	0.08	0.02	.14**
Academics	-0.01	-0.03	0.01	0.01	-.05
Prosociality	0.01	-0.03	0.04	0.02	.01
Acceptance	0.03	-0.02	0.07	0.02	.06
Rejection	-0.01	-0.12	0.10	0.06	-.01

Note. $N = 292$. B = unstandardized beta coefficient; β = standardized beta coefficient; CI = confidence interval; LL = lower limit; UL = upper limit; Gender: girls = 0, boys = 1; Grade: 4, 5, 6. † $p < .10$, * $p < .05$, ** $p < .01$.

Table 9. Hierarchical Regression Results for Time 2 Unpopularity, Alternative Model

Variable	<i>B</i>	95% CI for <i>B</i>		<i>SE B</i>	β	<i>R</i> ²	ΔR^2	<i>F</i>
		<i>LL</i>	<i>UL</i>					
Step 1						.68	.68**	202.93**
Constant	-1.21†	-2.55	0.13	0.68				
Grade	0.31*	0.05	0.56	0.13	.08*			
Gender	0.67**	0.25	1.09	0.21	.11**			
Time 1 Unpopularity	0.87**	0.80	0.94	0.04	.82**			
Step 2						.69	.01**	107.42**
Constant	-1.43†	-3.01	0.14	0.80				
Grade	0.51**	0.17	0.85	0.17	.13**			
Gender	0.81**	0.37	1.24	0.22	.13**			
Time 1 Unpopularity	0.78**	0.69	0.87	0.05	.73**			
Fun	-0.14**	-0.23	-0.06	0.04	-.18**			
Academics	0.05†	-0.01	0.11	0.03	.08†			
Prosociality	-0.02	-0.13	0.09	0.06	-.02			
Step 3						.70	.01**	81.14**
Constant	-1.42†	-2.99	0.16	0.80				

Grade	0.48**	0.14	0.82	0.18	.12**
Gender	0.87**	0.42	1.31	0.23	.14**
Time 1 Unpopularity	0.80**	0.70	0.89	0.05	.75**
Fun	-0.18**	-0.27	-0.09	0.05	-.22**
Academics	0.05	-0.01	0.11	0.03	.07
Prosociality	-0.06	-0.18	0.06	0.06	-.05
Acceptance	0.11	-0.02	0.23	0.06	.10
Rejection	0.04	-0.31	0.40	0.18	.01

Note. $N = 292$. B = unstandardized beta coefficient; β = standardized beta coefficient; CI = confidence interval; LL = lower limit; UL = upper limit; Gender: girls = 0, boys = 1; Grade: 4, 5, 6. † $p < .10$, * $p < .05$, ** $p < .01$.

Table 10. Hierarchical Regression Results for Time 2 Popularity with Interaction Terms for Gender

Variable	B	95% CI for B		SE B	β	R^2	ΔR^2	F
		LL	UL					
Step 1						.77	.77**	322.39**
Constant	0.56**	0.12	1.00	0.22				
Grade	-0.10*	-0.19	-0.01	0.05	-.07*			
Gender	-0.04	-0.18	0.10	0.07	-.02			
Time 1 Popularity	0.94**	0.88	1.00	0.03	.90**			
Step 2						.78	.01**	200.68**
Constant	0.55**	0.12	0.99	0.22				
Grade	-0.11**	-0.20	-0.03	0.04	-.08**			
Gender	-0.01	-0.14	0.13	0.07	-.003			
Time 1 Popularity	0.87**	0.79	0.94	0.04	.83**			
Acceptance	0.05**	0.01	0.08	0.02	.11**			
Rejection	-0.02	-0.13	0.09	0.06	-.01			
Step 3						.78	.00**	128.36**
Constant	0.61*	0.09	1.12	0.26				
Grade	-0.13*	-0.23	-0.02	0.05	-.08*			

Gender	-0.06	-0.20	0.09	0.07	-.02			
Time 1 Popularity	0.81**	0.72	0.90	0.04	.77**			
Acceptance	0.03	-0.02	0.07	0.02	.06			
Rejection	-0.01	-0.12	0.10	0.06	-.01			
Fun	0.04**	0.01	0.08	0.02	.14**			
Academics	-0.01	-0.03	0.01	0.01	-.05			
Prosociality	0.01	-0.03	0.04	0.02	.01			
Step 4						.79	.01**	79.66**
Constant	0.74**	0.18	1.29	0.28				
Grade	-0.14*	-0.25	-0.03	0.06	-.09*			
Gender	-0.33†	-0.69	0.04	0.18	-.14†			
Time 1 Popularity	0.80**	0.72	0.89	0.04	.77**			
Acceptance	0.04	-0.01	0.09	0.03	.10			
Rejection	-0.05	-0.20	0.10	0.07	-.03			
Fun	0.04	-0.01	0.08	0.02	.12			
Academics	-0.01	-0.03	0.01	0.01	-.04			
Prosociality	-0.02	-0.07	0.03	0.02	-.04			
Gender*Acceptance	-0.05	-0.13	0.04	0.04	-.09			

Gender*Rejection	0.12	-0.11	0.35	0.12	.05
Gender*Fun	0.03	-0.03	0.09	0.03	.11
Gender*Academics	-0.02	-0.06	0.03	0.02	-.05
Gender*Prosociality	0.09*	0.01	0.17	0.04	.15*

Note. $N = 292$. B = unstandardized beta coefficient; β = standardized beta coefficient; CI = confidence interval; LL = lower limit; UL = upper limit; Gender: girls = 0, boys = 1; Grade: 4, 5, 6. † $p < .10$, * $p < .05$, ** $p < .01$.

Table 11. Hierarchical Regression Results for Time 2 Unpopularity with Interaction Terms for Gender

Variable	<i>B</i>	95% CI for <i>B</i>		<i>SE B</i>	β	<i>R</i> ²	ΔR^2	<i>F</i>
		<i>LL</i>	<i>UL</i>					
Step 1						.68	.68**	202.93**
Constant	-1.21†	-2.55	0.13	0.68				
Grade	0.31*	0.05	0.56	0.13	.08*			
Gender	0.67**	0.25	1.09	0.21	.11**			
Time 1 Unpopularity	0.87**	0.80	0.94	0.04	.82**			
Step 2						.68	.00**	121.26**
Constant	-1.25†	-2.59	0.10	0.68				
Grade	0.34*	0.05	0.62	0.14	.09*			
Gender	0.65**	0.22	1.07	0.22	.10**			
Time 1 Unpopularity	0.85**	0.76	0.94	0.05	.80**			
Acceptance	-0.02	-0.12	0.07	0.05	-.02			
Rejection	0.08	-0.27	0.43	0.18	.02			
Step 3						.70	.02**	81.14**
Constant	-1.42†	-2.99	0.16	0.80				
Grade	0.48**	0.14	0.82	0.18	.12**			

Gender	0.87**	0.42	1.31	0.23	.14**			
Time 1 Unpopularity	0.80**	0.70	0.89	0.05	.75**			
Acceptance	0.11	-0.02	0.23	0.06	.10			
Rejection	0.04	-0.31	0.40	0.18	.01			
Fun	-0.18**	-0.27	-0.09	0.05	-.22**			
Academics	0.05	-0.01	0.11	0.03	.07			
Prosociality	-0.06	-0.18	0.06	0.06	-.05			
Step 4						.71	.01**	53.49**
Constant	-0.96	-2.63	0.70	0.85				
Grade	0.39*	0.04	0.74	0.18	.10*			
Gender	1.15*	0.05	2.25	0.56	.19*			
Time 1 Unpopularity	0.78**	0.69	0.87	0.05	.74**			
Acceptance	0.08	-0.08	0.24	0.08	.07			
Rejection	-0.32	-0.76	0.13	0.23	-.07			
Fun	-0.21**	-0.35	-0.08	0.07	-.27**			
Academics	0.06	-0.01	0.13	0.04	.09			
Prosociality	0.05	-0.09	0.19	0.07	.04			
Gender*Acceptance	0.08	-0.18	0.35	0.13	.07			

Gender*Rejection	0.76*	0.08	1.45	0.35	.12*
Gender*Fun	0.05	-0.13	0.23	0.09	.07
Gender*Academics	-0.01	-0.13	0.11	0.06	-.01
Gender*Prosociality	-0.34**	-0.58	-0.10	0.12	-.22**

Note. $N = 292$. B = unstandardized beta coefficient; β = standardized beta coefficient; CI = confidence interval; LL = lower limit; UL = upper limit; Gender: girls = 0, boys = 1; Grade: 4, 5, 6. † $p < .10$, * $p < .05$, ** $p < .01$.

Table 12. Hierarchical Regression Results for Time 2 Popularity with Interaction Terms for Grade

Variable	<i>B</i>	95% CI for <i>B</i>		<i>SE B</i>	<i>B</i>	<i>R</i> ²	ΔR^2	<i>F</i>
		<i>LL</i>	<i>UL</i>					
Step 1						.77	.77**	322.39**
Constant	0.56**	0.12	1.00	0.22				
Grade	-0.10*	-0.19	-0.01	0.05	-.07*			
Gender	-0.04	-0.18	0.10	0.07	-.02			
Time 1 Popularity	0.94**	0.88	1.00	0.03	.90**			
Step 2						.78	.01**	200.68**
Constant	0.55**	0.12	0.99	0.22				
Grade	-0.11**	-0.20	-0.03	0.04	-.08**			
Gender	-0.01	-0.14	0.13	0.07	-.003			
Time 1 Popularity	0.87**	0.79	0.94	0.04	.83**			
Acceptance	0.05**	0.01	0.08	0.02	.11**			
Rejection	-0.02	-0.13	0.09	0.06	-.01			
Step 3						.78	.01**	128.36**
Constant	0.61*	0.09	1.12	0.26				
Grade	-0.13*	-0.23	-0.02	0.05	-.08*			

Gender	-0.06	-0.20	0.09	0.07	-.02			
Time 1 Popularity	0.81**	0.72	0.90	0.04	.77**			
Acceptance	0.03	-0.02	0.07	0.02	.06			
Rejection	-0.01	-0.12	0.10	0.06	-.01			
Fun	0.04**	0.01	0.08	0.02	.14**			
Academics	-0.01	-0.03	0.01	0.01	-.05			
Prosociality	0.01	-0.03	0.04	0.02	.01			
Step 4						.79	.01**	79.42**
Constant	0.06	-1.41	1.52	0.74				
Grade	-0.03	-0.30	0.24	0.14	-.02			
Gender	-0.04	-0.19	0.11	0.08	-.02			
Time 1 Popularity	0.81**	0.72	0.90	0.04	.78**			
Acceptance	-0.06	-0.35	0.23	0.15	-.15			
Rejection	-0.19	-0.95	0.56	0.38	-.11			
Fun	0.09	-0.19	0.36	0.14	.28			
Academics	0.18 [†]	-0.02	0.38	0.10	.70 [†]			
Prosociality	-0.07	-0.36	0.23	0.15	-.13			
Grade*Acceptance	0.02	-0.04	0.07	0.03	.22			

Grade *Rejection	0.04	-0.11	0.18	0.07	.11
Grade *Fun	-0.01	-0.06	0.04	0.02	-.15
Grade *Academics	-0.03 [†]	-0.07	0.00	0.02	-.81 [†]
Grade *Prosociality	0.01	-0.04	0.07	0.03	.13

Note. $N = 292$. B = unstandardized beta coefficient; β = standardized beta coefficient; CI= confidence interval; LL= lower limit; UL= upper limit; Gender: girls = 0, boys = 1; Grade: 4, 5, 6. [†] $p < .10$, * $p < .05$, ** $p < .01$.

Table 13. Hierarchical Regression Results for Time 2 Unpopularity with Interaction Terms for Grade

Variable	<i>B</i>	95% CI for <i>B</i>		<i>SE B</i>	β	<i>R</i> ²	ΔR^2	<i>F</i>
		<i>LL</i>	<i>UL</i>					
Step 1						.68	.68**	202.93**
Constant	-1.21†	-2.55	0.13	0.68				
Grade	0.31*	0.05	0.56	0.13	.08*			
Gender	0.67**	0.25	1.09	0.21	.11**			
Time 1 Unpopularity	0.87**	0.80	0.94	0.04	.82**			
Step 2						.68	.00**	121.26**
Constant	-1.25†	-2.59	0.10	0.68				
Grade	0.34*	0.05	0.62	0.14	.09*			
Gender	0.65**	0.22	1.07	0.22	.10**			
Time 1 Unpopularity	0.85**	0.76	0.94	0.05	.80**			
Acceptance	-0.02	-0.12	0.07	0.05	-.02			
Rejection	0.08	-0.27	0.43	0.18	.02			
Step 3						.70	.02**	81.14**
Constant	-1.42†	-2.99	0.16	0.80				
Grade	0.48**	0.14	0.82	0.18	.12**			

Gender	0.87**	0.42	1.31	0.23	.14**			
Time 1 Unpopularity	0.80**	0.70	0.89	0.05	.75**			
Acceptance	0.11	-0.02	0.23	0.06	.10			
Rejection	0.04	-0.31	0.40	0.18	.01			
Fun	-0.18**	-0.27	-0.09	0.05	-.22**			
Academics	0.05	-0.01	0.11	0.03	.07			
Prosociality	-0.06	-0.18	0.06	0.06	-.05			
Step 4						.71	.01**	50.67**
Constant	1.35	-3.13	5.83	2.28				
Grade	0.00	-0.84	0.83	0.42	.00			
Gender	0.69**	0.23	1.16	0.24	.11**			
Time 1 Unpopularity	0.77**	0.67	0.87	0.05	.73**			
Acceptance	0.53	-0.35	1.42	0.45	.49			
Rejection	-1.55	-3.88	0.78	1.18	-.34			
Fun	-0.31	-1.15	0.53	0.43	-.39			
Academics	-0.60 [†]	-1.22	0.02	0.32	-.89 [†]			
Prosociality	0.06	-0.86	0.97	0.46	.04			
Grade*Acceptance	-0.08	-0.24	0.08	0.08	-.44			

Grade *Rejection	0.32	-0.13	0.77	0.23	.36
Grade *Fun	0.02	-0.12	0.17	0.07	.19
Grade *Academics	0.11*	0.01	0.22	0.06	1.06*
Grade *Prosociality	-0.02	-0.18	0.15	0.09	-.07

Note. $N = 292$. B = unstandardized beta coefficient; β = standardized beta coefficient; CI= confidence interval; LL= lower limit; UL= upper limit; Gender: girls = 0, boys = 1; Grade: 4, 5, 6. † $p < .10$, * $p < .05$, ** $p < .01$.

Table 14. Hierarchical Regression Results for Time 2 Popularity with Additional Status Measure

Variable	<i>B</i>	95% CI for <i>B</i>		<i>SE B</i>	β	<i>R</i> ²	ΔR^2	<i>F</i>
		<i>LL</i>	<i>UL</i>					
Step 1						.77	.77**	322.3**
Constant	0.56**	0.12	1.00	0.22				
Grade	-0.10*	-0.19	-0.01	0.05	-.07*			
Gender	-0.04	-0.18	0.10	0.07	-.02			
Time 1 Popularity	0.94**	0.88	1.00	0.03	.90**			
Step 2						.79	.02**	266.08**
Constant	0.51*	0.08	0.93	0.22				
Grade	0.01	-0.09	0.10	0.05	.01			
Gender	-0.06	-0.19	0.07	0.07	-.03			
Time 1 Popularity	0.78**	0.70	0.87	0.04	.75**			
Time 1 Unpopularity	-0.08**	-0.11	-0.05	0.02	-.20**			
Step 3						.79	.00**	179.87**
Constant	0.49*	0.06	0.91	0.22				
Grade	-0.01	-0.11	0.09	0.05	-.01			
Gender	-0.04	-0.17	0.10	0.07	-.02			

Time 1 Popularity	0.75**	0.66	0.84	0.05	.72**			
Time 1 Unpopularity	-0.08**	-0.11	-0.04	0.02	-.18**			
Acceptance	0.04*	0.00	0.07	0.02	.08*			
Rejection	0.04	-0.08	0.15	0.06	.02			
Step 4						.80	.01**	122.32**
Constant	0.55*	0.05	1.05	0.25				
Grade	-0.03	-0.15	0.08	0.06	-.02			
Gender	-0.08	-0.22	0.06	0.07	-.04			
Time 1 Popularity	0.70**	0.60	0.80	0.05	.67**			
Time 1 Unpopularity	-0.07**	-0.11	-0.04	0.02	-.18**			
Acceptance	0.01	-0.03	0.05	0.02	.03			
Rejection	0.05	-0.06	0.16	0.06	.03			
Fun	0.04**	0.01	0.07	0.02	.14**			
Academics	-0.01	-0.03	0.01	0.01	-.04			
Prosociality	0.01	-0.03	0.04	0.02	.01			

Note. $N = 292$. B = unstandardized beta coefficient; β = standardized beta coefficient; CI = confidence interval; LL = lower limit; UL = upper limit; Gender: girls

= 0, boys = 1; Grade: 4, 5, 6. † $p < .10$, * $p < .05$, ** $p < .01$.

Table 15. Hierarchical Regression Results for Time 2 Unpopularity with Additional Status Measure

Variable	<i>B</i>	95% CI for <i>B</i>		<i>SE B</i>	<i>B</i>	<i>R</i> ²	ΔR^2	<i>F</i>
		<i>LL</i>	<i>UL</i>					
Step 1						.68	.68**	202.93**
Constant	-1.21†	-2.55	0.13	0.68				
Grade	0.31*	0.05	0.56	0.13	.08*			
Gender	0.67**	0.25	1.09	0.21	.11**			
Time 1 Unpopularity	0.87**	0.80	0.94	0.04	.82**			
Step 2						.70	.02**	169.47**
Constant	-1.55*	-2.85	-0.25	0.66				
Grade	0.68**	0.39	0.97	0.15	.18**			
Gender	0.75**	0.34	1.15	0.21	.12**			
Time 1 Unpopularity	0.69**	0.59	0.79	0.05	.65**			
Time 1 Popularity	-0.65**	-0.92	-0.38	0.14	-.24**			
Step 3						.70	.00**	113.22**
Constant	-1.62*	-2.92	-0.32	0.66				
Grade	0.65**	0.35	0.95	0.15	.17**			
Gender	0.78**	0.37	1.19	0.21	.13**			

Time 1 Unpopularity	0.69**	0.58	0.80	0.06	.65**			
Time 1 Popularity	-0.71**	-0.99	-0.42	0.14	-.26**			
Acceptance	0.06	-0.04	0.16	0.05	.06			
Rejection	0.16	-0.18	0.50	0.17	.04			
Step 4						.71	.01**	77.16**
Constant	-1.42†	-2.96	0.12	0.78				
Grade	0.64**	0.30	0.99	0.18	.17**			
Gender	0.87**	0.43	1.30	0.22	.14**			
Time 1 Unpopularity	0.69**	0.58	0.79	0.06	.65**			
Time 1 Popularity	-0.59**	-0.89	-0.28	0.16	-.22**			
Acceptance	0.14*	0.01	0.26	0.06	.13*			
Rejection	0.13	-0.22	0.48	0.18	.03			
Fun	-0.11*	-0.21	-0.01	0.05	-.14*			
Academics	0.04	-0.02	0.10	0.03	.06			
Prosociality	-0.07	-0.19	0.04	0.06	-.06			

Note. $N = 292$. B= unstandardized beta coefficient; β = standardized beta coefficient; CI= confidence interval; LL= lower limit; UL= upper limit; Gender: girls

= 0, boys = 1; Grade: 4, 5, 6. † $p < .10$, * $p < .05$, ** $p < .01$.

Table 16. *Alternative Hierarchical Regression Results for Time 2 Popularity with Additional Status Measure*

Variable	<i>B</i>	95% CI for <i>B</i>		<i>SE B</i>	<i>B</i>	<i>R</i> ²	ΔR^2	<i>F</i>
		<i>LL</i>	<i>UL</i>					
Step 1						.77	.77**	322.39**
Constant	0.56**	0.12	1.00	0.22				
Grade	-0.10*	-0.19	-0.01	0.05	-.07*			
Gender	-0.04	-0.18	0.10	0.07	-.02			
Time 1 Popularity	0.94**	0.88	1.00	0.03	.90**			
Step 2						.79	.02**	266.08**
Constant	0.51*	0.08	0.93	0.22				
Grade	0.01	-0.09	0.10	0.05	.01			
Gender	-0.06	-0.19	0.07	0.07	-.03			
Time 1 Popularity	0.78**	0.70	0.87	0.04	.75**			
Time 1 Unpopularity	-0.08**	-0.11	-0.05	0.02	-.20**			
Step 3						.80	.01**	157.65**
Constant	0.55*	0.05	1.05	0.25				
Grade	-0.03	-0.14	0.09	0.06	-.02			
Gender	-0.09	-0.22	0.05	0.07	-.04			

Time 1 Popularity	0.71**	0.61	0.81	0.05	.68**			
Time 1 Unpopularity	-0.07**	-0.10	-0.04	0.02	-.17**			
Fun	0.04**	0.01	0.07	0.02	.14**			
Academics	-0.01	-0.03	0.01	0.01	-.04			
Prosociality	0.01	-0.02	0.05	0.02	.02			
Step 4						.80	.00**	122.32**
Constant	0.55*	0.05	1.05	0.25				
Grade	-0.03	-0.15	0.08	0.06	-.02			
Gender	-0.08	-0.22	0.06	0.07	-.04			
Time 1 Popularity	0.70**	0.60	0.80	0.05	.67**			
Time 1 Unpopularity	-0.07**	-0.11	-0.04	0.02	-.18**			
Fun	0.04**	0.01	0.07	0.02	.14**			
Academics	-0.01	-0.03	0.01	0.01	-.04			
Prosociality	0.01	-0.03	0.04	0.02	.01			
Acceptance	0.01	-0.03	0.05	0.02	.03			
Rejection	0.05	-0.06	0.16	0.06	.03			

Note. $N = 292$. B= unstandardized beta coefficient; β = standardized beta coefficient; CI= confidence interval; LL= lower limit; UL= upper limit; Gender: girls = 0, boys = 1; Grade: 4, 5, 6. † $p < .10$, * $p < .05$, ** $p < .01$.

Table 17. *Alternative Hierarchical Regression Results for Time 2 Unpopularity with Additional Status Measure*

Variable	<i>B</i>	95% CI for <i>B</i>		<i>SE B</i>	<i>B</i>	<i>R</i> ²	ΔR^2	<i>F</i>
		<i>LL</i>	<i>UL</i>					
Step 1						.68	.68**	202.93**
Constant	-1.21†	-2.55	0.13	0.68				
Grade	0.31*	0.05	0.56	0.13	.08*			
Gender	0.67**	0.25	1.09	0.21	.11**			
Time 1 Unpopularity	0.87**	0.80	0.94	0.04	.82**			
Step 2						.70	.02**	169.47**
Constant	-1.55*	-2.85	-0.25	0.66				
Grade	0.68**	0.39	0.97	0.15	.18**			
Gender	0.75**	0.34	1.15	0.21	.12**			
Time 1 Unpopularity	0.69**	0.59	0.79	0.05	.65**			
Time 1 Popularity	-0.65**	-0.92	-0.38	0.14	-.24**			
Step 3						.71	.01**	97.47**
Constant	-1.44†	-2.99	0.11	0.79				
Grade	0.68**	0.33	1.02	0.18	.18**			
Gender	0.80**	0.37	1.22	0.22	.13**			

Time 1 Unpopularity	0.68**	0.57	0.78	0.05	.64**			
Time 1 Popularity	-0.54**	-0.84	-0.24	0.15	-.20**			
Fun	-0.07	-0.16	0.02	0.05	-.09			
Academics	0.04	-0.02	0.10	0.03	.06			
Prosociality	-0.02	-0.13	0.08	0.05	-.02			
Step 4						.71	.00**	77.16**
Constant	-1.42†	-2.96	0.12	0.78				
Grade	0.64**	0.30	0.99	0.18	.17**			
Gender	0.87**	0.43	1.30	0.22	.14**			
Time 1 Unpopularity	0.69**	0.58	0.79	0.06	.65**			
Time 1 Popularity	-0.59**	-0.89	-0.28	0.16	-.22**			
Fun	-0.11*	-0.21	-0.01	0.05	-.14*			
Academics	0.04	-0.02	0.10	0.03	.06			
Prosociality	-0.07	-0.19	0.04	0.06	-.06			
Acceptance	0.14*	0.01	0.26	0.06	.13*			
Rejection	0.13	-0.22	0.48	0.18	.03			

Note. $N = 292$. B = unstandardized beta coefficient; β = standardized beta coefficient; CI = confidence interval; LL = lower limit; UL = upper limit; Gender: girls = 0, boys = 1; Grade: 4, 5, 6. † $p < .10$, * $p < .05$, ** $p < .01$.

Table 18. Hierarchical Regression Results for Time 2 Popularity with Additional Status Measure and Interaction Terms for Gender

Variable	B	95% CI for B		SE B	β	R^2	ΔR^2	F
		LL	UL					
Step 1						.77	.77**	322.39**
Constant	0.56**	0.12	1.00	0.22				
Grade	-0.10*	-0.19	-0.01	0.05	-.07*			
Gender	-0.04	-0.18	0.10	0.07	-.02			
Time 1 Popularity	0.94**	0.88	1.00	0.03	.90**			
Step 2						.79	.02**	266.08**
Constant	0.51*	0.08	0.93	0.22				
Grade	0.01	-0.09	0.10	0.05	.01			
Gender	-0.06	-0.19	0.07	0.07	-.03			
Time 1 Popularity	0.78**	0.70	0.87	0.04	.75**			
Time 1 Unpopularity	-0.08**	-0.11	-0.05	0.02	-.20**			
Step 3						.79	.00**	179.87**
Constant	0.49*	0.06	0.91	0.22				
Grade	-0.01	-0.11	0.09	0.05	-.01			
Gender	-0.04	-0.17	0.10	0.07	-.02			

	Time 1 Popularity	0.75**	0.66	0.84	0.05	.72**			
	Time 1 Unpopularity	-0.08**	-0.11	-0.04	0.02	-.18**			
	Acceptance	0.04*	0.00	0.07	0.02	.08*			
	Rejection	0.04	-0.08	0.15	0.06	.02			
Step 4							.80	.01**	122.32**
	Constant	0.55*	0.05	1.05	0.25				
	Grade	-0.03	-0.15	0.08	0.06	-.02			
	Gender	-0.08	-0.22	0.06	0.07	-.04			
	Time 1 Popularity	0.70**	0.60	0.80	0.05	.67**			
	Time 1 Unpopularity	-0.07**	-0.11	-0.04	0.02	-.18**			
	Acceptance	0.01	-0.03	0.05	0.02	.03			
	Rejection	0.05	-0.06	0.16	0.06	.03			
	Fun	0.04**	0.01	0.07	0.02	.14**			
	Academics	-0.01	-0.03	0.01	0.01	-.04			
	Prosociality	0.01	-0.03	0.04	0.02	.01			
Step 5							.80	.00**	79.47**
	Constant	0.70**	0.17	1.24	0.27				
	Grade	-0.04	-0.16	0.08	0.06	-.03			

Gender	-0.43*	-0.78	-0.07	0.18	-.18*
Time 1 Popularity	0.69**	0.59	0.79	0.05	.66**
Time 1 Unpopularity	-0.07**	-0.11	-0.04	0.02	-.18**
Acceptance	0.02	-0.03	0.08	0.03	.06
Rejection	-0.01	-0.15	0.14	0.07	.00
Fun	0.03	-0.01	0.08	0.02	.11
Academics	-0.01	-0.03	0.02	0.01	-.03
Prosociality	-0.02	-0.06	0.03	0.02	-.03
Gender*Acceptance	-0.02	-0.11	0.06	0.04	-.05
Gender*Rejection	0.17	-0.05	0.39	0.11	.07
Gender*Fun	0.03	-0.03	0.09	0.03	.10
Gender*Academics	-0.01	-0.05	0.03	0.02	-.05
Gender*Prosociality	0.08*	0.00	0.16	0.04	.14*

Note. $N = 292$. B = unstandardized beta coefficient; β = standardized beta coefficient; CI = confidence interval; LL = lower limit; UL = upper limit; Gender: girls = 0, boys = 1; Grade: 4, 5, 6. † $p < .10$, * $p < .05$, ** $p < .01$.

Table 19. Hierarchical Regression Results for Time 2 Unpopularity with Additional Status Measure and Interaction Terms for Gender

Variable	<i>B</i>	95% CI for <i>B</i>		<i>SE B</i>	β	<i>R</i> ²	ΔR^2	<i>F</i>
		<i>LL</i>	<i>UL</i>					
Step 1						.68	.68**	202.93**
Constant	-1.21†	-2.55	0.13	0.68				
Grade	0.31*	0.05	0.56	0.13	.08*			
Gender	0.67**	0.25	1.09	0.21	.11**			
Time 1 Unpopularity	0.87**	0.80	0.94	0.04	.82**			
Step 2						.70	.02**	169.47**
Constant	-1.55*	-2.85	-0.25	0.66				
Grade	0.68**	0.39	0.97	0.15	.18**			
Gender	0.75**	0.34	1.15	0.21	.12**			
Time 1 Unpopularity	0.69**	0.59	0.79	0.05	.65**			
Time 1 Popularity	-0.65**	-0.92	-0.38	0.14	-.24**			
Step 3						.70	.00**	113.22**
Constant	-1.62*	-2.92	-0.32	0.66				
Grade	0.65**	0.35	0.95	0.15	.17**			
Gender	0.78**	0.37	1.19	0.21	.13**			

	Time 1 Unpopularity	0.69**	0.58	0.80	0.06	.65**			
	Time 1 Popularity	-0.71**	-0.99	-0.42	0.14	-.26**			
	Acceptance	0.06	-0.04	0.16	0.05	.06			
	Rejection	0.16	-0.18	0.50	0.17	.04			
Step 4							.71	.01**	77.16**
	Constant	-1.42†	-2.96	0.12	0.78				
	Grade	0.64**	0.30	0.99	0.18	.17**			
	Gender	0.87**	0.43	1.30	0.22	.14**			
	Time 1 Unpopularity	0.69**	0.58	0.79	0.06	.65**			
	Time 1 Popularity	-0.59**	-0.89	-0.28	0.16	-.22**			
	Acceptance	0.14*	0.01	0.26	0.06	.13*			
	Rejection	0.13	-0.22	0.48	0.18	.03			
	Fun	-0.11*	-0.21	-0.01	0.05	-.14*			
	Academics	0.04	-0.02	0.10	0.03	.06			
	Prosociality	-0.07	-0.19	0.04	0.06	-.06			
Step 5							.73	.02**	52.99**
	Constant	-0.89	-2.52	0.74	0.83				
	Grade	0.55**	0.20	0.90	0.18	.14**			

Gender	0.94 [†]	-0.14	2.02	0.55	.15 [†]
Time 1 Unpopularity	0.67**	0.57	0.78	0.05	.63**
Time 1 Popularity	-0.57**	-0.87	-0.27	0.15	-.21**
Acceptance	0.12	-0.04	0.28	0.08	.11
Rejection	-0.25	-0.68	0.19	0.22	-.05
Fun	-0.16*	-0.30	-0.03	0.07	-.20*
Academics	0.05	-0.02	0.12	0.04	.07
Prosociality	0.04	-0.10	0.17	0.07	.03
Gender*Acceptance	0.08	-0.18	0.34	0.13	.06
Gender*Rejection	0.80*	0.13	1.47	0.34	.13*
Gender*Fun	0.08	-0.10	0.26	0.09	.11
Gender*Academics	-0.01	-0.13	0.11	0.06	-.01
Gender*Prosociality	-0.32**	-0.55	-0.09	0.12	-.21**

Note. $N = 292$. B = unstandardized beta coefficient; β = standardized beta coefficient; CI = confidence interval; LL = lower limit; UL = upper limit; Gender: girls = 0, boys = 1; Grade: 4, 5, 6. [†] $p < .10$, * $p < .05$, ** $p < .01$.

Table 20. Hierarchical Regression Results for Time 2 Popularity with Additional Status Measure and Interaction Terms for Grade

Variable	<i>B</i>	95% CI for <i>B</i>		<i>SE B</i>	<i>B</i>	<i>R</i> ²	ΔR^2	<i>F</i>
		<i>LL</i>	<i>UL</i>					
Step 1						.77	.77**	322.39**
Constant	0.56**	0.12	1.00	0.22				
Grade	-0.10*	-0.19	-0.01	0.05	-.07*			
Gender	-0.04	-0.18	0.10	0.07	-.02			
Time 1 Popularity	0.94**	0.88	1.00	0.03	.90**			
Step 2						.79	.02**	266.08**
Constant	0.51*	0.08	0.93	0.22				
Grade	0.01	-0.09	0.10	0.05	.01			
Gender	-0.06	-0.19	0.07	0.07	-.03			
Time 1 Popularity	0.78**	0.70	0.87	0.04	.75**			
Time 1 Unpopularity	-0.08**	-0.11	-0.05	0.02	-.20**			
Step 3						.79	.00**	179.87**
Constant	0.49*	0.06	0.91	0.22				
Grade	-0.01	-0.11	0.09	0.05	-.01			
Gender	-0.04	-0.17	0.10	0.07	-.02			

Time 1 Popularity	0.75**	0.66	0.84	0.05	.72**			
Time 1 Unpopularity	-0.08**	-0.11	-0.04	0.02	-.18**			
Acceptance	0.04*	0.00	0.07	0.02	.08*			
Rejection	0.04	-0.08	0.15	0.06	.02			
Step 4						.80	.01**	122.32**
Constant	0.55*	0.05	1.05	0.25				
Grade	-0.03	-0.15	0.08	0.06	-.02			
Gender	-0.08	-0.22	0.06	0.07	-.04			
Time 1 Popularity	0.70**	0.60	0.80	0.05	.67**			
Time 1 Unpopularity	-0.07**	-0.11	-0.04	0.02	-.18**			
Acceptance	0.01	-0.03	0.05	0.02	.03			
Rejection	0.05	-0.06	0.16	0.06	.03			
Fun	0.04**	0.01	0.07	0.02	.14**			
Academics	-0.01	-0.03	0.01	0.01	-.04			
Prosociality	0.01	-0.03	0.04	0.02	.01			
Step 5						.80	.00**	79.25**
Constant	0.21	-1.21	1.63	0.72				
Grade	0.02	-0.24	0.28	0.13	.01			

Gender	-0.09	-0.23	0.06	0.08	-.04
Time 1 Popularity	0.70**	0.61	0.80	0.05	.67**
Time 1 Unpopularity	-0.08**	-0.11	-0.04	0.02	-.19**
Acceptance	-0.10	-0.38	0.19	0.14	-.23
Rejection	-0.41	-1.15	0.33	0.38	-.23
Fun	0.11	-0.15	0.38	0.14	.37
Academics	0.12	-0.08	0.31	0.10	.44
Prosociality	-0.01	-0.30	0.28	0.15	-.02
Grade*Acceptance	0.02	-0.03	0.07	0.03	.27
Grade*Rejection	0.09	-0.05	0.24	0.07	.27
Grade*Fun	-0.01	-0.06	0.03	0.02	-.25
Grade*Academics	-0.02	-0.06	0.01	0.02	-.51
Grade*Prosociality	0.00	-0.05	0.06	0.03	.02

Note. $N = 292$. B = unstandardized beta coefficient; β = standardized beta coefficient; CI = confidence interval; LL = lower limit; UL = upper limit; Gender: girls = 0, boys = 1; Grade: 4, 5, 6. † $p < .10$, * $p < .05$, ** $p < .01$.

Table 21. Hierarchical Regression Results for Time 2 Unpopularity with Additional Status Measure and Interaction Terms for Grade

Variable	<i>B</i>	95% CI for <i>B</i>		<i>SE B</i>	β	<i>R</i> ²	ΔR^2	<i>F</i>
		<i>LL</i>	<i>UL</i>					
Step 1						.68	.68**	202.93**
Constant	-1.21†	-2.55	0.13	0.68				
Grade	0.31*	0.05	0.56	0.13	.08*			
Gender	0.67**	0.25	1.09	0.21	.11**			
Time 1 Unpopularity	0.87**	0.80	0.94	0.04	.82**			
Step 2						.70	.02**	169.47**
Constant	-1.55*	-2.85	-0.25	0.66				
Grade	0.68**	0.39	0.97	0.15	.18**			
Gender	0.75**	0.34	1.15	0.21	.12**			
Time 1 Unpopularity	0.69**	0.59	0.79	0.05	.65**			
Time 1 Popularity	-0.65**	-0.92	-0.38	0.14	-.24**			
Step 3						.70	.00**	113.22**
Constant	-1.62*	-2.92	-0.32	0.66				
Grade	0.65**	0.35	0.95	0.15	.17**			
Gender	0.78**	0.37	1.19	0.21	.13**			

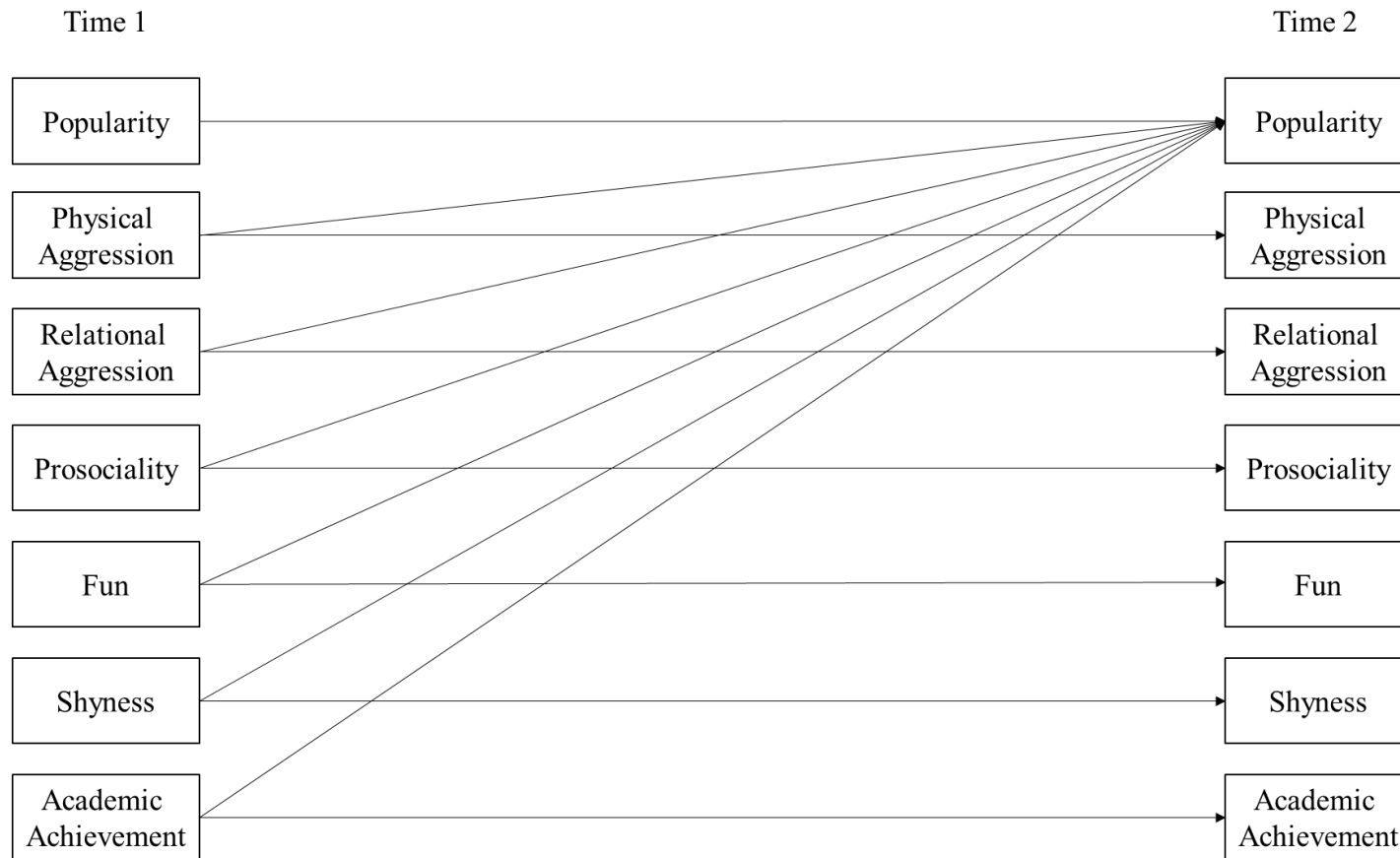
Time 1 Unpopularity	0.69**	0.58	0.80	0.06	.65**			
Time 1 Popularity	-0.71**	-0.99	-0.42	0.14	-.26**			
Acceptance	0.06	-0.04	0.16	0.05	.06			
Rejection	0.16	-0.18	0.50	0.17	.04			
Step 4						.71	.01**	77.16**
Constant	-1.42†	-2.96	0.12	0.78				
Grade	0.64**	0.30	0.99	0.18	.17**			
Gender	0.87**	0.43	1.30	0.22	.14**			
Time 1 Unpopularity	0.69**	0.58	0.79	0.06	.65**			
Time 1 Popularity	-0.59**	-0.89	-0.28	0.16	-.22**			
Acceptance	0.14*	0.01	0.26	0.06	.13*			
Rejection	0.13	-0.22	0.48	0.18	.03			
Fun	-0.11*	-0.21	-0.01	0.05	-.14*			
Academics	0.04	-0.02	0.10	0.03	.06			
Prosociality	-0.07	-0.19	0.04	0.06	-.06			
Step 5						.72	.01**	50.53**
Constant	1.79	-2.58	6.17	2.22				
Grade	0.09	-0.73	0.90	0.41	.02			

Gender	0.68**	0.23	1.14	0.23	.11**
Time 1 Unpopularity	0.66**	0.55	0.77	0.06	.62**
Time 1 Popularity	-0.60**	-0.91	-0.30	0.16	-.22**
Acceptance	0.58	-0.28	1.45	0.44	.53
Rejection	-1.59	-3.86	0.68	1.15	-.34
Fun	-0.32	-1.14	0.49	0.42	-.41
Academics	-0.64*	-1.25	-0.04	0.31	-.96*
Prosociality	0.09	-0.80	0.98	0.45	.07
Grade *Acceptance	-0.08	-0.24	0.08	0.08	-.45
Grade *Rejection	0.34	-0.10	0.78	0.23	.38
Grade *Fun	0.04	-0.10	0.18	0.07	.31
Grade *Academics	0.12*	0.01	0.23	0.05	1.11*
Grade *Prosociality	-0.03	-0.19	0.14	0.08	-.10

Note. $N = 292$. B = unstandardized beta coefficient; β = standardized beta coefficient; CI = confidence interval; LL = lower limit; UL = upper limit; Gender: girls = 0, boys = 1; Grade: 4, 5, 6. † $p < .10$, * $p < .05$, ** $p < .01$.

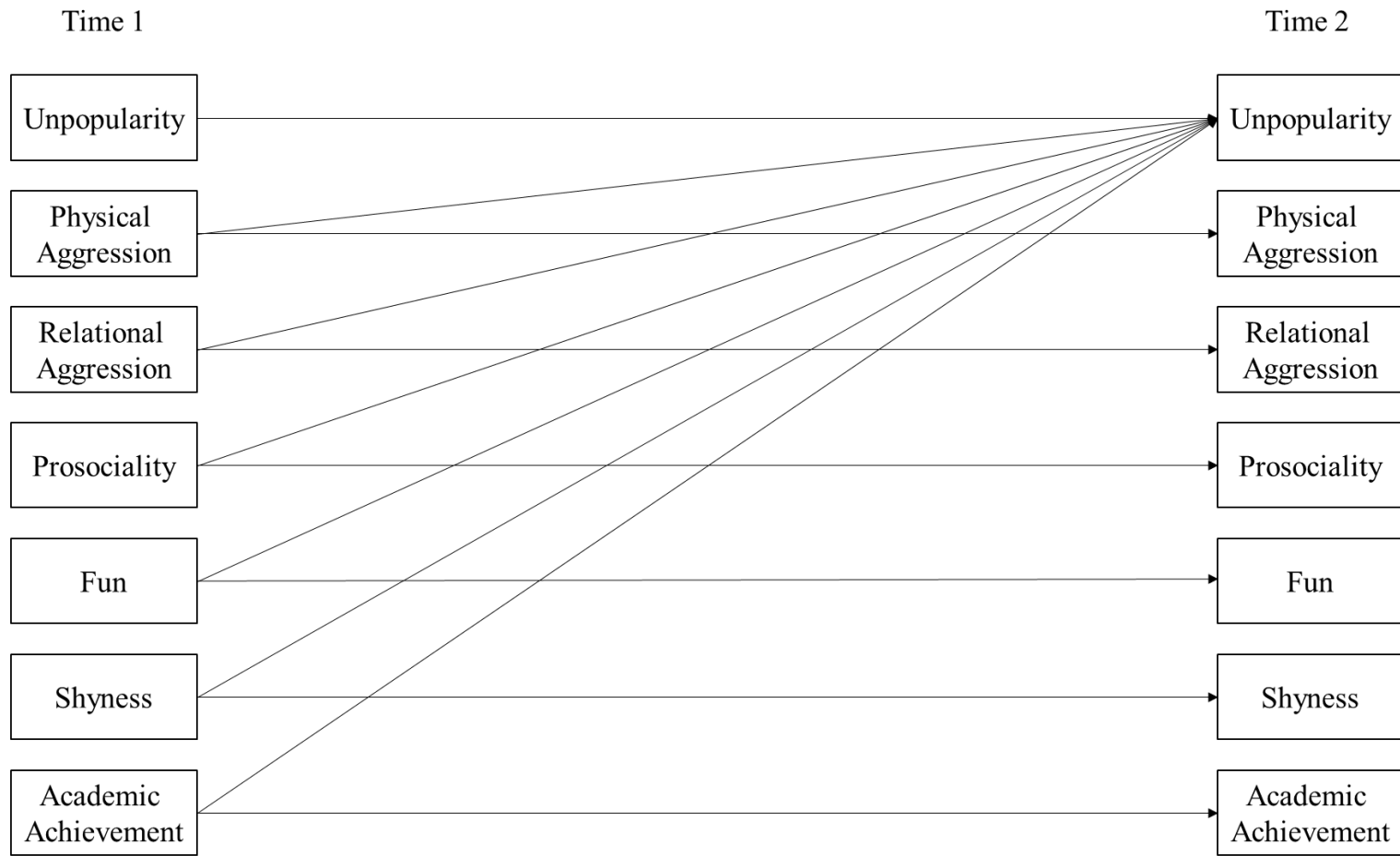
Figure 1. Longitudinal Associations from Behavioral Reputation Variables at Time 1 to Popularity at Time 2: Structural Model

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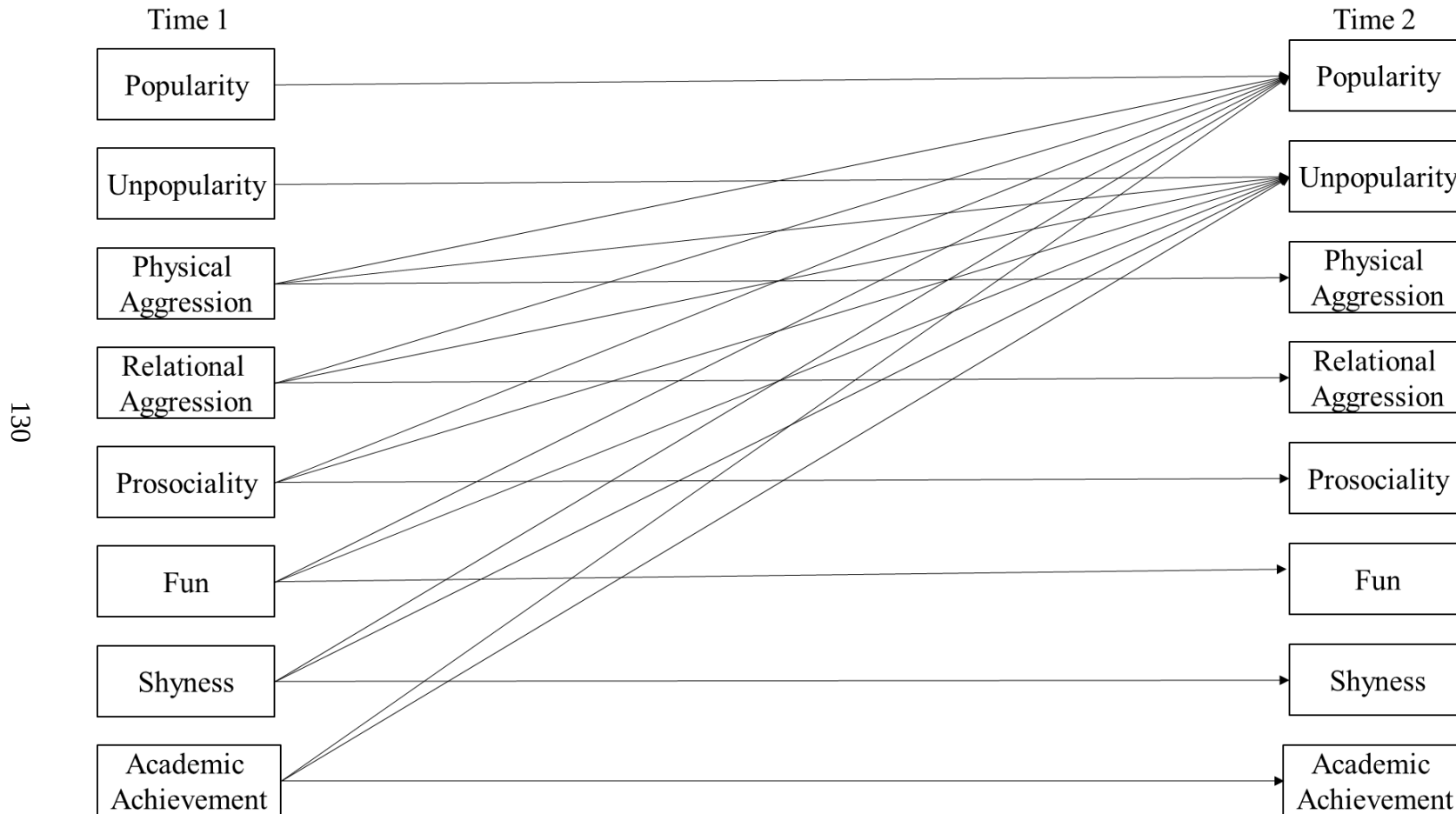
Note. All cross lags and concurrent paths will be included in the model. Paths of interest and stability paths depicted.

Figure 2. *Longitudinal Associations from Behavioral Reputation Variables at Time 1 to Unpopularity at Time 2: Structural Model*



Note. All cross lags and concurrent paths will be included in the model. Paths of interest and stability paths depicted.

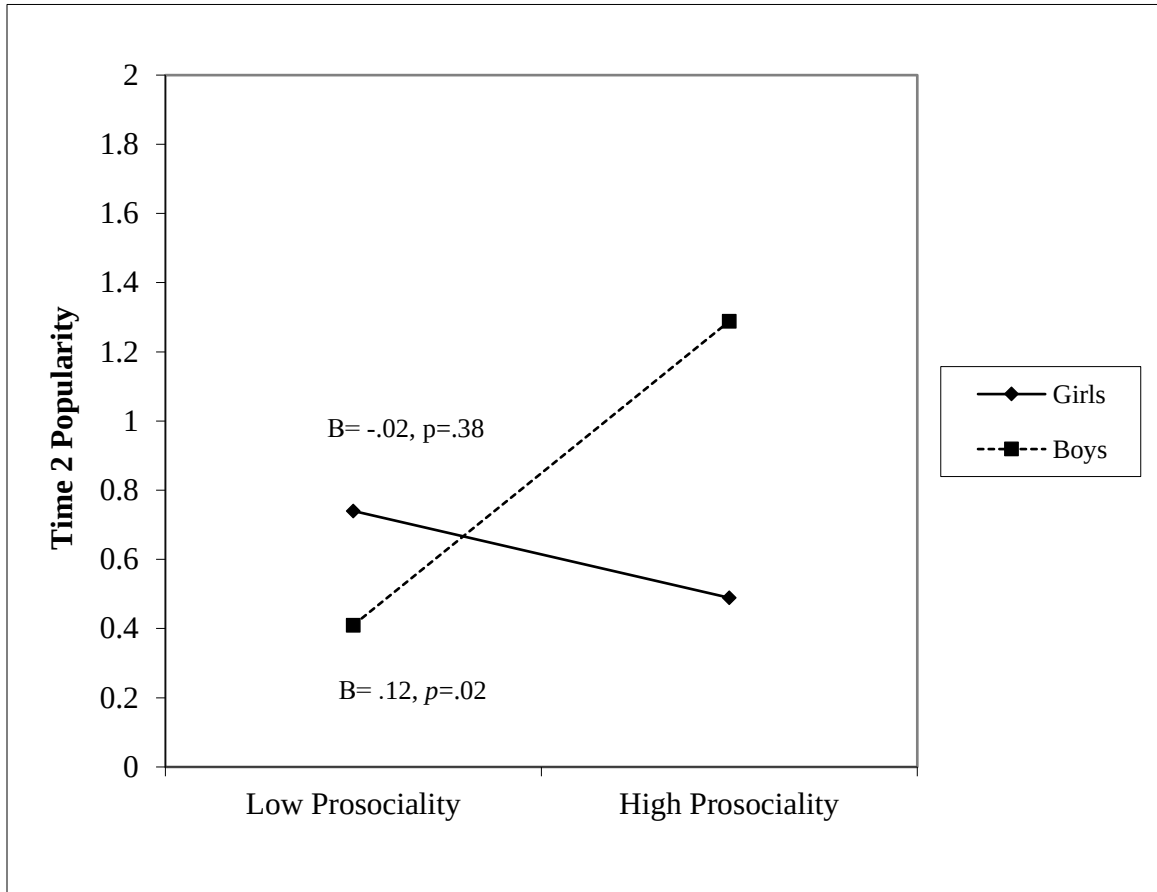
Figure 3. Longitudinal Associations from Behavioral Reputation Variables at Time 1 to Popularity and Unpopularity at Time 2: Structural Model



Note. All cross lags and concurrent paths will be included in the model. Paths of interest and stability paths depicted.

Figure 4

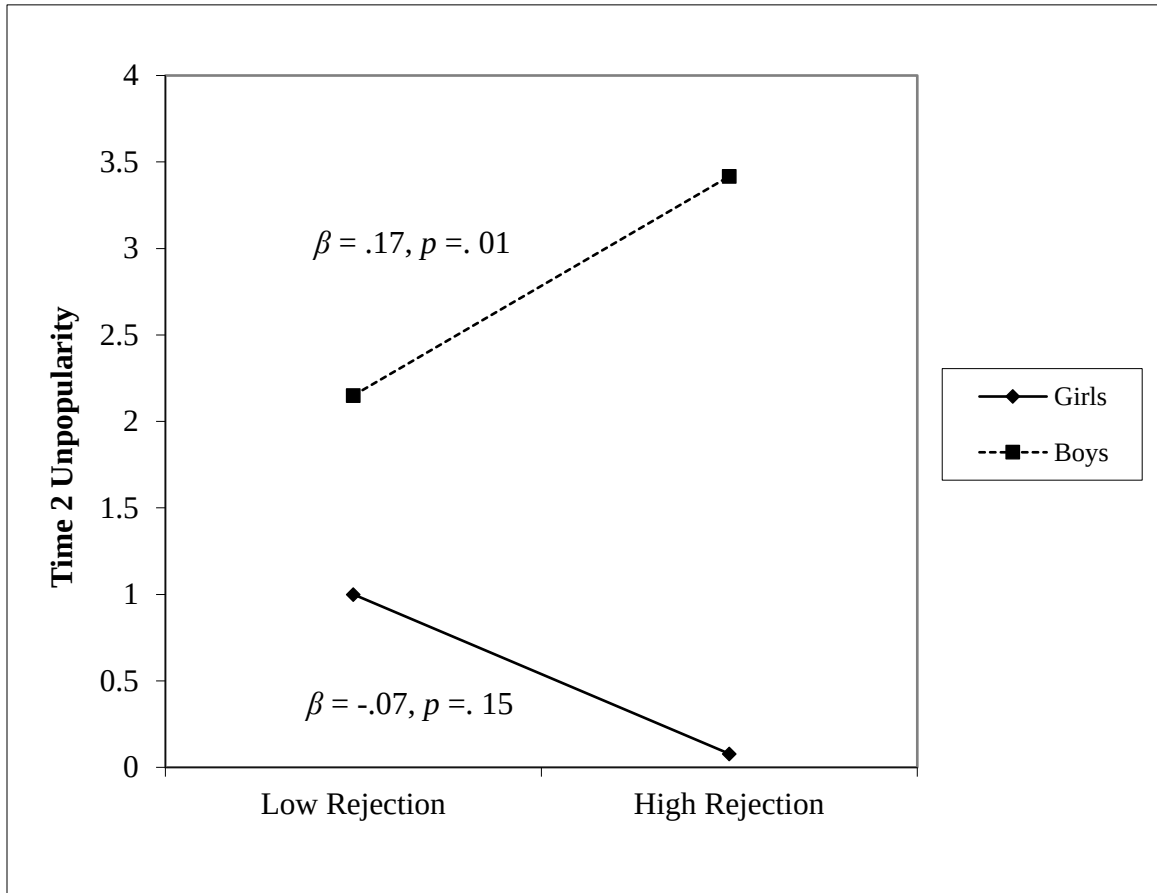
Association between Time 1 Prosociality and Time 2 Popularity for Boys and Girls



Note. $N = 292$.

Figure 5

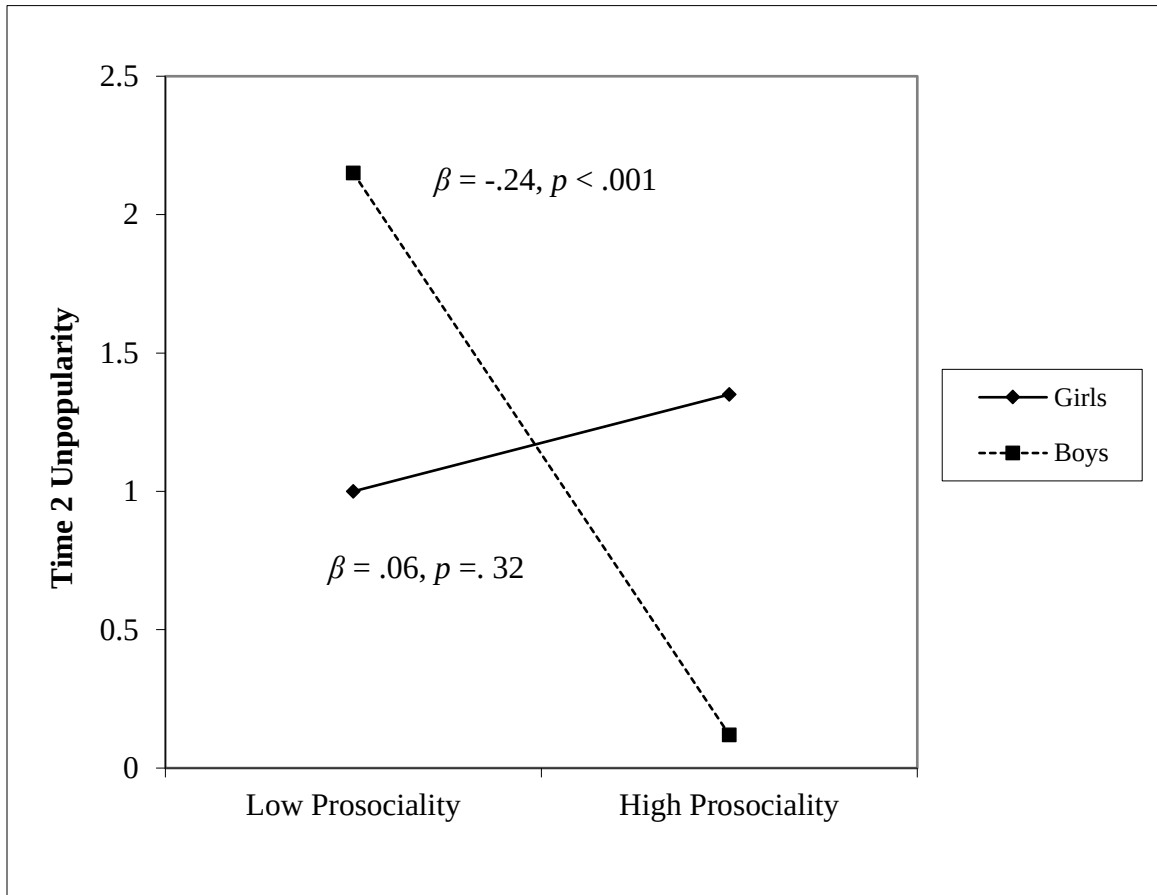
Association between Time 1 Rejection and Time 2 Unpopularity for Boys and Girls



Note. $N = 292$.

Figure 6

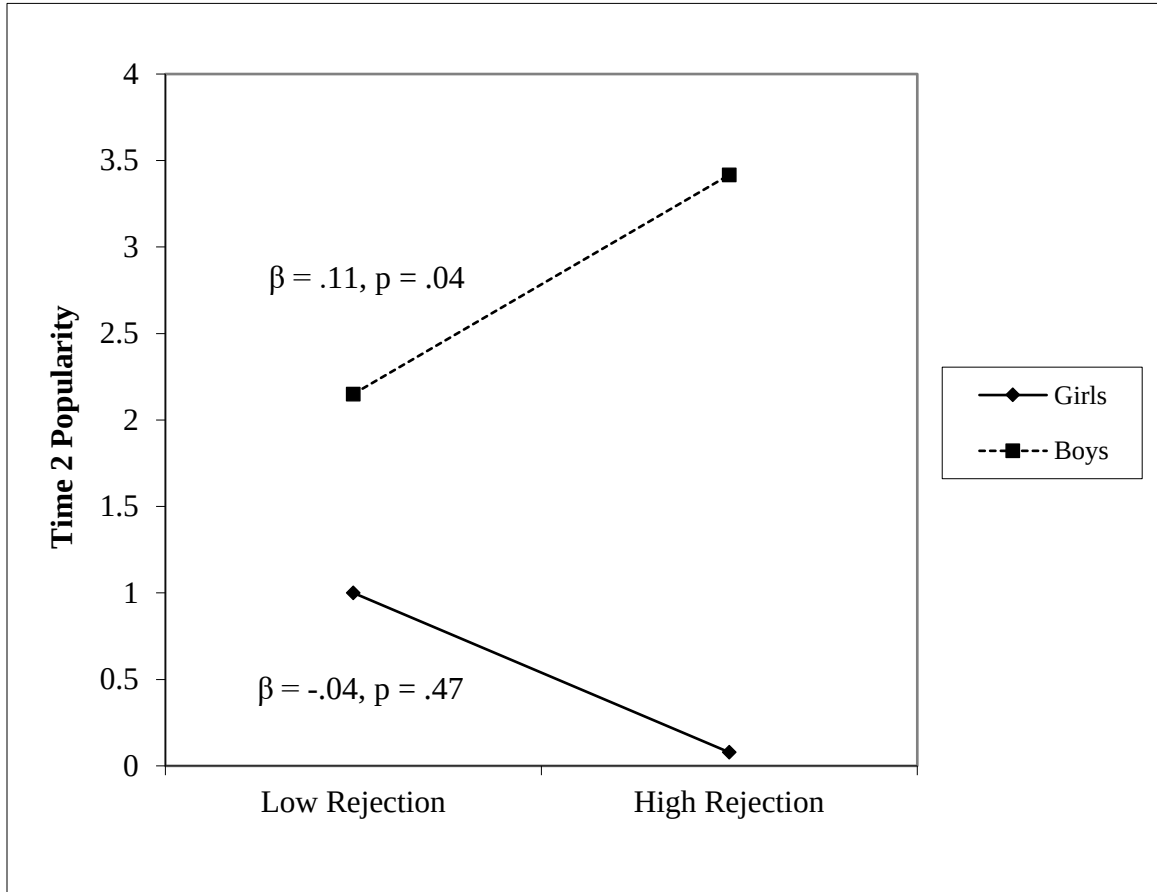
Association between Time 1 Prosociality and Time 2 Unpopularity for Boys and Girls



Note. $N = 292$.

Figure 7

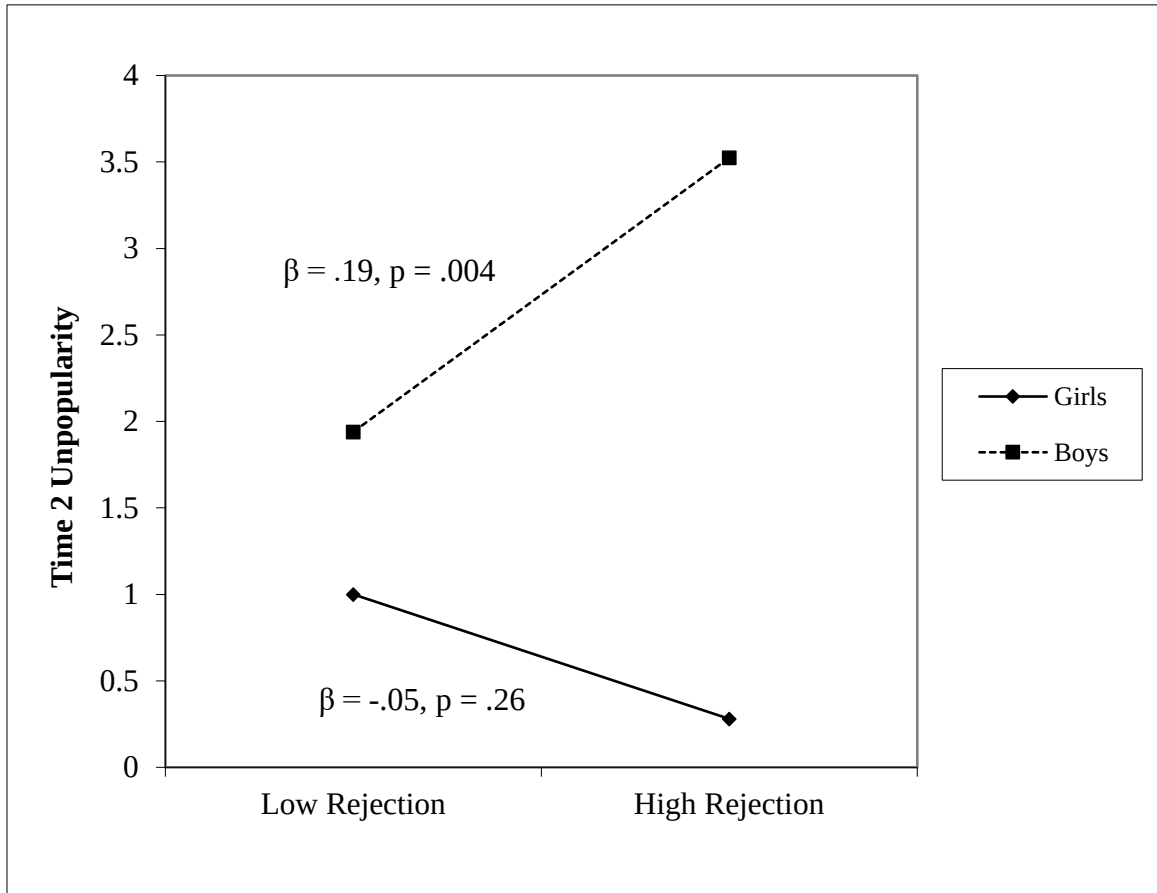
Association between Time 1 Prosociality and Time 2 Popularity for Boys and Girls



Note. $N = 292$.

Figure 8

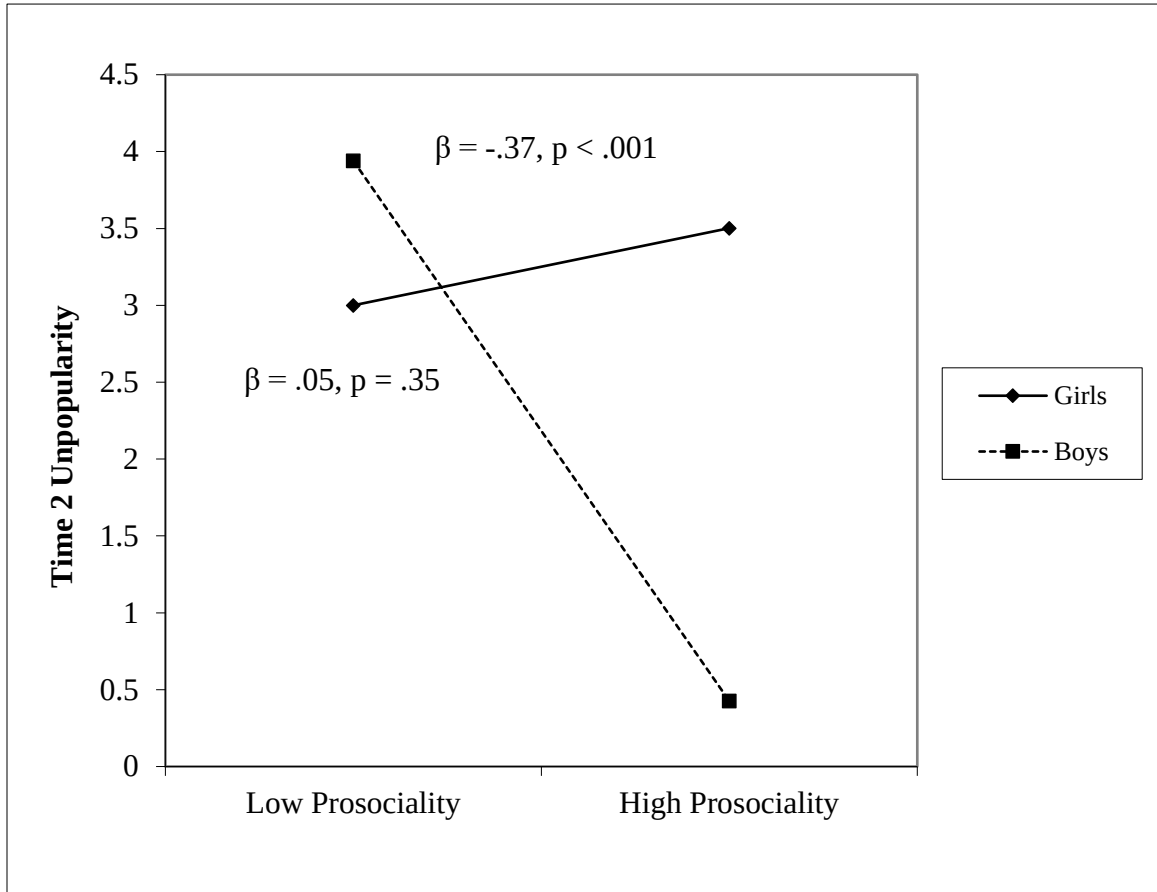
Association between Time 1 Rejection and Time 2 Unpopularity for Boys and Girls



Note. $N = 292$.

Figure 9

Association between Time 1 Prosociality and Time 2 Unpopularity for Boys and Girls



Note. $N = 292$.

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