

SEEKING DOMINANCE: AN EXAMINATION OF SOCIAL PERCEPTION, CONFLICT
ENGAGEMENT, AND SUBTYPE RETENTION OF PROSOCIAL-AGGRESSIVE
YOUTHS

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Tabitha Wurster
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Dissertation Committee:

Hongling Xie, Ph.D., Department of Psychology, Temple University
Marsha Weinraub, Ph.D., Department of Psychology, Temple University
Laurence Steinberg, Ph.D., Department of Psychology, Temple University
Jason Chein, Ph.D., Department of Psychology, Temple University
Peter Marshall, Ph.D., Department of Psychology, Temple University
Ron Taylor, Ph.D., Department of Psychology, Temple University

ABSTRACT

Seeking Dominance: An Examination of Social Perception, Conflict Engagement, and

Subtype Retention of Prosocial-Aggressive Youths

Tabitha Wurster

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Doctoral Advisory Committee Chair: Hongling Xie, Ph.D.

This study examined the behavior retention and social cognition of bistrategic youths (i.e., those who employ both aggressive and prosocial behavior) in order to further understand their competence in social functioning. Our sample consists of 318 5th grade participants and 341 6th grade participants recruited from an urban school district in the northeastern U.S. Bistrategic youths were found to retain their behavior subtype over semester transitions (i.e., 5th spring to 6th fall and 6th fall to 6th spring), but not across a full year. Evidence also showed that bistrategic youths are able to report greater peer group information than some, although not all, of their other subtype peers. Results show little variation across subtypes regarding beliefs regarding efficacy of prosocial and aggressive behavior in obtaining popularity. However, bistrategic youths were shown to employ higher status peers in acts of social aggression at the 5th spring time point. Findings extend previous research demonstrating the social success of bistrategic youths by providing complementary information on social cognitive measures.

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CHAPTER 1 INTRODUCTION

A wealth of evidence has illustrated how the engagement in aggressive behavior elicits maladaptive outcomes, including increased risk of peer rejection and a greater likelihood of engagement in delinquent behavior (Asher & Coie, 1990; Dishion, Andrews, & Crosby, 1995; Dodge, Lochman, Harnish, Banes, & Petit, 1997; Ladd & Burgess, 1999). However, a separate body of literature has demonstrated how aggressive behavior may afford social benefit and competitive advantage to some individuals (Hawley, 1999; Hawley, 2003; Pellegrini, 2008; Robertson et al., 2010; Rodkin, Farmer, Pearl, & van Acker, 2000). According to resource control theory, in order to compete for resources (i.e., status), either coercive (i.e., aggressive) or affiliative (i.e., prosocial) methods may be used (Hawley, 1999).

It has been suggested that an optimal behavior strategy in the pursuit of status, one that satisfies both dominance and interpersonal factors, is a combination of aggressive and prosocial behavior (Hawley, 2003). What bistrategic behavior usage can theoretically offer is the attainment of status via coercive methods while mediating aggression's costs by prosociality (Hawley, 1999; Hawley, 2003; Pellegrini 2008). Indeed, a growing body of literature has evidenced bistrategic youths as socially prominent and well regarded among their peers (Findley & Ojanen, 2013; Hawley, 2003; Hawley, Little, & Card, 2007; Wurster & Xie, 2014). In this way, bistrategic behavior usage confronts traditional perceptions of social competence demonstrated in childhood and adolescence. This paper seeks to further examine bistrategic youths on a number of social cognitive dimensions, including whether they maintain their behavior usage over time, their acuity in perceptions of social networks,

their beliefs about the effectiveness of aggressive and prosocial behavior in the pursuit of status, and the status of those youths who assist them in implementing social aggression.

Resource Control, Competition, and Competence

It has been suggested that social competence is necessary for healthy and normative development (Ladd, 1999; Parker, Rubin, Erath, Wojslawowicz, & Buskirk, 2006; Rubin, Bukowski, & Parker, 2006). However, scholars fail to agree on what constitutes competence. Defined broadly, there is generally agreement that social competence is successful functioning and interaction within one's own social context (Cavell, 1990). In addition, general competence within any proximal process (that is to say, interaction with persons or objects within one's immediate environment) has been described as "demonstrated acquisition and further development of knowledge, skill, or ability to conduct and direct one's own behavior" (Bronfenbrenner & Evans, 2000, p. 118). As definitions become more specific, potential explanations may arise from varied paradigms that differ in the conceptualization, as well as the measurement, of what constitutes social competence.

These different definitions are said to fall into four discrete categories: a relational approach, a specific skills approach, a status approach, and a functional outcome approach (Rose-Krasnor, 1997). The relational approach places importance on a child's ability to gain and maintain friendships. Social competence in this view is demonstrated through positive, prosocial interpersonal relations that buffer against loneliness, and are high quality, supportive and fulfilling (Bornstein, Hahn, & Haynes, 2010; Howes, 1987; Sullivan, 1953). A skills approach operationalizes social competence as a level of adeptness in specific interpersonal skills that a child employs in social interaction (Mize & Ladd, 1990). Much of traditional research has focused on the benefits of positive communal behaviors, especially

the use of prosocial behavior (Eisenberg, Morris, McDaniel, & Spinrad, 2009). The conceptualization of social competence as the product of behavior examines how successful or effective a child is in their interactions with peers (Attili, 1990). Success may be demonstrated in multiple ways, but traditionally this is measured by how socially accepted a child is by his or her peers (Parkhurst & Hopmeyer, 1998; Parkhurst & Asher, 1992). Finally, some define social competence as the ability to produce a specific outcome, or serve a certain function. The functional outcome approach context dependent, and includes the ability for individuals to meet specific goals or perform developmentally appropriate tasks (Dodge, Pettit, McClaskey, & Brown, 1986; Masten et al., 1995).

Theory on social competence is less varied, but falls into two divergent perspectives. The traditional view of social competence centers on a youth's ability to form successful interpersonal relations via positive social interaction and experiences (Rose-Krasnor, 1997; Sullivan, 1953). A youth's ability to not only get along with others, but to form positive, high quality interpersonal relationships, demonstrates the hallmark of social competence. Securing these high quality relationships provides us with security and the fulfillment of interpersonal needs, and failing to do so results in anxiety and maladjustment across development (Sullivan, 1953). To that end, supportive social relations are the outcome of a socially competent child, and positive social interaction and affiliative behaviors are the means of obtaining these relationships.

In the traditional ideology of social competence, social behaviors employed are largely conceptualized as demonstrating a child's social skills, or their social deficits (Ladd, 1999). In this perspective, the existence of social skillfulness and competence is intrinsically associated with prosociality, emotion regulation, and positive social interaction (Bornstein,

Hahn, & Haynes, 2010; Eisenberg, Morris, McDaniel, & Spinrad, 2009; Rose-Krasnor, 1997). Thus, a socially competent child is equipped with positive interpersonal skills through which they may communicate and interact with others. Alternately, a child who lacks social competence may either lack these skills, or may instead engage in socially incompetent, negative behaviors. Several previous studies (Bornstein, Hahn, & Haynes, 2010; Mize & Ladd, 1990) have chosen to equate social competence strictly with the exhibition of certain behaviors (namely prosocial behavior), and to equate a deficit of social competence as the exhibition of other behaviors (namely aggressive behavior).

Those studies that underline the importance of prosocial behavior in relation to social competence have focused on prosociality due to its positive influence on peer acceptance and relationship formation (Eisenberg et al., 2009; Hartup & Moore, 1990; Hawley, 2003). Specific prosocial behaviors, such as cooperation in play or giving compliments to other children (Berler, Gross, & Drabman, 1982; Michelson & Wood, 1980; Oden & Asher, 1977), demonstrate a child's ability to be a helpful, considerate companion, thus helping him or her to form and sustain friendships. Studies that have conceptualized social competence as the exhibition of prosocial behavior have also described social incompetence as the exhibition of externalizing (i.e. aggressive) behavior (Ladd, 1999). Social competence, as measured by social skills, has been evidenced to be inversely related to aggressive behavior (Burt, Obradović, Long, & Masten, 2008). Further, early demonstration of the absence of social competence has also been shown to have longitudinal effects on behavior usage, specifically externalizing behavior; children with lower social competence at age four displayed greater aggression later in life, both in preadolescence and adolescence (Bornstein, et al., 2010). In the traditional view of social competence, prosociality and aggression are orthogonal

behaviors, the exhibition of which corresponds to either social skillfulness or social ineptitude.

Conversely, an alternate theoretical perspective from the social skillfulness theory of social competence has its roots in evolutionary psychology. In this view, social competence is derived from the adeptness with which individuals interact with, and adapt to, their social environment (Bjorklund & Pellegrini, 2000). In this view, social competence as a construct is more fluid, and includes different dimensions of social relationships beyond supportive, mutual relational bonds. For example, aggressive behaviors may be just as useful as prosocial behaviors, based on a cost-benefit assessment of the social situation at hand (Bjorklund & Pellegrini, 2000; Geary, Byrd-Craven, Hoard, Vigil, & Numtee, 2003; Pellegrini, 2008). The evolutionary perspective recognizes an innate social hierarchy within social interaction contexts involving subordinate or superordinate individuals (Bjorklund & Pellegrini, 2000; Geary et al., 2003). In this view, behaviors that assist in achieving superordinate positions in the social hierarchy are most indicative of fitness and competence. Discrepant from the “getting along” perspective, alternative skills and behaviors (e.g., aggression) may be equally fit in regards to achieving social success, as there are other forms of social success besides simply forming close interpersonal relationships (Hawley, 1999; Hawley, 2003). Notably, social dominance is as worthwhile a goal as relational intimacy and friendship.

Insofar as the evolutionary perspective define social competence as achieving social goals, the behavior as a form is not nearly as important as the behavior as a function (Hawley, 2011). In this perspective, aggression may be viewed as a competent behavior as it serves to obtain resources, although it is socially repellent (Hawley, 1999; Hawley, 2011; Pellegrini, 2008). This is not to say that aggression is always viewed as competent in the

evolutionary perspective. Distinction has previously been made between reactive and proactive aggression (Dodge, 1991; Ladd, 1999), as well as between physical and social aggression (Crick & Grotpeter, 1995; Xie, Cairns, & Cairns, 2005). Reactive aggression occurs in response to a stimulus, often a perceived or valid threat, and is responsive and spontaneous (Dodge, 1991). Proactive aggression is that which is premeditated, deliberate, and intentional (Dodge, 1991). Subsequently, reactive aggression is often termed as “hot-blooded” aggression, the actions of a defensive, dysregulated person, whereas proactive aggression is also known as “cold-blooded” aggression, instrumental and goal driven in nature (Card & Little, 2006).

While it is reasonably evident why reactive, hot-tempered aggression would be classified as socially incompetent, and why proactive, goal-directed aggression would be deemed socially competent, further evidence comes from the differential psychosocial correlates associated with each type of aggression. Reactive aggression is related to internalizing problems, is more closely associated with low social preference and peer rejection (Card & Little, 2006), and is associated with social adjustment problems and poor problem solving processing (Dodge et al., 1997). Proactive aggression, conversely, sees reduced impairment on social preference and no significant internalizing problems (Card & Little, 2006). It is clear that reactive aggression would not align with traditional views of social competence (Rose-Krasnor, 1997; Sullivan, 1953), nor would it fit an adaptive view of social competence. Proactive aggression would still be inappropriate in the traditional view of competence, as it does not help to achieve relational bonds. In the evolutionary perspective, however, proactive aggression may be competitively advantageous and therefore

socially competent as it obtains desired resources (Bjorklund & Pellegrini, 2000; Hawley, 2011; Pellegrini, 2008).

In consideration of these divergent perspectives and constructs of competence as manifested by different behaviors, it becomes clear that social acuity can be demonstrated in various ways. While traditional perspectives on social competence promote prosocial behavior and affiliative skills (Rose-Krasnor, 1997; Sullivan, 1953), evolutionary research demonstrates that aggressive behavior may be adaptive in certain circumstances (Bjorklund & Pellegrini, 2000; Hawley, 2011). Insofar as competence is concerned, it seems necessary to consider what type of social outcome is being obtained alongside how youths socially behave in the pursuit of the outcome.

Peer Relations as Markers of Social Competence

As was previously noted, central to the traditional view of social competence is the idea that intimate social bonds and general peer acceptance is paramount (Sullivan, 1953). In early childhood, school becomes an important social context, peer perception becomes important to a youth's own self-image, and children are exposed to continuous peer association throughout their tenure in the school system. From around age six onward, peers supplant parents and family as significant others with whom a youth must socialize and form relations (Sullivan, 1953). The most basic relational bond is a mutually nominated friendship (Bukowski & Hoza, 1989). Children with best friendships may feel less lonely than those without best friendships (Parker & Asher, 1993), and high quality friendships are more likely to be stable (Bukowski, Hoza, & Boivin, 1994), and thus more likely to provide continued social support.

Related to, but different from, the presence of a dyadic friendship is general peer preference. Peer preference measures how well-liked a child is by his surrounding peers by taking nominations of “liked most”, subtracting nominations of “liked least”, and dividing the number of nominations from potential nominators in a class (Coie, Dodge, & Coppotelli, 1982; Parkhurst & Hopmeyer, 1998). Youths who are high on peer preference measures tend to be more prosocial, start less fights, be less aggressive, and are more often described as kind or cooperative (Parkhurst & Hopmeyer, 1998; Parkhurst & Asher, 1992; Rubin, Bukowski, & Parker, 2006). To that end, youths who possess dyadic friendships and who are nominated by peers as being high on peer preference demonstrate the relational outcomes of social competence in the traditional view.

If the traditional view of social competence speaks to the importance of forging relational bonds and social acceptance (Rose-Krasnor, 1997; Sullivan, 1953), the evolutionary view instead speaks to the necessity of ascending social hierarchies and being perceived as dominant and high status among peers (Bjorklund & Pellegrini, 2000; Cillessen & Bellmore, 2011). In the current peer literature, there are several measures of social status that may serve as indicators this. One measure is social dominance, which is suggested to represent an individual’s hierarchical rank, based on their ability to compete for, and obtain, social resources (Hawley, 1999). Measures of dominance are generally based on dyadic comparisons of the influence one partner exerts over another (Lease, Musgrove, & Axelrod, 2002; Savin-Williams, 1979). These may be obtained by either peer report of paired comparisons of other classmates (Lease, Musgrove, & Axelrod, 2002), or by observations of interaction dyads, assessing how much influence one member asserts influence over the

other, either verbally or physically (Savin-Williams, 1979). These measures serve to demonstrate a clear power differential between individuals.

Another measure of social status is based on peer nominations of perceived popularity (Cillessen & Rose, 2005; Rose, Swenson, & Waller, 2004). Being perceived as popular is associated with being perceived as socially dominant, difficult to push around, and generally tough (Parkhurst & Hopmeyer, 1998; Rodkin, Farmer, Pearl, & Van Acker, 2006). However, being perceived as popular also corresponds to being perceived as less kind, as well as less trustworthy (Parkhurst & Hopmeyer, 1998). While perceived popularity and peer preference have been shown to be moderately correlated, these two measures largely correspond to different underlying dimensions, as perceived popularity corresponds to dominance and preference corresponds to acceptance based on an affiliative nature (Parkhurst & Hopmeyer, 1998). Thus, being perceived as popular among peers is more closely aligned with an evolutionary view of social competence as it represents social power and dominance.

Another way of measuring social capital is by how prominent a child is in his or her social network. Individual status within a peer group is indicative of prominence (Cairns, Cairns, Neckerman, Gest, & Gariépy, 1988). The level of individual status a child holds within his group can vary from that of a nuclear (i.e., central) member, representing a highly prominent group member, to a peripheral member, representing a child on the fringe of the group (Cairns et al., 1988). Central members within a group may enjoy the benefit of being especially influential in group decisions, or in setting behavioral norms (Adler & Adler, 1998; Latané, 1981; Shi & Xie, 2012b). Relatedly, peer groups vary in their own social prominence, which is measured by group status (Cairns et al., 1988). To be sure, the social reputation of a youth is partially dependent upon the status of the group to which he belongs

(Adler & Adler, 1998). Holding membership in a high status group allows members greater access to social resources within their network, such as peer attention (Farmer et al., 2002). To that extent, belonging to a high status peer group, as well as being a central member within a high status group, is indicative of being socially competent in the evolutionary view.

Bistrategic Youths: A Synthesis of Divergent Competence Constructs

It has been suggested that bistrategic youths are socially proficient insofar as they should achieve high social dominance within their contexts (Hawley, 2003). According to Resource Control Theory, social dominance is based on the varied ability to compete for, and successfully obtain, social resources among fellow social group members (Hawley, 1999). Social resources may be acquired by either coercive means or by prosocial means, which both entail different costs and benefits. Coercive strategies (e.g., aggression) are successful in achieving social resources (e.g., prominence or peer attention), but also elicit costs in that they are socially repellant (Hawley, 1999; Hawley, 2003; Pellegrini, 2008). Conversely, prosocial strategies are successful in obtaining social resources while also maintaining positive peer regard (Charlesworth, 1996; Hawley, 1999; Hawley, 2003). Further, prosociality may serve to mediate aggression's costs in a number of ways, including remediating relational ties post-conflict, buffering against negative peer perception, and disguising coercive behavior from authority figures and reducing risk of punishment (de Waal, 1993; Hawley, 2003; Parkhurst & Hopmeyer, 1998). In this way, bistrategic youths should be able to maximize the benefits associated with their aggressive and prosocial behavior while minimizing costs, resulting in high social resource control and subsequent social dominance (Hawley, 2003).

Investigation on bistrategic youths has evidenced how the coordinated use of affiliative and aggressive behaviors may help bistrategic youths obtain positive interpersonal payoff as well as prominence and hierarchical power within their social contexts. Bistrategic youths have demonstrated affiliative success by being ranked high on measures of peer preference (i.e., being well-liked) and perceived popularity, as well as by experiencing mutually nominated friendships that are high in intimacy (Findley & Ojanen, 2013; Hawley, 2003; Hawley, Little, & Card, 2007; Olthof, Goossens, Vermande, Aleva, & van der Meulen, 2011; Wurster & Xie, 2014). In addition, bistrategic youths have been shown to be socially dominant as they belong to high status peer groups within their social networks, and are prominent members of these groups (Wurster & Xie, 2014). To that end, bistrategic youths consistently demonstrate their ability to obtain social capital on both agentic and communal dimensions.

While bistrategic youths have been evidenced to achieve social success, more information is still needed on how bistrategic youths differ from others on measures of social cognition. It has been suggested that individuals vary not only based on their ability to acquire resources, but in their motivation to do so, as well (Hawley, 1999). Evidence on bistrategic youths' social intentions as a complement to their behavior and resource acquisition has recently emerged. It has been shown that bistrategic youths report themselves to be high on desired social dominance, indicating that they intentionally seek out status (Olthof et al., 2011). Further, bistrategic youths have been evidenced to use relational aggression more so than other behavior subtype youths (Findley & Ojanen, 2013), and to selectively target high-status peers as targets of their social aggression (Wurster & Xie, 2014), demonstrating their social skillfulness.

In light of the literature reviewed, I aim to investigate how bistrategic youths differ from others on measures of social cognition, in order to further evidence their social competence. Investigation will focus on bistrategic youths retaining their beneficial behavior subtype over time, examination of beliefs on efficacy of prosocial and aggressive behaviors in the pursuit of status, perception of social networks and ability to accurately report peer groups, and the use of high status peers in acts of social aggression.

Stability of Behavior Style

Although the literature on bistrategic individuals has spanned from preschool age (Hawley, Johnson, Mize, & McNamara, 2007; Roseth et al., 2011) to preadolescence (Olthof et al., 2011; Wurster & Xie, 2014) to mid and late adolescence (Hawley, 2003; Hawley, Little, & Card, 2007), no study to date has examined bistrategic youths longitudinally. Conversely, a number of studies have investigated the stability of aggressive and prosocial behavior and their associated developmental implications (Kokko, Tremblay, Lacourse, Nagin, & Vitaro, 2006; Moffitt, 1993; Nagin & Tremblay, 1999). It seems reasonable to expect that bistrategic youths may demonstrate stability in their behavior usage, as well. Further, the ability for bistrategic youths to maintain their behavior subtype over time may be associated with important outcomes in their social functioning.

Research on the developmental trajectories of aggressive youths has depicted varied findings concerning the stability of aggression. Evidence has demonstrated that for the majority of youths, physical aggression decreases from early to middle childhood (Broidy et al., 2003; Nagin & Tremblay, 1999; NICHD, 2004). Some research has suggested that the decrease in physical aggression may be replaced by an increased engagement in social aggression (Cairns, Cairns, Neckerman, Ferguson, & Gariépy, 1989; Osterman et al., 1998),

as social aggression elicits less consequences for those using it (Kaukiainen et al., 1999). The suggested increase in social aggression and general desistence of physical aggression over time may be partly explained by cognitive maturation. As children grow older, gains in cognitive abilities and the appreciation of consequences accounts for rule abidance and decreased engagement in aggressive behavior (Tremblay, 2003).

Those youths who maintain their aggressive behavior over time are not a homogenous group. Some aggressive youths, classified as “Life course persistent”, have demonstrated stability in aggression (Moffitt, 1993; Patterson, DeBaryshe, & Ramsey, 1989). Life course persistent aggressive youths demonstrate enduring social detriment and a lack of acceptance by peers (Ladd & Burgess, 1999). Alternately, evidence has shown that some youths who maintain their aggression over time are high status within their social contexts (Shi & Xie, 2012a). These findings suggest that while life course persistent individuals may maintain their aggression as a result of predisposition towards aggression, either through hostile attribution biases or other maladaptive influence (Crick & Dodge, 1996), some youths maintain their aggression either because it affords them a social benefit or because their high status serves as a buffer and reduces the likelihood that they will suffer negative outcomes as a result of their aggressive behavior (Cillessen & Mayeux, 2004; Rodkin et al., 2006). In this way, bistrategic youths should be more similar in nature to high status aggressive youths in that they see little social detriment from their use of aggressive behavior, and instead are able to maintain both aggression and status over time.

Research on trajectories of prosocial behavior is limited and offers some conflicting information. Just as cognitive maturation likely contributes to the desistence of physical aggression (Tremblay, 2003), increased cognitive capacity alongside emotional maturation

and heightened moral development are suggested to contribute to an increase in prosocial behavior as children grow older (Kohlberg, Levine, & Hewer, 1983; Kokko et al., 2006). Measures of social competence based on the demonstration of prosocial behavior (specifically, social skillfulness and positive peer relations) have shown that these skills remain stable across childhood into adolescence, and that those youths who are socially skillful become increasingly so after school transitions (Monahan & Steinberg, 2011). A meta-analysis of age differences in prosocial behavior has shown that prosocial behavior increases over time, but this was based on cross-sectional data (Eisenberg & Fabes, 1998). A true longitudinal examination of a large, representative sample of youths from age 6 to 12 demonstrated that prosocial behavior is stable across this time frame, and for both genders (Côté, Tremblay, Nagin, Zoccolillo, & Vitaro, 2002). However, prosocial behavior was shown to decline from age 6 to 12 in a separate sample of boys (Kokko et al., 2006). On the whole, evidence suggests that prosocial behavior may generally show moderate stability over time. However, the tendency for those who are already socially skilled to become even moreso over time (Monahan & Steinberg, 2011) suggests that those who are highly inclined towards prosocial behavior (i.e., prosocial subtype or bistrategic subtype youths), are more likely to experience stability in prosocial behavior.

Taken together, these findings suggest that bistrategic youths should demonstrate stability in their aggressive and prosocial behavior usage over time. While both aggressive and prosocial youths have demonstrated stability in these behaviors over time, the ability for bistrategic youths to retain their behavior subtype may be especially meaningful, as it indicates 1) that bistrategic youths enjoy the associated social benefits of bistrategic behavior

usage over time, and 2) that these youths demonstrate notable competence to be able to maintain this behavior subtype.

Social Network Perceptions

Imbedded in the ideal of a socially dominant individual is not how he behaves, but to whom he directs his behavior. Bistrategic behavior usage implies the strategic enactment of aggressive and prosocial behavior in the pursuit of social dominance (Hawley, 2003). In order to strategically implement specific behaviors to climb the social hierarchy, socially competent youths may need to be able to assess the risks and benefits involved with targeting specific individuals based on their own social status (Pellegrini, 2008). To that end, bistrategic youths should be acutely perceptive of the status of other individuals within their social networks.

In order to effectively use behaviors in order to gain social resources, these behaviors must be implemented in a way that maximizes benefits and reduces costs (Pellegrini, 2008). This requires an individual to accurately appraise the social dynamic at hand in order to select the best behavior to direct towards a specific peer. That is to say, the selection of *which* behavior will be used thus depends on *who* the target is. For example, when competing with a lower status rival, the aggressor may take advantage of the power differential (Olweus, 1994; Savin-Williams, 1979) and utilize physical aggression. While physical aggression is visible to others and typically poses higher risks, including retaliation or punishment (Hawley, 2007; Pellegrini, 2008), selecting a lower status target reduces these potential costs while offering the benefit of fellow peers observing the act of dominance. Competing with a higher status peer may also be desirable, as competition with these peers may be necessary to obtain status as a resource, based on its limited availability (Darwin, 1859/2009). However, competition

with a high status, and thus powerful, peer poses a greater risk of retaliation, as well as potential defeat (Pellegrini, 2008). To that extent, using more covert means of aggression when targeting with a high status rival may be more protective and indicative of competence (Card, Stucky, Salawani, & Little, 2008; Xie, Swift, Cairns, & Cairns, 2002; Wurster & Xie, 2014). Relatedly, in regards to resource control theory (and disregarding altruism), the use of prosocial behavior should only be directed towards high status peers either in the pursuit of making a powerful ally or in the reparation of relational ties post-conflict (de Waal, 1993; Wurster & Xie, 2014).

It seems reasonable to expect that those youths who are socially competent and able to achieve dominance in their social contexts have an understanding of their immediate status hierarchies. To be sure, most youths have some degree of the conceptualization of status hierarchies based on their ability to nominate peers as being more (or less) socially preferred or popular than others (Cillessen & Rose, 2005; Coie, Dodge, & Coppotelli, 1982; Parkhurst & Hopmeyer, 1998). The emergence of status hierarchies in classrooms has been shown to increase the likelihood of relational victimization (Wolke, Woods, & Samara, 2009), and obtaining high popularity status has been shown to lead to increased use of aggression (Cillessen & Mayeux, 2004; Merten, 1997), demonstrating that the possibility for social mobility heightens competition. Further, evidence has demonstrated that aggressive students hold higher popularity in classrooms with strong status hierarchies (Garandeau, Ahn, & Rodkin, 2011), indicating that within contexts where social variation is salient youths ascribe social power to those who are competitive.

In light of these considerations, I expect bistrategic youths to be especially adept at perceiving their social hierarchies within their school contexts. Specifically, I expect

bistrategic youths to be more accurate than other subtypes in their nominations of peer groups within their social networks at school.

Beliefs about Resource Attainment through Aggressive and Prosocial Behavior

Although previous studies have determined the high status of bistrategic youths in a variety of ways (Hawley, 2003; Hawley, 2007; Wurster & Xie, 2014), as well as evidenced their desire for social dominance (Otholf et al., 2011), to date no study has demonstrated whether bistrategic youths believe their specific behavior use is effective in the pursuit of status. Historically, aggressive and prosocial youths have been shown to vary in their evaluation of aggressive and prosocial behavior usage (Crick & Dodge, 1996; Nelson & Crick, 1999). It then follows that bistrategic youths should also positively evaluate both the aggressive and prosocial behaviors that they employ, especially as these afford them social benefit.

A theoretical model that aims to explain individual social cognition based on attributions and evaluations is the Social Information Processing Model (Crick & Dodge, 1996). The SIP model suggests that social cognition involves a multi-step model which begins with another's social behavior as a situational cue, or "input", and ends with a child's own behavioral response, or "output" (Crick & Dodge, 1996). This social input triggers the encoding process, which is the first step. After encoding, the second step is the interpretation of cues, during which social cues are interpreted based on the child's attributions and cognitive evaluations. In the third step, the clarification of goals, regulation of arousal is exercised. The fourth step is the response access or construction. The fifth step, response decision, involves selecting a behavioral response. The behavioral enactment is the sixth and final step, and is the child's behavioral output (Crick & Dodge, 1996). Based on the SIP

model, youths who are inclined towards a specific behavior usage should positively evaluate this behavior, as well as believe the behavior to help achieve social goals.

Previous research has elucidated the behavior attributions and social goals of prosocial youths. Evidence has shown that prosocial children hold higher negative evaluation for aggressive behavior (Nelson & Crick, 1999). Theoretically, those who demonstrate consideration towards others (e.g., affiliative behavior) are more likely to hold goals rooted in relational solidarity (Bandura, 2001), and evidence has shown that prosocial children endorse relational goals more so than instrumental goals in provoking situations (Nelson & Crick, 1999). However, the inclination to behave prosocially may not be simply based on altruism; prosocial youths may be especially inclined towards affiliative behavior based on its relational benefits (Hawley, 2003). Further, evidence has demonstrated that prosocial youths desire dominance at similarly high levels as bistrategic youths (Olthof et al., 2011). To that end, prosocial youths likely behave as such based on the social rewards that they believe prosociality obtains.

Similarly, previous research has attributed unique behavior attributions and social goals to aggressive youths. However, these vary between reactively aggressive and proactively aggressive youths. Proactively aggressive youth positively evaluate aggression (Crick & Dodge, 1996) and thus may hold positive attributions for the use of aggression. Further, proactively aggressive youths show lower endorsement for relationship-enhancing goals and higher endorsement for instrumental, self-serving goals (Crick & Dodge, 1996). In addition, proactively aggressive youth show higher endorsement of goals for status attainment (Sijtsema, Veenstra, Lindenberg, & Salmivalli, 2009). Youths who are reactively aggressive hold greater hostile intent attributions, as well as less guilt or shame attributions

(Crick & Dodge, 1996; Dodge & Coie, 1987; Orobio de Castro, Merk, Coops, Veerman, & Bosch, 2005; VanOostrum & Horvath, 1997). However, evidence has shown that status goals are not significantly associated with reactive aggression (Sijtsema et al., 2009), further indicating that these youths are not necessarily aggressing against others in a purposive fashion.

Importantly, the SIP model suggests that while all youths should surpass the steps of information processing in the same way, individual variation is still to be expected (Crick & Dodge, 1994). Individuals are equipped with their own biological dispositions, as well as their own social knowledge of past events and experiences (Crick & Dodge, 1994). That is to say, youths who have experienced patterns of similar social response as a result of their own behavioral output should be more or less inclined to repeat specific behaviors, based on the desirability of these responses. Therefore, if some youths repeatedly see status gains and the attainment of other social resources based on their behavior use, they should be naturally inclined to positively evaluate these behaviors, as well as repeat them, in the foreseeable future.

Based on previous research of behavior evaluations of prosocial and aggressive youths, I expect bistrategic youths to positively evaluate both aggression and prosociality. As bistrategic youths are afforded social benefit based in part on their aggressive and prosocial behavior usage (Hawley, 2003; Findley & Ojanen, 2013; Wurster & Xie, 2014), this may also serve to reinforce positive attributions for these behaviors. As such, I expect bistrategic youths to endorse the effectiveness of prosocial and aggressive behavior as being highly effective in the attainment of popularity status.

Strategic Implementation of Social Aggression

As has already been noted, bistrategic youths should be able to obtain social resources not only by the behaviors they employ, but also to whom they direct their behavior. Costs and benefits of their behavior may vary based on the form of behavior used (Hawley, 1999; Pellegrini, 2008). This is particularly true in the case of aggressive behavior, as overt aggression and indirect/relational aggression diverge on a number of dimensions (Crick & Grotpeter, 1995; Xie, Cairns, & Cairns, 2005). However, costs and benefits may also vary based not only on *what* behavior is being used, but to *who* the behavior is being directed. Notably, costs and benefits of aggressive behavior are partially dependent upon the status of the target of aggression, and using social aggression towards high status peers may signal especial social aptitude (Wurster & Xie, 2014). Therefore, beyond being highly perceptive of peer groups within their social networks, bistrategic youths should be able to selectively utilize high status individuals in their employment of social aggression.

Acts of aggression may manifest as physical, verbal, or social (i.e., relational) in nature. Physical aggression involves hitting, kicking, punching, or other physical acts that intend to harm another (Crick & Grotpeter, 1995). Verbal aggression is direct speech intending to harm or offend another (Crick & Grotpeter, 1995). Finally, social (relational) aggression is action with the intention of damaging social relations with the use of others; this may be expressed by a rumor targeting another child, or by excluding a peer from a social event (Crick & Grotpeter, 1995; Prinstein & Cillessen, 2003; Xie, Cairns, & Cairns, 2005). While these forms of aggression share the same goal (harming another), their varied expression poses varied consequences and costs. Physical and verbal aggression are direct, and expose the aggressor to risks which include retaliation by the aggressed against victim, or punishment by higher authorities (Hawley, 2003; Xie et al., 2005). Further, as youths

mature and progress through the school system, physical aggression is viewed as less acceptable (Tremblay, 2003). Social aggression, however, reduces risk. The benefits of aggression may still be achieved, but the costs are lower; social aggression is more surreptitious, and the aggressor is able to cover his or her tracks (Xie et al., 2005). In this way, social aggression may be seen as more demonstrative of social competence, as the costs of aggression are reduced (Archer & Coyne, 2005; Hawley, 2007; Pellegrini, 2008).

However, acts of aggression, especially social aggression, obligate the involvement of other peers in order to be effective (Xie, Swift, Cairns, & Cairns, 2002; Xie, Cairns, & Cairns, 2002). In order to spread a rumor about an individual, it is necessary that other peers receive and are willing to disseminate the message (Xie, Cairns, & Cairns, 2002). Relatedly, attempting to socially exclude a specific youth requires fellow peers to socially disengage from friendships with this individual. The effectiveness of the social attack is likely dependent on the characteristics (e.g., status) of the peers who help facilitate it. In light of this, the recruitment of high status peers as middle parties in the dissemination of social aggression is likely highly effective. Evidence has shown that peers view popular youths as competent and well connected (Lafontana & Cillessen, 2002). This may translate to rumor audiences considering them to be an especially credible resource. In addition, popular youths have been shown to have a high social impact on others and may be especially influential in setting normative standards for behavior (Latané, 1981; Parkhurst & Hopmeyer, 1998; Rodkin et al., 2006). Using these highly popular youths to socially exclude others may not only make this exclusion feel especially salient to the target, but may also encourage other peers to follow their lead.

Bistrategic youths have previously been evidenced to selectively target high status peers as victims of their social aggression (Wurster & Xie, 2014). This suggests that they are socially intuitive enough to target powerful peers by concealed methods, reducing their risk of retaliation. To that end, I also expect bistrategic youths to recruit high status peers as their collaborators in acts of social aggression, as these youths should help to make these acts of aggression more effective.

Gender Variation in Social Cognition and Behavior

While gender differences were not an explicit focus of my study, previous research has suggested that there is reason to believe that variation will occur by gender on variables of interest. It has been evidenced that boys and girls vary on social goals and social skills, including prosociality (Coie, Dodge, & Coppotelli, 1982; Murphy & Eisenberg, 2002; Rose & Asher, 2004), which are central to this study. Further, scholarship on aggressive behavior has historically made much ado regarding gender differences in engagement in specific forms of aggression (Björkqvist, 1994; Crick & Grotpeter, 1995; Underwood, 2003). These gender differences are discussed here.

It has been suggested that gender behavior differentiation is rooted in social cognition, in that cultural norms for gender is mediated through social cognition (Bussey & Bandura, 1999). As such, gender differences in social behaviors are partially dependent upon the reinforcement of gender specific behavior norms, as well as interpretation of and adherence to social constructs of model gender roles (Bussey & Bandura, 1999). To that end, socialization of gender normative behavior may orient girls towards prosociality and boys towards dominance related behaviors. Evidence has suggested that girls may be more relationally inclined than boys. Girls are seen as the more affiliative and socially skilled

gender, as they are reported by fellow peers to be more prosocial than boys (Coie, Dodge, & Coppotelli, 1982). Girls engage in social conversation more so than boys (Moller, Hymel, & Rubin, 1992). Further, social goals and desired social engagement have been evidenced to vary across gender. Notably, girls value social goals and relationally supportive goals more so than nonsocial, personal fulfillment goals (Murphy & Eisenberg, 2002; Rose & Asher, 2004), and girls are higher than boys on self-reported interest in forming dyadic friendships (Moller, Hymel, & Rubin, 1992). Boys, conversely, are more likely to hold dominance goals (Jarvinen & Nicholls, 1996).

Evidence has also demonstrated structural and organizational gender differences in peer interaction, as seen in peer group and social network engagement. Specifically, children's peer groups tend to be larger for boys than for girls, and that social network density (i.e., mutual friend engagement) spreads wider over time for boys than for girls (Parker & Seal, 1996). This may be due to the manifest of girls' propensity towards intimate relational bonds, in that intimacy may be easier achieved with fewer, closer friends, as well as boys' propensity towards social dominance, as dominance over greater numbers of peers would be more meaningful. In addition, both girls and boys are prone to socialize with same-sex peers than with cross-sex peers (Bukowski, Gauze, Hoza, & Newcomb, 1993). This inclination towards same-sex social affiliation may in turn lead to continued reinforcement of gender normative behavior (Bussey & Bandura, 1999).

Evolutionary theory suggests that different forms of aggression should be displayed between genders, which stem from differences in reproduction (Campbell, 1999). For females, the cost of producing offspring is much greater than it is for males; females may produce a limited number of offspring, due to the duration of gestation, as well as the limited

period of fertility in which offspring may be produced (Campbell, 1999). Alternatively, males may produce a much greater number of offspring, with a much greater number of partners, and maintain less parental investment. Due to this, females are a limited resource for males, and males must compete in order to receive access to females in order to reproduce (Daly & Wilson, 1994). For males, access to resources (i.e., females) is based on their status within the social hierarchy, and males should compete for their place in overt, physical ways (Daly & Wilson, 1994). This status hierarchy not only determines access to females, but also works as a signal to females in their selection of a reproduction partner by demonstrating who is most fit. Females may also compete among each other for high status males in order to ensure producing healthy offspring, but this intrasex competition would be less overt for several reasons. First, because the cost of reproduction is less costly for males, it would not be as necessary for females to visibly obtain high status as a signal to potential reproductive partners (Campbell, 1999). Second, as females maintain greater parental investment than males, they must survive long enough to provide adequate guardianship over their offspring, and therefore must be more protective over their body integrity than males need to be (Campbell, 1999). In this way, competence among females should be based on the use of subtle, relational aggression.

Empirical findings on gender variation in forms of aggression used are mixed. Initial research on aggression focused on its existence in boys only, while later evidence suggested that girls may aggress as often as boys do, although the type of aggression is discrepant; boys tend to use obvious, physical forms of aggression, whereas girls use less obvious forms of aggression, such as relational (i.e., social) aggression (Xie, Cairns, & Cairns, 2002; Crick & Grotpeter, 1995). Explanations for this difference have ranged from biological, asserting that

girls' lower physical strength forces them to engage in indirect forms of aggression (Björkqvist, 1994), to social learning effects, noting that girls are discouraged from using direct aggression by parents and authority figures (Underwood, 2003), to functional, suggesting that girls' peer groups are smaller, but more intimate in nature, and relational forms of aggressive are more hurtful, and thus more effective (Crick, Bigbee, & Howes, 1996). However, a recent meta-analysis by Card et al. (2008) has demonstrated that while boys do exhibit more overt aggression than girls do, there is no difference in the usage of indirect aggression between genders. This finding suggests that while there are gender differences in the use of aggression, this instead depends on the use of overt, physical forms of aggression, and explanations that focus on how indirect aggression is unique, or especially meaningful, to females may not be valid (Björkqvist, 1994; Crick, Bigbee, & Howes, 1996). However, this finding does seem to reinforce the evolutionary explanation, as the gender difference lies in the use of overt, not indirect, aggression.

The theoretical differences and demonstrated variation in social cognition and behavior engagement leads us to direct special attention to gender differences within this study. It is also noteworthy that previous research on behavior subtype classifications of youths has demonstrated that the distribution of gender within subtypes is discrepant across samples (Hawley, 2003; Hawley, 2007; Olthof et al., 2011; Wurster & Xie, 2014). Further, boys report themselves as higher on resource control than girls, while girls have been nominated by peers as higher on resource control than boys (Olthof et al., 2011). In light of these findings, gender differences on outcome variables will be explored in this study. Further, to help dissolve discrepant gender proportions across behavior subtypes, all subtype classifications will be created based on same-gender peer nominations.

Hypotheses

The aim of this study is to further understand bistrategic youths in relation to other behavior subtype individuals. Specifically, I wish to clarify their ability to retain their behavior style across time, their social cognition based on their perception of peer networks and beliefs about the efficacy of prosocial and aggressive behavior, as well as their ability to selectively use high status youths in their acts of social aggression. My hypotheses are as follows: (1) I hypothesize that bistrategic youths will be more likely to retain their bistrategic behavior type over time (i.e., across the transition to middle school, and across the same school year semesters), as this should manifest as increased social success; (2) I hypothesize that bistrategic youths will be more accurate in their assessment of peer networks and social hierarchies than other subtype youths, as being perceptive of others' status and peer affiliations may lead to more effective targeting; (3) I hypothesize that bistrategic youths will perceive both aggression and prosociality as behaviors that make an individual popular based on their own social success alongside the use of these behaviors; (4) I hypothesize that bistrategic youths will demonstrate their social aptitude by recruiting high status peers as collaborators in their acts of social aggression, as collaborating with these high status peers should lead to more effective and salient acts of aggression.

CHAPTER 2 METHOD

Participants

A total of 318 5th grade students (51% female, mean age = 11.00, $SD = 0.44$) were recruited from six elementary schools in an urban school district in the Northeastern United States. Only students with signed parental consent were included in this study. The participation rate was 61%. Forty-eight percent of participants were African-American, 33% were Caucasian, 18% were Hispanic, and 2% were of other ethnicity (including Asian and multi-ethnicity). Sixty-one percent of participants were eligible for free or reduced-price lunch at school.

In 6th grade (the first year in middle school), 262 participants who transitioned into one of the three middle schools in the same school district were tracked. Additional 79 participants with signed parental consent were recruited. The total sample in 6th grade included 341 students (54% female, mean age = 12.01, $SD = .44$). The participation rate in 6th grade was 65%. Forty-nine percent of participants were African-America, 33% were White (or Caucasian), 17% were Hispanic, and 1% were Asian or other ethnicity. Approximately 61% of the participants were eligible for free- or reduced-price at school.

Procedure

In 5th grade, participants completed questionnaire measures in the spring semester at the commencement of the study. In 6th, participants completed questionnaire measures in a group administered survey session in both the fall and spring semesters. At the beginning of each survey session, child assent was obtained. During the survey, a lead administrator read the instructions and questions aloud, while additional assistants provided mobile monitoring and assistance to students. Before the beginning of the survey, participants were assured of

confidentiality, and they were asked not to discuss their responses with other students.

Participants were told they could stop their participation at any time without repercussion.

Measures

Peer reported aggressive and prosocial behavior. Participants were asked to nominate three peers in their class from free recall who best fit descriptor items of *prosocial* and *aggressive behavior*. Proportion scores for each behavior were created by dividing the number of nominations for items by the total number of potential nominators in the class. Participants were asked to nominate students who were *prosocial* (e.g., “This person is always willing to help other kids”, “This person is usually friendly to others”, $r > .65$). Participants were also asked to nominate peers displaying *social aggression* (“This person gossips and says things about others”, “This person is good at causing people to get mad at each other”, $r_s > .58$), and *physical aggression* (“This person starts fights. This person pushes other kids or hits them”, “This person bullies others. This person is always hurting or picking on others”, $r_s > .67$).

Following previous methodology (Hawley, Little, & Card, 2007; Olthof et al., 2011), strategy use subtypes were determined by dividing proportion scores on aggressive and prosocial behavior usage into thirds in order to classify participants into groups. Proportion scores for each behavior were created by dividing the number of nominations for items by the total number of potential nominators in the class for 5th grade participants, and by dividing nominations for items by the total number of potential nominators in the school for 6th grade participants.

Peer social networks. Peer social networks in the school will be determined from individual interviews conducted with each participant. In one section of the interview,

participants were asked, “Now tell me about your school - are there some people who hang around together a lot in your class?” and “How about you? Do you have a group that you hang around with?” Later in the interview, participants were asked to name any persons who were “not members of any groups”.

According to the nominations of peer groups from all respondents within a class, the social cognitive map (SCM) procedure will be employed to identify social groups (Cairns, Perrin, & Cairns, 1985). A co-occurrence matrix will be generated as a square matrix with all the students in a class listed down the rows and across the columns. Each off-diagonal number in the matrix summarizes the number of times two students corresponding to the row and the column were nominated in the same group. Each diagonal number of the co-occurrence matrix represents the total number of occasions that a given person was named to any group. The distribution of numbers in a column is regarded as the personal profile of co-occurrences with other students in the same groups.

A correlational matrix will then be generated by intercorrelating the columns in the co-occurrence matrix. The magnitude of the correlation represents the degree of similarity between two personal profiles of co-occurrences. If two participants are groupmates, high similarity in their personal profiles of co-occurrences is expected. According to Cairns and colleagues (Cairns, Gariépy, & Kindermann, 1991), a cutoff point of .40 for the correlation will be employed to determine whether two people are in the same social group. On the basis of this composite social map that aggregated information from all participants' reports within a class, peer groups will be identified. Multi-group membership was allowed for participants whose nominations fell into different groups. The validity of peer affiliation patterns identified by SCM procedure has been shown by direct observations (Cairns et al., 1985).

Network centrality, representing how prominent an individual is within his or her social network, was measured for each participant by summing the total number of nominations into all groups in the social network. *Network centrality* was standardized within class for 5th grade participants and within school for 6th grade participants.

Peer nominations of perceived popularity and peer preference. Participants were asked to nominate up to three peers of any gender who fit the descriptor "popular" ("Some kids are very popular with their peers. That is, many classmates like to play with them or do things with them."). *Perceived popularity* was assessed based on the proportion score on this item, which was calculated by dividing the number of nominations received for a child by the total possible number of nominators in the class for 5th grade participants, and by dividing the number of nominations received by the total possible number of nominators in the school for 6th grade participants (Lease, Musgrove, & Axelrod, 2002; Parkhurst & Hopmeyer, 1998). Participants were also asked to nominate three peers who they "like most" and three peers who they "like least", and *peer preference* was calculated as the difference between the proportion scores on each child's "Like most" and "Like least" items.

Collaborators in social aggression dyads. In order to examine the usage of *social aggression*, I conducted analyses on dyad nominations. *Peer reports of aggressor-victim dyads* were used for social aggression. Each participant was asked to first identify the aggressors ("Some students get other people to turn against another student. Can you think of anyone in your class who does this a lot?"). The interviewer wrote down the first name and first initial of the last name of each aggressor on the left column of an answer sheet. For each aggressor, the participant was asked to nominate the victims ("Whom does X get people to turn against?"). The interviewer then wrote down each victim's name on the right column

of the sheet and drew a line between the names of the aggressor and the victim. Nominations of *third-party collaborators* (i.e., peers with whom social aggressors collaborated) were measured by asking participants “Who do they convince to turn against X?”.

All third party collaborators in acts of social were identified for each participant. *Popularity of the collaborators* was calculated for each perpetrator of social aggression by creating an average of individual perceived popularity scores across all third party collaborators for each participant identified as an instigator of social aggression. *Popularity of collaborators* was standardized by class for 5th grade participants and by school for 6th grade participants.

Perception of social networks. Participant reports of peer groups will be analyzed in order to investigate perception of peer social networks. I will first record the total number of peer groups reported by each participant. I will then compare each participant’s report to the social groups identified from the SCM procedure to determine the both degree of accuracy and the proportion of networks reported by each participant. For each participant, *network recall completeness* was measured by calculating the proportion of a participant’s report that matched the confirmed SCM groups.

The comparison will be made across two matrices: the SCM-group matrix made of peer groups identified in the SCM procedure and the individual report matrix made of each participant’s report. Each matrix contains sets of binary relationships among the group members; members of the same group had binary relationships with each other. When a binary relationship is reported both in the SCM-group matrix and in the individual report matrix, a “hit” will be recorded. For any given binary relationship, its weight equals the average number of times each participant was nominated into the group. Hence, the

completeness score will be calculated as the total weighted number of “hits” divided by the total weighted number of binary relationships in the SCM-group matrix. The accuracy level will be calculated as the total weighted number of “hits” divided by the total weighted number of binary relationships in the individual report matrix.

Beliefs of aggressive and prosocial behaviors for popularity. A Popularity Determinants Scale was used to assess participants’ perceptions of what makes a boy popular in school. This scale was developed based on the prominent popularity determinants reported in previous studies (e.g., LaFontana & Cillessen, 2002). Children rated the extent to which given behaviors and/or characteristics would make a same-sex peer popular, using a 5-point Likert scale (1 = “very unpopular,” 3 = “no effect,” 5 = “very popular”). This scale was administered during the group survey session. Participants’ perceptions of the extent *prosocial behavior* makes a same-sex peer popular was assessed by one item: “Being nice to people”. Participants’ perceptions of the extent *physical aggression* makes a same-sex peer popular was assessed by one item: “Getting into fights”. Participants’ perceptions of the extent *social aggression* makes a same-sex peer popular was assessed by two items: “Spreading rumors” and “Getting others to turn against another boy/girl” ($r_s > .56$). Participant beliefs regarding the *use of prosocial behavior*, *use of physical aggression*, and the *use of social aggression* in the pursuit of popularity were standardized by class for 5th grade participants and by school for 6th grade participants. Beliefs were recoded for analyses (-2 = “very unpopular,” 0 = “no effect,” 2 = “very popular”).

Analytic Plan

In order to test my first hypothesis, that bistrategic youths would be likely to retain their subtype over time, I examined the distribution of participants in each subtype across the

middle school transition (i.e., 5th Spring and 6th Fall semesters), across the school year (6th Fall and 6th Spring semesters), and across a full year period (6th Spring and 6th Spring semesters). Configural Frequency Analysis was used to examine the distributions of participants within each subtype across two time points (e.g., 6th Fall and 6th Spring) by assessing whether the observed frequency of each cell occurred more often or less often than expected by chance using the BASIC program (von Eye, 1990), controlling for overall error rate with a Bonferroni adjusted alpha of $.05 / (4 \times 4) = .003$. Cells that are shown to contain higher frequencies than expected by chance of the same subtype at two time points indicate significant subtype retention across the two time points. Analyses were performed separately within each gender to examine how behavior retention differed among boys and girls.

In order to test my second hypothesis, that bistrategic youths would report more complete social network information, a series of two-way ANOVAs were performed controlling for gender with behavior subtypes as the Independent Variable. ANOVAs testing subtype differences on network completeness were performed on participants at 5th Spring, 6th Fall, and 6th Spring semesters.

In order to test my hypothesis that bistrategic youths would attribute the use of prosocial and aggressive behavior to be effective in the pursuit of popularity, a two-level Hierarchical Linear Model (HLM) was performed (Bryk & Raudenbush, 1992; Raudenbush & Bryk, 2002). In the level-1 model, beliefs about behaviors in obtaining popularity obtained in 5th grade Spring, 6th grade Fall, and 6th grade Spring semesters will be modeled for each subject.

$$\text{Level 1: } \gamma_{ti} = \pi_{0i} + \pi_{1i} (\text{Semester}_t) + \pi_{2i} (\text{Sex}) + e_{ti}$$

γ_{ti} : Behavior popularity beliefs for participant i at semester t

Semester_t: Semester of participant at time t (0 = 5th Spring, 1 = 6th Fall, 2 = 6th Spring)

Sex: Sex of participant (0 = girls, 1 = boys)

π_{0i} : Estimated behavior popularity beliefs for participant i at 5th Spring semester

π_{1i} : The coefficient of linear change of behavior popularity beliefs over time for participant i

π_{2i} : The difference between boys and girls on γ_{ti}

e_{ti} : The ith participant's deviation from the specified model of changes

At Level 2, individual variations in level 1 parameter will be modeled as a function of behavior subtype:

$$\text{Level 2: } \pi_{ki} = \beta_{k0} + \beta_{k1} (\text{Inactive}) + \beta_{k2} (\text{Prosocial}) + \beta_{k3} (\text{Aggressive}) + u_{ki}.$$

π_{ki} : The parameters in level 1

Inactive: Inactive subtype (0 = bistrategics, 1 = inactives)

Prosocial: Behavior subtype (0 = bistrategics, 1 = prosocials)

Aggressive: Aggressive subtype (0 = bistrategics, 1 = aggressives)

β_{k0} : The value of π_{ki} for bistrategics

β_{k1} : The difference between bistrategics and inactives on π_{ki}

β_{k2} : The difference between bistrategics and prosocials on π_{ki}

β_{k3} : The difference between bistrategics and aggressives on π_{ki}

u_{ki} : The ith individual's deviation from the estimated group-specific values

Trajectory analyses were performed separately for physical aggression, social aggression, and prosocial behavior beliefs. Each trajectory analysis included intercept and semester slope. Semester intervals were entered as 0 = 5th Spring, 1 = 6th Fall, and 2 = 6th Spring. I explored gender and subtype differences in the intercept. Girls served as the Sex reference group, as Sex was entered as 0 = girls, 1 = boys. Bistrategic youths served as the

subtype reference group and dummy codes Inactive, Prosocial, and Aggressive were created for each of the other three subtypes. Inactive entered as 0 = all others, 1 = inactive youths, Prosocial was entered as 0 = all others, 1 = prosocial youths, and Aggressive was entered as 0 = all others, 1 = aggressive youths. Dummy codes for each subtype were created based on 5th Spring subtype classifications. At Level-2, I created interaction terms between subtype variables and the Semester slope in order to test for differences in the rates of change across the three waves.

In order to test my last hypothesis, that bistrategic youths would collaborate with higher status peers in acts of social aggression than other subtypes, a series of two-way ANOVAs were performed controlling for gender with a dichotomous variable, with 1 = bistrategic youths and 0 = all other subtype youths Independent Variable. This new classification variable was created on the basis of low numbers of participants being nominated as perpetrators in acts of social aggression (N = 58 for 5th Spring and N = 57 for 6th Spring). ANOVAs testing differences bistrategic youths and non-bistrategic youths on collaborator popularity were performed on participants at 5th Spring and 6th Spring semesters.

In order to test exploratory analyses examining differences on across bistrategic change groups on outcome variables (i.e., social status variables, network completeness, popularity beliefs, and collaborator status), a series of two-way ANOVAs were performed controlling for gender with bistrategic change groups as the Independent Variable. Bistrategic change groups were created for the 5th Spring to 6th Fall transition, and for the 6th Fall to 6th Spring transition. Bistrategic change groups were coded as 0 = those were not classified as bistrategic in either semester, 1 = those who retained the bistrategic subtype in both semesters, 2 = those who moved to the bistrategic subtype in the second semester, 3 =

those who had been bistrategic in the first semester but moved to an alternate subtype the second semester.

CHAPTER 3 RESULTS

Classification of Behavior Subtypes

Participants were classified into subtypes based on high (top third), middle, or low (bottom third) behavior usage among same gender peers. That is to say, female participants were classified based on prosocial and aggressive behavior rankings among female peers only, and vice versa for male participants. The subtypes were formed as follows: bistrategic youths scored in the top third on both prosocial behavior and either physical or social aggression; aggressive youths scored in the top third on either physical or social aggression but average or low on prosocial behavior; prosocial youths scored in the top third on prosocial behavior but average or low on physical or social aggression; inactive youths scored in the lower or middle third on both aggressive behavior and prosocial behavior.

Classifications of participants in 5th grade spring semester revealed 36 bistrategic youths, 105 aggressive youths, 70 prosocial youths, and 107 inactive youths. Classifications of participants in 6th grade fall semester revealed 37 bistrategic youths, 108 aggressive youths, 82 prosocial youths, and 112 inactive youths. Classifications of participants in 6th grade spring semester revealed 38 bistrategic youths, 117 aggressive youths, 77 prosocial youths, and 109 inactive youths.

Configural frequency analysis was used to examine the distributions of gender within each subtype by assessing whether the observed frequency of each cell occurred more often or less often than expected by chance. Analyses were performed using the BASIC program developed by von Eye (1990), controlling for overall error rate with a Bonferroni adjusted alpha of $.05 / (2 \times 4) = .00625$. Analyses revealed that no greater numbers of girls or boys were distributed in any subtype than expected by chance in either 5th Spring, 6th Fall, or 6th

Spring semesters ($ps > .05$). However, in order to explore the effect of gender on outcome variables in the study, all analyses were performed with gender as a covariate.

	Inactive Youths	Prosocial Youths	Aggressive Youths	Bistrategic Youths	Total
<i>Subtypes 5th Spring</i>					
Girls	53	37	55	18	163
Boys	54	33	50	18	155
<i>Total</i>	<i>107</i>	<i>70</i>	<i>105</i>	<i>36</i>	<i>318</i>
<i>Subtypes 6th Fall</i>					
Girls	65	43	57	21	186
Boys	47	39	51	16	153
<i>Total</i>	<i>112</i>	<i>82</i>	<i>108</i>	<i>37</i>	<i>339</i>
<i>Subtypes 5th Spring</i>					
Girls	55	46	69	16	186
Boys	54	31	48	22	155
<i>Total</i>	<i>109</i>	<i>77</i>	<i>117</i>	<i>38</i>	<i>341</i>

Social Function of Behavior Subtypes. In order to confirm previous findings and illustrate how status differs across behavior subtypes, social functioning was examined in each semester. The social functioning of participants was examined in three aspects: *perceived popularity*, *peer preference*, and *network centrality*. A series of three two-way ANOVAs performed on *perceived popularity* across subtypes at each semester showed that bistrategic youths consistently held higher popularity than other subtype youths ($F_s > 12.159$, $ps < 001$). A series of three two-way ANOVAs performed on *network centrality* across subtypes at each semester showed that bistrategic youths consistently held higher centrality than, or among the highest as, other subtype youths ($F_s > 10.423$, $ps < 001$). A series of three

two-way ANOVAs performed on *peer preference* across subtypes at each semester revealed significant differences between subtypes, ($F_s > 12.129$, $p_s < .001$), although bistrategic youths were often similar to or lower than prosocial youths. Full results may be seen in Table 2.

Table 2
Peer Nominated Status Across Behavior Subtypes in 5th and 6th Grade Semesters

	Inactive Youths	Prosocial Youths	Aggressive Youths	Bistrategic Youths	F (η_p^2)
<i>Perceived Popularity</i>					
5 th Spring	-.409 _a (.67)	.073 _b (.91)	.205 _{b,c} (1.06)	.473 _c (1.08)	12.239*** (.105)
6 th Fall	-.322 _a (.50)	-.287 _a (.58)	.254 _b (1.10)	.869 _c (1.65)	21.288*** (1.61)
6 th Spring	-.350 _a (.28)	-.221 _a (.51)	.250 _b (1.06)	.686 _c (1.92)	16.528*** (.129)
<i>Network Centrality</i>					
5 th Spring	-.329 _a (.78)	-.159 _a (.90)	.266 _b (1.00)	.512 _b (1.01)	12.159*** (.104)
6 th Fall	-.308 _a (.81)	-.066 _{a,b} (.74)	.139 _b (1.14)	.639 _c (1.20)	10.423*** (.087)
6 th Spring	-.411 _a (.72)	-.009 _b (.78)	.225 _{b,c} (1.12)	.482 _c (1.25)	12.527*** (.101)
<i>Peer Preference</i>					
5 th Spring	.032 _b (.75)	.557 _c (.74)	-.470 _a (1.04)	.208 _b (1.02)	20.061*** (.162)
6 th Fall	-.057 _a (.68)	.365 _b (.63)	-.365 _a (1.19)	.430 _b (1.37)	12.129*** (.098)
6 th Spring	-.067 _{a,b} (.81)	.532 _c (.73)	-.318 _a (.92)	.094 _b (1.02)	13.161*** (.105)

Note. *** $p < .001$. Subscripts denote similarities according to Duncan multi-range post-hoc analyses.

Results are analogous with previous findings (Hawley, 2003; Olthof et al., 2011;

Wurster & Xie, 2014) and indicate that bistrategic youths are consistently able to maintain high social resource control on measures of social status.

Testing Hypothesis 1: Behavior Subtype Retention

Configural frequency analyses comparing the distribution of participants in each subtype across 5th Spring and 6th Fall semesters, as well as 6th Fall and 6th Spring semesters, revealed that greater numbers of participants were likely to be classified as each of the four behavior subtypes in both semesters than expected by chance, ($ts > 3.983, ps < .001$).

Configural frequency analyses comparing the distribution of participants in each subtype across 5th Spring and 6th Spring revealed that greater numbers of participants were likely to be classified as inactive, prosocial, and aggressive behavior subtypes in both semesters than expected by chance, ($ts > 3.889, ps < .001$). However, participants were no more likely to be bistrategic in both semesters than expected by chance, ($f_e = 3.099, f_o = 6, t = 1.845, p = .032$).

Table 3
Proportion of Participants in Each Subtype by Gender Across 5th Spring to 6th Spring
6th Spring Subtypes

	Inactive Youths	Prosocial Youths	Aggressive Youths	Bistrategic Youths	Total
		<i>6th Fall Subtypes</i>			
Inactive Youths	44*	20	21	4	89
Prosocial Youths	15	29*	3	7	54
Aggressive Youths	21	8	49*	11	89
Bistrategic Youths	2	5	11	10*	28
<i>Total 5th Spring</i>	82	62	84	32	260
		<i>6th Spring Subtypes</i>			
Inactive Youths	60*	19	28	5	112
Prosocial Youths	25	41*	8	8	82
Aggressive Youths	16	12	67*	13	108
Bistrategic Youths	6	5	14	12*	37
<i>Total 6th Fall</i>	107	77	117	38	339
		<i>6th Spring Subtypes</i>			
Inactive Youths	44*	19	21	5	89
Prosocial Youths	21	27*	4	3	55
Aggressive Youths	17	6	52*	14	89
Bistrategic Youths	6	6	11	6	29
<i>Total 5th Spring</i>	88	58	88	28	262

Note. * denotes greater numbers in these cell than expected by chance according to Configural Frequency Analysis.

We also explored gender differences in behavior subtype retention. Analyses comparing the distribution of girls in each subtype across 5th Spring and 6th Fall semesters revealed that greater numbers of girls were likely to be classified as each of the four behavior subtypes in both semesters than expected by chance, ($ts > 3.542$, $ps < .001$).

Analyses comparing the distribution of boys in each subtype across 5th Spring and 6th Fall semesters revealed that greater numbers of boys were likely to be classified as inactive,

prosocial, and aggressive in both semesters than expected by chance, ($ts > 2.926, ps < .002$).

However, boys were no more likely to be bistrategic in both semesters than expected by chance ($f_e = 1.674, f_o = 4, t = 2.069, p = .019$).

Table 4
Proportion of Participants in Each Subtype by Gender Across 5th Spring to 6th Fall

	<i>6th Fall Subtypes</i>				
	Inactive Youths	Prosocial Youths	Aggressive Youths	Bistrategic Youths	Total
<i>Subtypes 5th Spring</i>					
Inactive Girls	25*	9	13	1	48
Prosocial Girls	9	16*	1	5	31
Aggressive Girls	12	4	26*	6	48
Bistrategic Girls	1	1	6	6*	14
<i>Total Girls</i>	47	30	46	18	141
<i>Subtypes 5th Spring</i>					
Inactive Boys	19*	11	8	3	41
Prosocial Boys	6	13*	2	2	23
Aggressive Boys	9	4	23*	5	41
Bistrategic Boys	1	4	5	4	14
<i>Total Boys</i>	35	32	38	14	119
<i>Total 5th Spring</i>	82	62	84	32	260

Note. * denotes greater numbers in these cell than expected by chance according to Configural Frequency Analysis.

Analyses comparing the distribution of girls in each subtype across 6th Fall and 6th Spring semesters revealed that greater numbers of girls were likely to be classified as each of the four behavior subtypes in both semesters than expected by chance, ($ts > 4.280, ps < .001$).

Analyses comparing the distribution of boys in each subtype across 6th Fall and 6th Spring revealed that greater numbers of boys were likely to be classified as inactive, prosocial, and aggressive in both semesters than expected by chance, ($ts > 3.725, ps < .001$).

However, boys were no more likely to be bistrategic in both semesters than expected by chance ($f_e = 2.301, f_o = 5, t = 2.026, p = .021$).

Table 5
Proportion of Participants in Each Subtype by Gender Across 6th Fall to 6th Spring

	<i>6th Spring Subtypes</i>				
	Inactive Youths	Prosocial Youths	Aggressive Youths	Bistrategic Youths	Total
<i>Subtypes 6th Fall</i>					
Inactive Girls	33*	13	17	2	65
Prosocial Girls	12	25*	5	1	43
Aggressive Girls	7	6	38*	6	57
Bistrategic Girls	3	2	9	7*	21
<i>Total Girls</i>	55	46	69	16	186
<i>Subtypes 6th Fall</i>					
Inactive Boys	27*	6	11	3	47
Prosocial Boys	13	16*	3	7	39
Aggressive Boys	9	6	29*	7	51
Bistrategic Boys	3	3	5	5	16
<i>Total Boys</i>	52	31	48	22	153
<i>Total 5th Spring</i>	<i>107</i>	<i>77</i>	<i>117</i>	<i>38</i>	<i>339</i>

Note. * denotes greater numbers in these cell than expected by chance according to Configural Frequency Analysis.

Analyses comparing the distribution of girls in each subtype across 5th Spring and 6th Spring semesters revealed that greater numbers of girls were likely to be classified as inactive, prosocial, and aggressive in both semesters than expected by chance, ($t_s > 2.918, p_s < .002$). Girls were no more likely to remain bistrategic in both semesters ($f_e = 1.291, f_o = 4, t = 2.628, p = .004$) than was expected by chance.

Analyses comparing the distribution of boys in each subtype across 5th Spring and 6th

Spring revealed that boys were more likely to be classified as prosocial and aggressive in both semesters than expected by chance, ($ts > 4.172, ps < .001$). Boys were not more likely to be classified as inactive or bistrategic in both semesters ($ts < 2.570, ps > .005$)

Table 6
Proportion of Participants in Each Subtype by Gender Across 5th Spring to 6th Spring

	6 th Spring Subtypes				
	Inactive Youths	Prosocial Youths	Aggressive Youths	Bistrategic Youths	Total
<i>Subtypes 5th Spring</i>					
Inactive Girls	23*	11	13	1	48
Prosocial Girls	13	15*	2	1	31
Aggressive Girls	8	4	29*	7	48
Bistrategic Girls	1	3	6	4	14
<i>Total Girls</i>	45	33	50	13	141
<i>Subtypes 5th Spring</i>					
Inactive Boys	21	8	8	4	41
Prosocial Boys	8	12*	2	2	24
Aggressive Boys	9	2	23*	7	41
Bistrategic Boys	5	3	5	2	15
<i>Total Boys</i>	43	25	38	15	121
<i>Total 5th Spring</i>	88	58	88	28	262

Note. * denotes greater numbers in these cell than expected by chance according to Configural Frequency Analysis.

In summary, CFA analyses demonstrated that both boys and girls who are classified as inactive subtype, prosocial subtype, or aggressive subtype are consistently likely to retain their behavior subtype across the transition to middle school, across the same school year, and across the full calendar year. In contrast, only bistrategic girls were able to retain their subtype across the transition to middle school and across the same school year, while bistrategic boys never showed retention across semesters. In addition, bistrategic girls were

unable to maintain their behavior subtype across a full calendar year, indicating that this subtype may be especially difficult to maintain.

Bistrategic Change Groups: Social Status Implications. Given that this dissertation focuses concertedly on bistrategic youth, additional analyses were conducted in order to examine participants' social status based on retention of the bistrategic subtype, those who moved from an alternate subtype into the bistrategic subtype, and those who moved away from the bistrategic subtype into an alternate subtype. I examined bistrategic groups based on transition to middle school change, from 5th Spring semester to 6th Fall semester, and same school year change, from 6th Fall to 6th Spring. Bistrategic change groups were coded as 0 = those were not classified as bistrategic in either semester, 1 = those who retained the bistrategic subtype in both semesters, 2 = those who moved to the bistrategic subtype in the second semester, 3 = those who had been bistrategic in the first semester but moved to an alternate subtype the second semester.

A series of ANOVAs were performed on social status variables measured at 5th Spring and 6th Fall across bistrategic change groups. Analyses revealed significant differences between bistrategic change groups on *perceived popularity*, *peer preference*, and *network centrality* at both time points ($F_s > 3.401$, $p_s < .05$), with those who retained bistrategic behavior being higher than other subtypes, although similar to those who moved to the bistrategic subtype in the next semester. There were no differences between bistrategic change groups on 5th Spring *peer preference*, $F(3,254) = .788$, $\eta_p^2 = .009$, $p = .501$, and no significant effect of gender.

Table 7
Social Status Across Bistrategic Change Groups in 5th Spring and 6th Fall Semesters

	Never Bistrategic (<i>SD</i>)	Retained Bistrategic (<i>SD</i>)	Moved to Bistrategic (<i>SD</i>)	Moved from Bistrategic (<i>SD</i>)	<i>F</i> (η_p^2)
<i>Perceived Popularity</i> <i>5th Spring</i>	-.067 _a (.93)	.980 _b (.91)	.580 _{a,b} (1.17)	.432 _b (1.21)	7.239 ^{***} (.078)
<i>Peer Preference</i> <i>5th</i> <i>Spring</i>	.010 (.93)	.473 (1.23)	-.034 (1.16)	.114 (1.10)	.788 (.009)
<i>Network Centrality</i> <i>5th</i> <i>Spring</i>	-.052 _a (.94)	1.06 _b (.49)	.488 _{a,b} (1.07)	.223 _a (1.25)	6.172 ^{***} (.068)
<i>Perceived Popularity</i> <i>6th Fall</i>	-.082 _a (.86)	1.01 _c (1.89)	.775 _{b,c} (1.61)	.261 _{a,b} (1.38)	7.920 ^{***} (.085)
<i>Peer Preference</i> <i>6th</i> <i>Fall</i>	.002 _a (.89)	.959 _b (1.60)	.263 _a (1.26)	.073 _a (.99)	3.401 [*] (.038)
<i>Network Centrality</i> <i>6th</i> <i>Fall</i>	-.060 _a (.98)	.910 _b (.76)	.648 _b (1.39)	-.079 _a (.84)	5.938 ^{**} (.066)

Note. * $p < .05$, *** $p < .001$. Subscripts denote similarities according to Duncan multi-range post-hoc analyses.

A series of ANOVAs were performed on social status variables measured at 6th Fall and 6th Spring across bistrategic change groups. Analyses revealed significant differences between bistrategic change groups on *perceived popularity*, *peer preference*, and *network centrality* at both time points ($F_s > 4.017$, $p_s < .01$), with those who retained bistrategic behavior either being higher than other subtypes or else similar to those who moved to the bistrategic subtype in the next semester. There were no differences between bistrategic change groups on 6th Spring *peer preference*, $F(3,334) = 1.447$, $\eta_p^2 = .013$, $p = .229$.

Table 8
Social Status Across Bistrategic Change Groups in 6th Fall and 6th Spring Semesters

	Never Bistrategic (<i>SD</i>)	Retained Bistrategic (<i>SD</i>)	Moved to Bistrategic (<i>SD</i>)	Moved from Bistrategic (<i>SD</i>)	<i>F</i> (η_p^2)
<i>Perceived Popularity</i> <i>6th Fall</i>	-.120 _a (.82)	1.36 _c (2.27)	.044 _a (.95)	.633 _b (1.23)	13.637 ^{***} (.109)
<i>Peer Preference</i> 6 th <i>Fall</i>	-.019 _{a,b} (.92)	.713 _c (1.99)	-.405 _a (.99)	.294 _{b,c} (.98)	4.017 ^{**} (.035)
<i>Network Centrality</i> 6 th <i>Fall</i>	-.110 _a (.93)	.998 _c (1.27)	.244 _{a,b} (1.00)	.467 _{b,c} (1.14)	8.406 ^{***} (.071)
<i>Perceived Popularity</i> <i>6th Spring</i>	-.141 _a (.65)	1.82 _c (2.91)	.161 _{a,b} (.92)	.548 _b (.149)	21.412 ^{***} (.161)
<i>Peer Preference</i> 6 th <i>Spring</i>	-.014 (.92)	.589 (2.07)	-.135 (1.31)	.018 (.72)	1.447 (.013)
<i>Network Centrality</i> 6 th <i>Spring</i>	-.105 _a (.92)	.905 _b (1.60)	.287 _a (1.03)	.425 _{a,b} (1.14)	7.639 ^{***} (.064)

Note. *** $p < .001$. Subscripts denote similarities according to Duncan multi-range post-hoc analyses.

Overall, results demonstrate that those retaining the bistrategic subtype are among the highest on peer nominated measures of social status. This is especially true for bistrategic change groups in the 6th Fall and 6th Spring semesters. Those who retained the bistrategic subtype were most similar to those moving to the bistrategic subtype when examining 5th Spring to 6th Fall bistrategic change groups, and those who retained the bistrategic subtype were most similar to those moving from the bistrategic subtype when examining 6th Fall to 6th Spring bistrategic change groups.

Testing Hypothesis 2: Network Perceptions

The two-way ANOVA performed on *network completeness* in 5th Spring controlling for gender revealed no significant effect of subtype, $F(3,290) = 1.344$, $\eta_p^2 = .014$, $p = .260$, and a significant main effect of gender, $F(1,290) = 6.819$, $\eta_p^2 = .023$, $p < .01$, with girls being higher on network completeness than boys. The two-way ANOVA performed on *network completeness* in 6th Fall controlling for gender revealed an insignificant effect of subtype, $F(3,309) = 0.330$, $\eta_p^2 = .003$, $p = .803$, and a significant main effect of gender, $F(1,309) = 26.339$, $\eta_p^2 = .079$, $p < .001$, with girls being higher on network completeness than boys. The two-way ANOVA performed on *network completeness* in 6th Spring controlling for gender revealed a significant effect of subtype, $F(3,300) = 3.152$, $\eta_p^2 = .031$, $p < .05$, and a significant main effect of gender, $F(1,300) = 35.547$, $\eta_p^2 = .106$, $p < .001$, with girls being higher on network completeness than boys. According to Fisher's LSD post-hoc analyses, bistrategic youths were higher on network completeness than inactive youths ($p < .05$), but not prosocial or aggressive youths.

Table 9
Network Completeness Across Subtypes in 5th and 6th Grade Semesters

	Inactive Youths (<i>SD</i>)	Prosocial Youths (<i>SD</i>)	Aggressive Youths (<i>SD</i>)	Bistrategic Youths (<i>SD</i>)	<i>F</i> (η_p^2)
<i>Network Completeness</i>					
5 th Spring	-.120 (.90)	-.056 (1.11)	.089 (.92)	.239 (.88)	1.344 (.014)
6 th Fall	.034 (1.00)	.059 (1.07)	-.051 (.93)	-.079 (1.04)	.330 (.003)
6 th Spring	-.231 _a (.95)	-.010 _{a,b} (.86)	.168 _b (1.05)	.146 _b (1.14)	3.152* (.031)

Note. * $p < .05$. Subscripts denote similarities according to Duncan multi-range post-hoc analyses.

In order to examine how network completeness was associated with former and future behavior usage, I examined cross semester completeness and behavior subtypes. Specifically, I examined network completeness prospectively by analyzing 6th Spring completeness across 6th Fall behavior subtypes, and retroactively by analyzing 6th Fall completeness across 6th Spring behavior subtypes. The two-way ANOVA performed on *network completeness* in 6th Fall across 6th Spring subtypes controlling for gender revealed a significant effect of subtype, $F(3,309) = 3.964$, $\eta_p^2 = .037$, $p < .01$, and a significant main effect of gender, $F(1,309) = 26.966$, $\eta_p^2 = .080$, $p < .001$, with girls being higher on network completeness than boys. According to Fisher's LSD post-hoc analyses, bistrategic youths were higher on completeness than inactive youths ($p < .01$) and prosocial youths ($p < .05$), but not aggressive youths. The two-way ANOVA performed on *network completeness* in 6th Spring across 6th Fall subtypes controlling for gender revealed no significant effect of subtype, $F(3,300) = 1.646$, $\eta_p^2 = .016$, $p = .179$, but did return a significant main effect of gender, $F(1,300) = 35.590$, $\eta_p^2 = .106$, $p < .001$, with girls being higher on network completeness than boys.

Results indicate that differences in network perceptions according to present time behavior subtypes do not emerge until later in the first year of middle school, in the Spring of 6th grade. However, differences in Fall semester network perceptions may be seen when examining Spring semester behavior subtypes, suggesting some relation of network perceptions to future behavior usage.

Table 10

Network Completeness Across Opposite Semester Subtypes in 6th Grade Semesters

	Inactive Youths (<i>SD</i>)	Prosocial Youths (<i>SD</i>)	Aggressive Youths (<i>SD</i>)	Bistrategic Youths (<i>SD</i>)	<i>F</i> (η_p^2)
<i>6th Fall Completeness by 6th Spring Subtype</i>	-.218 _a (.94)	-.074 _{a,b} (.96)	.145 _{b,c} (.98)	.336 _c (1.17)	3.964 ^{**} (.037)
<i>6th Spring Completeness by 6th Fall Subtype</i>	-.099 (.84)	.012 (1.10)	-.014 (1.01)	.306 (1.10)	1.646 (.016)

Note. ^{**} $p < .01$. Subscripts denote similarities according to Duncan multi-range post-hoc analyses.

Exploratory Analyses on Bistrategic Change Groups. In order to continue exploring differences between those who retained the bistrategic subtype, those who moved to or from the bistrategic subtype, and those who were never bistrategic, I also examined differences among change groups in network perceptions. I first examined differences in network perceptions among bistrategic change groups from 5th Spring to 6th Fall. The two-way ANOVA performed on 5th Spring *network completeness* controlling for gender revealed no significant effect of bistrategic change status, $F(3,239) = 1.841$, $\eta_p^2 = .023$, $p = .140$, and a significant main effect of gender, $F(1,239) = 5.535$, $\eta_p^2 = .023$, $p < .05$. The two-way ANOVA performed on 6th Fall *network completeness* controlling for gender revealed no significant effect of bistrategic change status, $F(3,237) = .439$, $\eta_p^2 = .006$, $p = .725$, and a significant main effect of gender, $F(1,237) = 22.747$, $\eta_p^2 = .088$, $p < .001$.

Next I examined bistrategic change groups from 6th Fall to 6th Spring. The two-way ANOVA performed on 6th Fall *network completeness* controlling for gender revealed a significant effect of bistrategic change status, $F(3,309) = 2.692$, $\eta_p^2 = .025$, $p < .05$, and a significant effect of gender, $F(1,309) = 29.089$, $\eta_p^2 = .086$, $p < .001$. According to Fisher's

LSD post-hoc analyses, those who moved to the bistrategic subtype in 6th Spring were higher on 6th Fall completeness than those who were never bistrategic ($p < .05$) and those who moved away from the bistrategic subtype ($p < .05$). They were no different from those who retained the bistrategic subtype across semesters ($p = .272$). The two-way ANOVA performed on 6th Spring *network completeness* controlling for gender revealed no significant effect of bistrategic change status, $F(3,300) = 1.591$, $\eta_p^2 = .016$, $p = .192$, and a significant effect of gender, $F(1,300) = 35.114$, $\eta_p^2 = .105$, $p < .001$.

Table 11
Network Completeness Across Bistrategic Change Groups in All Semesters

	Never Bistrategic (<i>SD</i>)	Retained Bistrategic (<i>SD</i>)	Moved to Bistrategic (<i>SD</i>)	Moved from Bistrategic (<i>SD</i>)	<i>F</i> (η_p^2)
5 th Spring to 6 th Fall Change Groups					
<i>Network Completeness</i> 5 th Spring	-.056 (.94)	.691 (1.17)	-.049 (1.01)	.160 (.72)	1.841 (.023)
<i>Network Completeness</i> 6 th Fall	-.033 (.94)	-.281 (.80)	.025 (1.21)	.069 (1.10)	.439 (.006)
6 th Fall to 6 th Spring Change Groups					
<i>Network Completeness</i> 6 th Fall	-.026 _{a,b} (.98)	.083 _{a,b} (1.40)	.475 _b (1.04)	-.150 _a (.86)	2.692* (.025)
<i>Network Completeness</i> 6 th Spring	-.041 (.97)	.552 (1.36)	-.011 (1.03)	.203 (1.00)	1.591 (.016)

Note. * $p < .01$. Subscripts denote similarities according to Duncan multi-range post-hoc analyses.

These exploratory analyses indicate no differences between bistrategic change groups across the transition to middle school. When comparing bistrategic change groups across same-school year change, those who moved to the bistrategic subtype in the spring semester had higher fall network completeness.

Testing Hypothesis 3: Beliefs Regarding Behavior Use in the Pursuit of Popularity

In order to test my third hypothesis, a series of two-level models were performed using Hierarchical Linear Modeling (HLM). In the level-1 model, beliefs regarding each behavior were modeled for each subject, with subtype differences examined in the intercept and bistrategic youths serving as the reference group. At level-2, interaction terms between subtype variables and semester slope test for subtype differences in the rates of change across the three semesters. Models were performed separately for each behavior belief. First I examined beliefs regarding physical aggression in obtaining popularity based on 5th Spring behavior subtypes.

Table 12
Physical Aggression Popularity Beliefs from 5th Spring to 6th Spring

Variables	Model β (SE)
Intercept, P0	
Intercept	-0.141 (.216)
Sex	-0.038 (.117)
Inactive Youths	-0.255 (.118)
Prosocial Youths	-0.148 (.266)
Aggressive Youths	0.507 (.254)*
Semester Change, P1	
Intercept	0.252 (.142)
Inactive Youths	-0.075 (.162)
Prosocial Youths	-0.153 (.168)
Aggressive Youths	-0.338 (.164)*
Variance Components	
Intercept	1.163 (1.078)***
Semester Change	0.125 (.354)***

Note. * $p < .05$, *** $p < .001$.

According to the two-level HLM performed on beliefs regarding physical aggression, there was no significant effect of gender in the intercept ($\beta = -0.038$, $SE = 0.117$, $p = .512$),

and no differences between inactive youths and bistrategic youths in the intercept ($\beta = -0.255, SE = 0.118, p = .745$), or prosocial youths and bistrategic youths in the intercept ($\beta = -0.148, SE = 0.266, p = .578$). There was a significant difference between aggressive youths and bistrategic youths in the intercept ($\beta = 0.507, SE = 0.254, p = .047$). There were no significant differences between 5th Spring inactive youths and 5th Spring bistrategic youths in the rate of change slope ($\beta = -0.075, SE = 0.162, p = .643$), or 5th Spring prosocial youths and 5th Spring bistrategic youths in the rate of change slope ($\beta = -0.153, SE = 0.168, p = .365$). There was a significant difference between 5th Spring aggressive youths and 5th Spring bistrategic youths in the rate of change slope ($\beta = -0.338, SE = 0.164, p = .040$), indicating that 5th Spring bistrategic youths increased beliefs of physical aggression efficacy at a higher rate than 5th Spring aggressive youths.

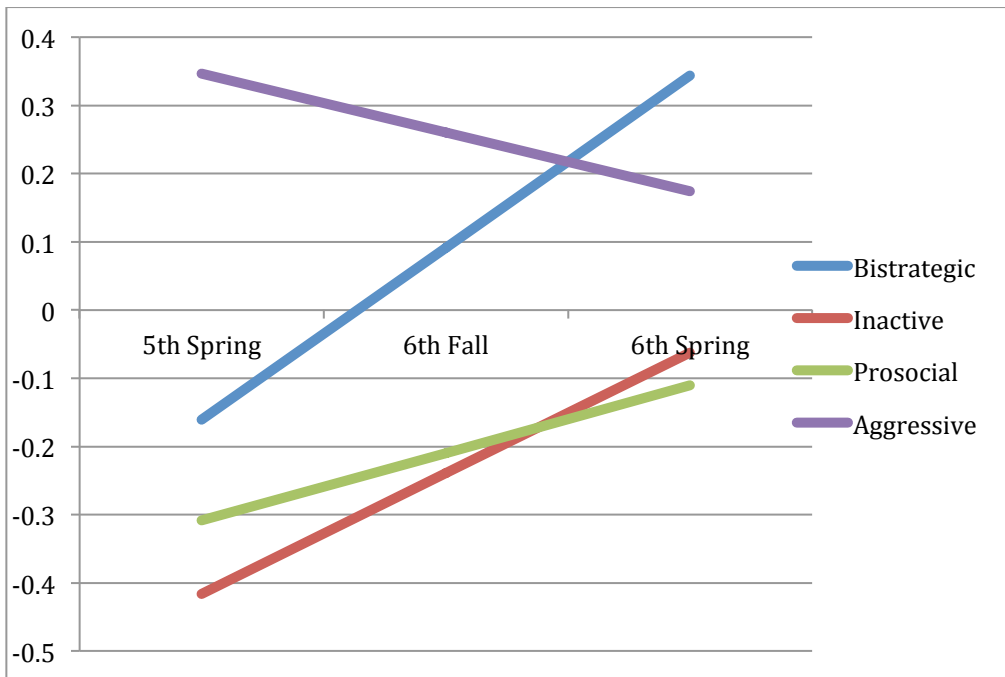


Figure 1
Trajectories of Popularity Beliefs of Physical Aggression for 5th Behavior Subtypes

Figure 1 demonstrates how bistrategic youths demonstrate a sharp increase in beliefs

regarding how effective physical aggression is in obtaining popularity. Prosocial and inactive youths increased beliefs less sharply over time, and aggressive youths decreased in their physical aggression beliefs over time.

I next examined beliefs regarding social aggression in obtaining popularity based on 5th Spring behavior subtypes.

Table 13
Social Aggression Popularity Beliefs from 5th Spring to 6th Spring

Variables	Model β (<i>SE</i>)
Intercept, P0	
Intercept	-0.491 (.145)**
Sex	-0.172 (.097) ⁺
Inactive Youths	0.030 (.171)
Prosocial Youths	0.016 (.192)
Aggressive Youths	0.182 (.185)
Semester Change, P1	
Intercept	0.194 (.106) ⁺
Inactive Youths	-0.176 (.123)
Prosocial Youths	-0.277 (.132)*
Aggressive Youths	-0.216 (.128) ⁺
Variance Components	
Intercept	0.661 (0.813)***
Semester Change	0.052 (.228) ⁺

Note. ⁺ $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

According to the two-level HLM analysis performed on beliefs regarding social aggression, there was an approaching significant effect of gender in the intercept ($\beta = -0.172$, $SE = 0.097$, $p = .076$). There were no differences between inactive youths and bistrategic youths in the intercept ($\beta = 0.030$, $SE = 0.171$, $p = .861$), between prosocial youths and bistrategic youths in the intercept ($\beta = 0.016$, $SE = 0.191$, $p = .932$), or between aggressive youths and bistrategic youths in the intercept ($\beta = 0.182$, $SE = 0.185$, $p = .324$). There were

no significant differences between 5th Spring inactive youths and 5th Spring bistrategic youths in the rate of change slope ($\beta = -0.176, SE = 0.122, p = .152$), or 5th Spring aggressive youths and 5th Spring bistrategic youths in the rate of change slope ($\beta = -0.216, SE = 0.128, p = .091$). There was a significant difference between 5th Spring prosocial youths and 5th Spring bistrategic youths in the rate of change slope ($\beta = -0.277, SE = 0.132, p = .037$), indicating that 5th Spring bistrategic youths increased beliefs of social aggression efficacy at a higher rate than 5th Spring prosocial youths.

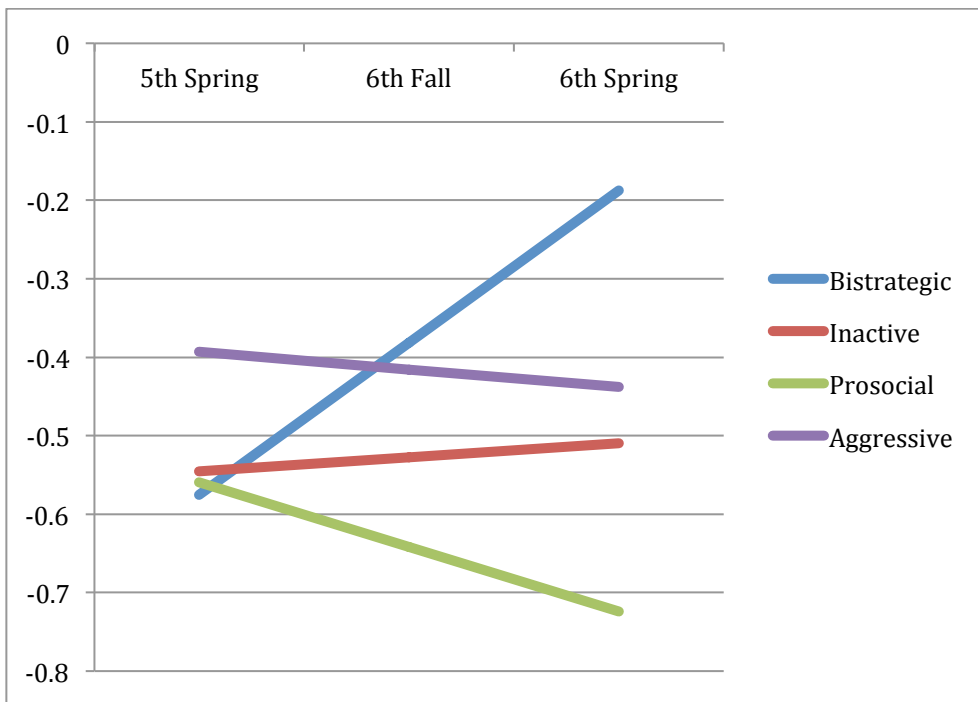


Figure 2
Trajectories of Popularity Beliefs of Social Aggression for 5th Behavior Subtypes

Figure 2 demonstrates how bistrategic youths demonstrate a sharp increase in beliefs regarding how effective social aggression is in obtaining popularity. Aggressive and inactive youths remained fairly steady in social aggression beliefs over time, and prosocial youths decreased in their social aggression beliefs over time.

I next examined beliefs regarding prosocial behavior in obtaining popularity based on

5th Spring behavior subtypes.

Table 14
Prosocial Behavior Popularity Beliefs from 5th Spring to 6th Spring

Variables	Model β (<i>SE</i>)
Intercept, P0	
Intercept	0.751 (.182)
Sex	-0.065 (.096)
Inactive Youths	-0.286 (.209)
Prosocial Youths	-0.046 (.213)
Aggressive Youths	-0.228 (.216)
Semester Change, P1	
Intercept	-0.157 (.125)
Inactive Youths	0.142 (.147)
Prosocial Youths	0.065 (.145)
Aggressive Youths	0.016 (.153)
Variance Components	
Intercept	0.651 (.807) ^{***}
Semester Change	0.132 (.363) ^{***}

Note. *** $p < .001$.

According to the two-level HLM performed on beliefs regarding prosocial behavior, there was no significant effect of gender in the intercept ($\beta = -0.065$, $SE = 0.096$, $p = .503$), and no differences between inactive youths and bistrategic youths in the intercept ($\beta = -0.286$, $SE = 0.209$, $p = .172$), or between prosocial youths and bistrategic youths in the intercept ($\beta = -0.046$, $SE = -0.213$, $p = .830$), or between aggressive youths and bistrategic youths in the intercept ($\beta = -0.228$, $SE = 0.216$, $p = .292$). There were no significant differences between 5th Spring inactive youths and 5th Spring bistrategic youths in the rate of change slope ($\beta = 0.142$, $SE = 0.147$, $p = .335$), or 5th Spring prosocial youths and 5th Spring bistrategic youths in the rate of change slope ($\beta = 0.065$, $SE = 0.145$, $p = .652$), or between 5th Spring aggressive youths and 5th Spring bistrategic youths in the rate of change slope ($\beta =$

0.016, $SE = 0.152$, $p = .919$).

Figure 3 demonstrates how bistrategic, prosocial, and aggressive youths demonstrate fairly slightly decreasing prosocial behavior beliefs over time, while inactive youths remained fairly steady in their prosocial behavior beliefs over time.

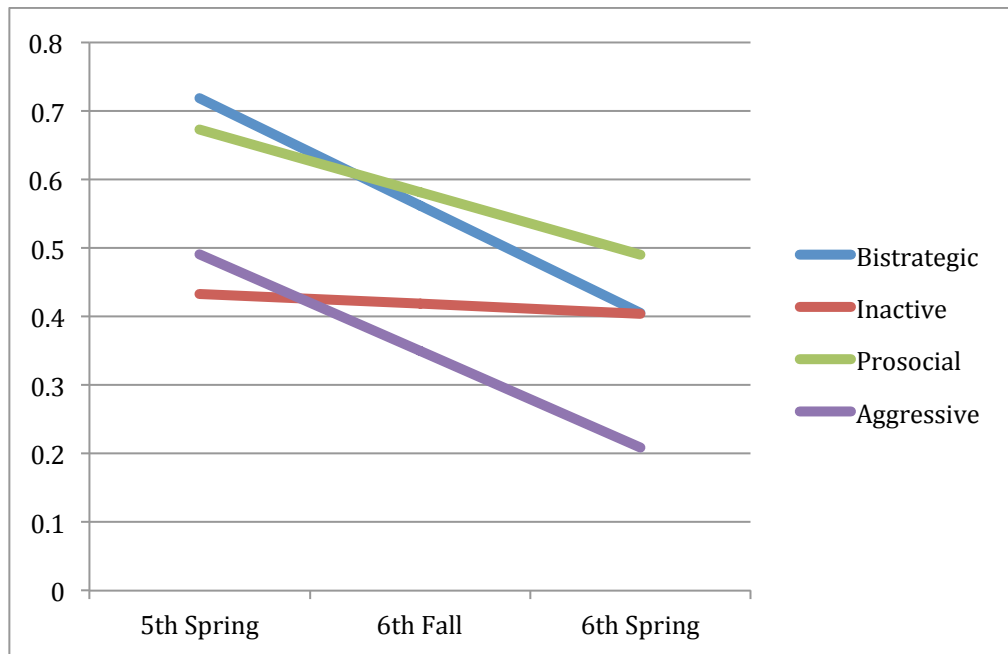


Figure 3
Trajectories of Popularity Beliefs of Prosocial Behavior for 5th Behavior Subtypes

Results demonstrate limited change between behavior subtypes on popularity beliefs of behavior usage. No differences were found across subtypes on prosocial behavior popularity beliefs. However, bistrategic youths increased physical aggression beliefs across semesters at a greater rate of change than aggressive youths, and also increased social aggression beliefs across semesters at a greater rate of change than prosocial and aggressive youths.

Exploratory Analyses on Bistrategic Change Groups. In order to examine how bistrategic change groups differed on behavior beliefs for popularity, I performed a series of ANOVAs across 5th Spring to 6th Fall change groups, and across 6th Fall to 5th Spring change

groups. The two-way ANOVA performed on behavior beliefs at all time points revealed no significant effect of bistrategic change status, ($F_s < 1.533$, $p_s > .05$)

Table 15
Popularity Beliefs Across Bistrategic Change Groups in 5th Spring and 6th Fall Semesters

	Never Bistrategic (<i>SD</i>)	Retained Bistrategic (<i>SD</i>)	Moved to Bistrategic (<i>SD</i>)	Moved from Bistrategic (<i>SD</i>)	<i>F</i> (η_p^2)
<i>Physical Aggression Beliefs 5th Spring</i>	-.06 (1.50)	.50 (1.08)	-.57 (1.43)	-.33 (1.53)	1.444 (.017)
<i>Social Aggression Beliefs 5th Spring</i>	-.49 (1.22)	-.30 (.95)	-.59 (1.14)	-.72 (1.19)	.302 (.004)
<i>Prosocial Behavior Beliefs 5th Spring</i>	.51 (1.27)	.50 (1.18)	.68 (1.13)	.94 (1.06)	.668 (.008)
<i>Physical Aggression Beliefs 6th Fall</i>	-.06 (1.25)	-.10 (1.29)	-.60 (1.35)	.13 (.99)	1.334 (.017)
<i>Social Aggression Beliefs 6th Fall</i>	-.50 (1.06)	-.35 (1.31)	-.81 (1.05)	-.30 (.70)	.872 (.011)
<i>Prosocial Behavior Beliefs 6th Fall</i>	.46 (1.15)	.40 (1.17)	.24 (1.14)	.27 (1.03)	.307 (.004)

Table 16

Popularity Beliefs Across Bistrategic Change Groups in 6th Fall and 6th Spring Semesters

	Never Bistrategic (<i>SD</i>)	Retained Bistrategic (<i>SD</i>)	Moved to Bistrategic (<i>SD</i>)	Moved from Bistrategic (<i>SD</i>)	<i>F</i> (η_p^2)
<i>Physical Aggression Beliefs 6th Fall</i>	.00 (1.25)	-.36 (1.21)	.10 (1.22)	-.46 (1.44)	1.256 (.012)
<i>Social Aggression Beliefs 6th Fall</i>	-.45 (1.03)	-.41 (1.00)	-.17 (1.34)	-.74 (1.25)	1.158 (.011)
<i>Prosocial Behavior Beliefs 6th Fall</i>	.37 (1.17)	.64 (1.03)	.33 (1.15)	.17 (1.27)	.397 (.004)
<i>Physical Aggression Beliefs 6th Spring</i>	.10 (1.15)	.60 (.84)	.50 (1.24)	.12 (1.27)	1.533 (.015)
<i>Social Aggression Beliefs 6th Spring</i>	-.41 (.97)	-.14 (.87)	-.37 (1.13)	-.56 (1.09)	.519 (.005)
<i>Prosocial Behavior Beliefs 6th Spring</i>	.37 (.97)	.27 (.79)	.12 (1.03)	.52 (1.12)	.829 (.008)

Testing Hypothesis 4: Popularity of Collaborators in Acts of Social Aggression

The two-way ANOVA performed on *mean collaborator status* in 5th Spring across bistrategic classification groups revealed a significant effect of bistrategic subtype, $F(1,55) = 3.972$, $\eta_p^2 = .067$, $p = .051$, with the mean status of social aggression collaborators of bistrategic youths being higher than the mean status of collaborators of non-bistrategic youths. There was also a trending significant effect of gender, $F(1,55) = 3.383$, $\eta_p^2 = .058$, $p = .071$, with girls collaborating with higher status peers than did boys.

The two-way ANOVA performed on *mean collaborator status* in 6th Spring across bistrategic classification groups revealed no significant effect of bistrategic subtype on collaborator status, $F(1,54) = .004$, $\eta_p^2 = .000$, $p = .957$, and no significant effect of gender,

$F(1,54) = .800, \eta_p^2 = .015, p = .375.$

Table 17
Social Aggression Collaborator Status Across Subtypes in 5th Spring and 6th Spring

	Non-Bistrategic Youths	Bistrategic Youths	<i>F</i> (η_p^2)
<i>5th Spring Mean Collaborator Status</i>	.232 (.91)	.752 (.81)	3.972* (.067)
<i>6th Spring Mean Collaborator Status</i>	.690 (1.78)	.473 (1.08)	.004 (.000)

Note. * $p = .051.$

Results indicate that bistrategic youths do employ higher status peers as collaborators in acts of social aggression than other subtype youths, but that this effect may not be consistent over time or across school contexts.

Exploratory Analyses on Bistrategic Change Groups. I did not explore differences on collaborator popularity between bistrategic change groups from 5th Spring to 6th Fall, as data was only available for the initial semester, and not the second semester post subtype change. The two-way ANOVA performed on *mean collaborator status* in 6th Spring across bistrategic change groups revealed no significant effect of bistrategic change status on collaborator status, $F(3,52) = .103, \eta_p^2 = .006, p = .958,$ and no significant effect of gender.

Table 18
Social Aggression Collaborator Status Across Bistrategic Change Groups in 6th Spring

	Never Bistrategic (<i>SD</i>)	Retained Bistrategic (<i>SD</i>)	Moved to Bistrategic (<i>SD</i>)	Moved from Bistrategic (<i>SD</i>)	<i>F</i> (η_p^2)
<i>6th Spring Mean Collaborator Status</i>	.754 (1.98)	.627 (1.29)	.363 (.99)	.467 (.67)	.103 (.006)

CHAPTER 4 DISCUSSION

The overarching aim of this study was to further illustrate the social skillfulness of bistrategic youth. Broadly, social competence has been conceptualized as being based on social skillfulness as demonstrated by prosocial behaviors and positive relational outcomes (Rose-Krasnor, 1997; Sullivan, 1953), but also by the ability to adapt to one's own context, acquire social resources, and meet agentic goals (Bjorklund & Pellegrini, 2000; Hawley, 1999; Hawley, 2011). I intended to demonstrate bistrategic youths' social skillfulness and social cognition based on their retention of bistrategic behavior usage, their perceptions of peers within their social context, beliefs regarding prosocial and aggressive behavior use in obtaining status, and their collaboration with socially powerful peers in acts of aggression.

Hypothesis 1: Behavior Subtype Retention

I had hypothesized that bistrategic youths would be likely to remain bistrategic over time, as it should be beneficial for them to do so. Previous research has consistently demonstrated that bistrategic youths are highly adept at requiring social resources (Findley & Ojanen, 2013; Hawley, 2003; Hawley, Little, & Card, 2007; Otholf et al., 2011; Wurster & Xie, 2014). Remaining bistrategic over time should then be demonstrative of an especial degree of skillfulness, as those who remain bistrategic should be perceptive enough to understand the social benefits of these behaviors and intentionally continue their use. However, findings indicated that bistrategic youths were less likely to retain their subtype over time in comparison to other subtype youths. Specifically, it was found that only bistrategic girls were able to remain bistrategic across the middle school transition, as well as across semesters within the same school year. Further, neither bistrategic boys nor bistrategic girls were likely to remain bistrategic across a full calendar year.

This finding, while not what was hypothesized, may be readily understood after further consideration. While bistrategic behavior use is socially beneficial, it should also be difficult to implement as it necessitates high social intelligence (Hawley, 2003). Further, to the extent competence requires being effective in, and adapting to, one's own context (Bjorklund & Pellegrini, 2000), maintaining behavior strategies across novel social settings may be especially challenging. In addition, some youths may be more able to engage in certain behaviors (e.g., aggression) based on contextual factors, such as one's own social standing among his or her peers. Previous research has demonstrated that youths are more apt to engage in aggressive behavior after already achieving, and being insulated by, high social status (Cillessen & Mayeux, 2004; Merten, 1997; Shi & Xie, 2012a). Findings demonstrated that those youths who remained bistrategic across 6th Fall and 6th Spring semesters held higher status than those who had never been bistrategic, as well as those who had previously been bistrategic but changed to an alternate subtype. In light of this, we may see how remaining bistrategic subtype over time is associated with elevated social status. However, it is unclear whether this is a result of remaining bistrategic or is instead due to a protective effect of social status, helping bistrategic youths to maintain their aggressive behavior.

Hypothesis 2: Social Network Perception

It was hypothesized that bistrategic youths would demonstrate their social intelligence by being able to report a larger degree of information on peer groups within their social networks than other youths. This hypothesis was made on the basis that bistrategic behavior usage implies the strategic use of behaviors in order to obtain social resources and subsequent social dominance (Hawley, 2003). Both aggressive and prosocial behaviors obtain social resources, such as prominence, attention, and peer regard, and prosociality

further serves to buffer negative effects of aggressive behavior (Charlesworth, 1996; Hawley, 1999; Hawley, 2003; Pellegrini, 2008). However, costs and benefits associated with different behaviors also vary based on the potential behavior target (Wurster & Xie, 2014), as some youths are more socially powerful (i.e., high status) than others. To that end, being highly knowledgeable about peer group composition should indicate that these youths are perceptive about the social standing and affiliations of peers in their social context.

Notably, bistrategic, prosocial, and aggressive youths did not differ on reported social network completeness when comparing across subtypes on same-semester perceptions, although bistrategic youths did have higher network completeness than inactive youths. This finding reasonably supports Resource Control Theory (Hawley, 1999), which suggests that both prosocial and coercive strategies are effective means of obtaining resources. Youths who employ these behaviors, or who fall into these behavior subtypes, are socially competitive (Hawley, 1999; Hawley, 2003). This is in contrast to those who do not highly engage in prosocial or coercive behaviors, as these youths should be ineffective at resource control and possess low social skillfulness (Hawley, 1999; Hawley, 2003). Further, while youths may vary in regards to which behavior they use, understanding the social status and social relationships of a potential behavior target should be similarly beneficial for those who favor prosocial, aggressive, or bistrategic behavior use. That is to say, regardless of whether a youth is typically affiliative or aggressive (or both), understanding the social standing of his or her peers is still necessary to determine who should be the targets of the preferred behavior use. To that end, the similarity among bistrategic, prosocial, and aggressive youths on network perceptions serves to underscore the competence associated with high employment

of aggressive or prosocial behavior strategies (or both), and the social ineptitude of those who do not actively engage in these behaviors.

Evidence also indicates that network perceptions are related to later behavior use. When examining prospective (i.e., next semester) behavior subtypes based on network completeness, bistrategic youths were higher than inactive and prosocial youths, but no different from aggressive youths. This finding is less straightforward in terms of implications for behavior subtypes. Individuals vary in their desire and motivation for dominance and resource acquisition (Hawley, 1999), and previous evidence has suggested that bistrategic youths are high on desired social dominance (Olthof et al., 2011). It is possible that those youths who belong to bistrategic and aggressive subtypes in the Spring semester were more motivated to socially engage within their networks, and therefore invested greater attention in their social networks during the Fall semester. Further, when competing for resources by higher-risk means (i.e., aggressive behavior), it is advantageous to accurately assess one's own competitive ability in relation to others' (Hawley, 1999). In this way, aggressive and bistrategic youths may need to direct special attention to the social standing of potential targets of aggression.

I also found differences in network perceptions among bistrategic change groups. Specifically, youths who moved to the bistrategic subtype in the 6th Spring semester were higher on network completeness than those who had previously been bistrategic but changed to an alternate subtype, and higher than those who had never been bistrategic at all. These youths who moved to the bistrategic subtype were similar on network completeness to those who remained bistrategic across both semesters. This finding supports the idea that those who eventually use higher risk behaviors (i.e., aggression) first invest special attention in the

social lay of the land. Further, this finding demonstrates that those who remain bistrategic are also perceptive of peer group affiliations within their social networks, which may be indicative of their competence as well as desire to remain socially dominant.

Hypothesis 3: Beliefs Regarding Behavior Use in the Pursuit of Popularity

It was hypothesized that bistrategic youths would endorse prosocial and aggressive behavior as being highly effective in obtaining popularity. Bistrategic youths are continually shown to be socially successful among their peers (Hawley, 2003; Findley & Ojanen, 2013; Olthof et al., 2011; Wurster & Xie, 2014), theoretically based on their coupled use of coercive and affiliative behaviors (Hawley, 1999; Hawley, 2003). As such, I expected bistrategic youths to endorse prosocial and aggressive behavior as highly effective in obtaining popularity. For the most part, however, this was not evident in this study's findings.

As aggressive behavior involves different social consequences and implications for competence depending on the form exhibited (Card et al., 2008; Crick & Grotpeter, 1995; Xie, Cairns, & Cairns, 2005), I examined physical aggression beliefs and social aggression beliefs separately. Findings on beliefs about the use of physical aggression in obtaining popularity showed that aggressive youths were higher than bistrategic youths, and bistrategic youths did not differ from any other subtype. Findings on beliefs about the use of social aggression in obtaining popularity showed no initial differences between bistrategic youths and any other subtypes in the 5th Spring semester. However, trajectory differences between bistrategic youths and other subtypes demonstrated that those youths who were classified as bistrategic in 5th Spring increasingly believed social aggression to be effective at obtaining popularity more so than prosocial and aggressive youths.

While no explicit predictions were made regarding divergent findings on physical aggression and social aggression beliefs, it is reasonable to expect that subtypes would differ on their beliefs about the two forms of aggression. Specifically, as bistrategic youths are suggested to have higher social intelligence than aggressive youths (Hawley, 2003), it follows that aggressive youths should be supportive of physical aggression and bistrategic youths supportive of social aggression, as using social aggression should involve greater social skills (Card et al., 2008; Xie, Swift, Cairns, & Cairns, 2002; Wurster & Xie, 2014). To that end, this finding reinforces the social intelligence of bistrategic youths. This finding extends upon previous research on attributions of aggressive behavior. It has been demonstrated that proactively aggressive youths positively evaluate the use of aggression, while reactively aggressive youths do not (Crick & Dodge, 1996; Dodge & Coie, 1987). Bistrategic youths should be more proactively aggressive—although this has not been evidenced explicitly, bistrategic youths are suggested to aggress with the intention of obtaining social resources, as opposed to aggressing based on hostile attributions or being “hot-blooded” by nature (Card & Little, 2006; Dodge, 1991). Further, bistrategic youths have been shown to highly desire dominance (Olthof et al., 2011), which is analogous to findings on proactively aggressive youths holding goals for status attainment (Sijtsema et al., 2009). This then presents a conflicting picture, as aggressive youths in this sample highly endorsed the use of physical aggression in pursuit of popularity, therefore indicating that its use is intentional. However, we did not differentiate between proactively aggressive youths and reactively aggressive youths in our aggressive subtype participants. It is possible that many aggressive youths in this sample are proactively aggressive, thus aggressing intentionally. Further, aggressive youths in our sample were nominated by peers as being high status, and

also demonstrated a degree of social skillfulness based on their network perceptions. In this way, they do not fit the typical profile of hot-blooded, maladaptive aggressive youths.

No differences were found between subtypes for beliefs regarding the use of prosocial behavior in the pursuit of popularity, either at the initial 5th grade time point or across the three semesters. This may be easily explained. In contrast to aggressive behavior, prosociality is a behavior associated with little cost and many benefits, including increased peer regard and acceptance as well as friendship formation (Eisenberg et al., 2009; Hawley, 1999; Parkhurst & Hopmeyer, 1998). Aggressive behavior is more complicated, obtaining social power while incurring potential risks (Hawley, 1999; Pellegrini, 2008). To that end, the relational and peer regard benefits associated with prosocial behavior should be easily understood by all youths, and it reasonably follows that there would be little variation in perceptions of the effectiveness of prosocial behavior in obtaining popularity. Previous research has shown that bistrategic, prosocial, and aggressive youths do not differ on their use of prosocial behavior towards high status youths (Wurster & Xie, 2014). Coupled with findings from this study, this suggests that these subtypes all understand the benefits of using prosocial behavior. No differences were found between bistrategic change groups on popularity beliefs. It seems reasonable to expect that all youths who at one point fit the bistrategic subtype would show similarity regarding popularity beliefs. It also follows that these bistrategic groups did not differ from all others who were never bistrategic, as all other subtype youths were collapsed into this single category with no differentiation based on behavior use.

Hypothesis 4: Popularity of Collaborators in Acts of Social Aggression

It was expected that bistrategic youths would collaborate with high status peers when using social aggression, as these peers should help the acts of social aggression be more effective, and this was partially confirmed. Bistrategic youths did collaborate with higher status peers when using social aggression at the 5th grade time point, although this was not evident in 6th grade. Collaborating with high status peers in acts of social aggression offers another glimpse of how bistrategic youths may exhibit competence and maintain dominance. While acts of physical aggression may be accomplished by involving only the target of aggression, acts of social aggression requires the involvement of other peers in order to effectively inflict social damage (Xie, Swift, Cairns, & Cairns, 2002; Xie, Cairns, & Cairns, 2002). More specifically, attempting to socially exclude another youth necessitates other peers to follow the aggressor's initiative and socially disengage from the victim. To that extent, convincing high status peers to participate in acts of social aggression may lead to more successful reputational damage, as these socially powerful peers are especially influential in their social contexts (Latané, 1981; Parkhurst & Hopmeyer, 1998; Rodkin et al., 2006). That is to say, the scope of the exclusion may be more extensive than if the aggressor had used a less socially powerful peer. In this way, collaborating with high status peers when using social aggression should translate to these being especially effective acts of exclusion.

Previous evidence has demonstrated how physical aggressors often take advantage of a power differential, bullying those who are physically or socially weaker in order to ensure victory (Olweus, 1994; Veenstra et al., 2007). Conversely, employing social aggression allows aggressors to reduce costs associated with aggression in a number of ways in comparison to physical aggression; social aggression allows those who employ it to reduce the risk of judgment by fellow peers, punishment by authority figures, and retribution or

retaliation by the victim (Hawley, 2003; Xie, Cairns, & Cairns, 2005). Using social aggression thus allows aggressors to inflict reputational damage on those holding prominent positions in the social hierarchy and effectively compete for status and suppress the ascent of other peers (Cillessen & Mayeux, 2004; Faris & Felmlee, 2014). In this way bistrategic youths have been shown to demonstrate especial skillfulness by using social aggression in a number of ways. First, by selectively using social aggression toward high status youths (Wurster & Xie, 2014), and second, by collaborating with high status peers in acts of social aggression.

As was already noted, bistrategic youths only collaborated with higher status peers in 5th grade but not in 6th grade. This may possibly be explained by developmental differences in forms of aggression. Previous research has indicated that social aggression becomes increasingly associated with popularity across development, which may be due to peers attributing status to socially aggressive peers, or to high status peers using social aggression to achieve or maintain dominance (Cillessen & Mayeux, 2004). To that end, peers may see those who engage in social aggression, as both initiators and collaborators, as similarly high status later in adolescence.

Gender Differences on Outcome Variables

Although not central to the study of bistrategic youths, findings in this study also revealed a number of effects of gender on outcome variables. Most notably, girls were higher on social network completeness at several time points. Previous research has suggested that girls are more affiliative and socially skilled, as well as more relationally oriented (Coie, Dodge, & Coppotelli, 1982; Crick & Grotpeter, 1995; Murphy & Eisenberg, 2002; Rose & Asher, 2004). To that end, it is unsurprising that girls would be more invested in, and

subsequently be more accurate and detailed in reporting, peer groups in their social networks. In regards to beliefs about behavior use in the pursuit of status, girls did not differ from boys regarding the use of either prosocial behavior or physical aggression in obtaining popularity. However, girls were higher than boys in their beliefs about whether social aggression would make its user more popular. In this way, girls further demonstrate their social skills by endorsing the more complex and covert method of aggression in obtaining status (Card et al., 2008; Xie et al., 2002). Relatedly, study findings showed that girls collaborated with higher status peers than did boys in acts of social aggression. In this way, girls demonstrated their social skillfulness in these aggressive acts. In addition, only girls remained bistrategic over time, which should also be indicative of their higher social aptitude.

Limitations and Future Directions

This study extended upon existing evidence on bistrategic and other behavior subtype youths. While this study represents a novel contribution to behavior subtype research, there are several limitations that should be addressed. First, subtypes in this study were based on peer nominated behaviors, and not self-reported behavior strategies as used in Hawley's (2003) methodology. While some later studies have based behavior subtype classifications on peer nominated behaviors (Hawley, Little, & Card, 2007; Olthof et al., 2011), the creation of subtypes as based on peer-report and self-report may correspond to different findings. It is possible that the creation of subtypes based on self-report measures would reveal greater stability of the bistrategic subtype over time. In addition, creating subtypes based on self-report may have revealed different findings regarding beliefs on behavior use, as these would then both be created based on self-reported measures. This point leads directly to the second limitation. Some outcome variables (i.e., social status measures) were created based on peer

nominations. As both subtypes and these variables were based on peer perception, it is possible that these findings may be confounded by reputational influence (Hawley, 2007). However, as they confirmed similar findings that are evidenced on self-reported classifications (Hawley, 2003), these peer-nominated measures should be reliable. Third, findings demonstrating that bistrategic youths collaborated with higher status peers in acts of social aggression during 5th grade could be confounded by the fact that bistrategic youths in this sample were high status themselves. Based on this, they are likely afforded regular socialization with higher status peers, and would thus naturally collaborate with them in aggressive acts. Previous research examining the status of victims of bistrategic youths were able to compare status of social aggression victims to status of physical aggression victims in order to determine that the increased status was not a function of opportunity to interact with high status peers (Wurster & Xie, 2014). In this study, there was no natural comparison to examine, as physical aggression acts did not implicate the use of a third party collaborator. However, this finding was not evident in 6th grade analyses, which suggests that bistrategic youths do not always collaborate with high status peers, even though they are high-status themselves. Fourth, this study had a 61-65% participation rate, depending upon the year of data collection. While findings from this sample on measures of social status were similar to other studies (Hawley, 2003; Hawley, Little, & Card, 2007; Olthof et al., 2011), the participation rate could possibly limit the generalizability of these findings. Fifth, while the classification methodology of behavior subtypes has been used in a number of studies with analogous findings (Hawley, 2003; Hawley, Little, & Card, 2007; Olthof et al., 2011), this classification method may limit our understanding of developmental changes in behavioral subtypes. As subtypes are based on relative rank by splitting behavior dimensions into tiers,

it forces similar proportions of participants classified into each subtype, therefore limiting the ability to detect developmental changes. Future studies may consider using specific cutoff values for prosocial and aggressive behaviors in order to examine changes in the distribution of subtypes across development. Sixth, study findings may not be generalizable to all cultures or ethnicities, as this study did not explore race or ethnicity differences. While a number of studies have revealed similar findings regarding the social status of bistrategic youths, some evidence suggests that bistrategic behavior use is not associated with positive outcomes in all cultures (Chen & Chang, 2012). Future studies may do more to investigate social adjustment of bistrategic youths, in both the present and longitudinally, in other cultural contexts.

A larger question looms in regards to bistrategic youths and their social status. This question is whether bistrategic youths obtain social resources fully based on their coupled affiliative and aggressive behavior, or whether they are afforded the opportunity to engage in highly aggressive behavior due to their social status. Resource Control Theory (Hawley, 1999) suggests that bistrategic youths are obtaining resources of status, peer attention, and prominence based on their strategic employment of affiliative and coercive behaviors. But to date, research on bistrategic youths has only involved correlational data (Hawley, 2003; Hawley, Little, & Card, 2007; Olthof et al., 2011; Wurster & Xie, 2014). This study is the first to examine bistrategic youths over more than one time point. Findings indicate that those who retain the bistrategic subtype were largely highest on peer nominated status measures at both time points. Those who moved to the bistrategic subtype after the transition to middle school were of similarly high status pre-transition. However, those who moved to the bistrategic subtype across 6th grade semesters were not of higher status in the fall. Taken

together, these findings suggest that it is tenable for some youths to achieve upward social mobility based on their behavior use, although some may receive protective effects of already elevated status. Future studies examining bistrategic youths may offer more clarity by examining participants across longer trajectories.

Finally, much could be gained by how measures beyond social status and social cognition are associated with behavior subtypes. Future examination of bistrategic and other subtype youths should aim to extend to other aspects of socioemotional functioning. As bistrategic youths encompass divergent social behaviors (i.e., affiliation and aggression), examining factors typically associated with each of these may help to determine in which ways these youths are similar to prosocial youths, in which ways they are similar to aggressive youths, and in which ways they are unique. Specifically, prosocial behavior is associated with positive functioning on a number of dimensions, including emotion regulation and academic achievement (Eisenberg & Fabes, 1998; Wentzel, 1991). It is likely that bistrategic youths would show positive associations with these factors, as well, but this is yet to be explored.

Conclusion and Implications

This study provides important evidence regarding the social cognitions of bistrategic youth in comparison to other subtypes, as well as some preliminary understanding of bistrategic youths' behavior use and social functioning over time. Findings demonstrated that some bistrategic youths do retain their behavior subtype over time, although this retention seems to be weaker and shorter than that of other behavior subtype youths. Evidence suggests that bistrategic, aggressive, and prosocial youths are similar in regards to their perceptions of social networks, as well as their beliefs about how prosocial behavior

influences status. In this way, study evidence reinforces the suggestion that those who are highly engaged in behavior use and competing for social resources possess a greater social aptitude than those who do not (Hawley, 1999; Hawley, 2003). Study findings also demonstrate similarities between bistrategic and aggressive youths regarding their aggressive behavior beliefs, and indicate that when changing subtypes, bistrategic youths are most inclined to change to the aggressive subtype.

Findings also continue to demonstrate how not all aggressive youths are subject to maladaptive social effects, and instead may be high status and influential in their social contexts. This is especially notable in regards to implications for aggression use among preadolescents and adolescents in school contexts. We may see how the social adjustment of those using aggression is not always negatively impacted, although it is unlikely that teachers and administrators would be best advised to instruct adolescents to be aggressive, or bistrategic, in order to obtain status. On the one hand, while aggression may be helpful for those who use it, it can still be harmful for those subjected to it. Further, while short-term findings indicate that bistrategic youths enjoy high status, this may expose them to negative outcomes associated with high status, such as increased engagement in delinquency and drug use (Allen, Porter, McFarland, Marsh, & McElhaney). It is also important to note that high social status is valuable on the basis that not all are able to achieve it—although we may be able to successfully instruct all youths to be bistrategic in nature, not all youths would be able to be socially powerful as a result of this behavior use.

In this way, research on bistrategic youths may indicate that social hierarchies in the school context are powerful, and youths should be socially engaging in order to obtain social resources and security. Further, social security is rooted in different dimensions (i.e.,

relational versus prominence), and aggressive and prosocial behavior may be used independently or jointly to obtain either, or both, dimensions of social resources. To that end, adolescents may be able to use aggressive and prosocial behaviors to their advantage based on how they desire to expand their social resources.

REFERENCES

- Adler, P. A., & Adler, P. (1998). *Peer power: Preadolescent culture and identity*. Piscataway, NJ US: Rutgers University Press.
- Allen J.P., Porter M.R., McFarland F.C., Marsh P., McElhaney K.B. (2005) The two faces of adolescents' success with peers: Adolescent popularity, social adaptation, and deviant behavior. *Child Development*, 76, 747–760. doi: 10.1111/j.1467-8624.2005.00875.x
- Archer, J., & Coyne, S. M. (2005). An integrated review of indirect, relational, and social aggression. *Personality and Social Psychology Review*, 9, 212-230. doi: 10.1207/s15327957pspr0903_2
- Asher, S. R., & Coie, J. D. (1990). *Peer rejection in childhood*. Cambridge, England: Cambridge University Press.
- Attili, G. (1990). Successful and disconfirmed children in the peer group: Indices of social competence within an evolutionary perspective. *Human Development*, 33, 238-249. doi: 10.1159/000276521
- Bandura, A. (2001). Social cognitive theory: An agentic perspective. *Annual review of psychology*, 52, 1-26. doi:10.1146/annurev.psych.52.1.1
- Berler, E. S., Gross, A. M., & Drabman, R. S. (1982). Social skills training with children: proceed with caution. *Journal of Applied Behavior Analysis*, 15, 41-53. doi: 10.1901/jaba.1982.15-41
- Bjorklund, D. F. & Pellegrini, A. D. (2000). Child Development and Evolutionary Psychology. *Child Development*, 71: 1687–1708. doi: 10.1111/1467-8624.00258
- Björkqvist, K. (1994). Sex differences in physical, verbal, and indirect aggression: A review of recent research. *Sex Roles*, 30, 177-188. doi: 10.1007/BF01420988

- Bornstein, M. H., Hahn, C., & Haynes, O. (2010). Social competence, externalizing, and internalizing behavioral adjustment from early childhood through early adolescence: Developmental cascades. *Development and Psychopathology, 22*, 717-735. doi:10.1017/S0954579410000416
- Broidy, L.M., Nagin, D.S., Tremblay, R.E., Bates, J.E., Brame, B., Dodge, K.A., et al. (2003). Developmental trajectories of childhood disruptive behaviors and adolescent delinquency: A six-site, cross-national study. *Developmental Psychology, 39*, 222–245. doi: 10.1037/0012-1649.39.2.222
- Bronfenbrenner, U., & Evans, G. W. (2000). Developmental science in the 21st century: Emerging questions, theoretical models, research designs and empirical findings. *Social development, 9*, 115-125. doi: 10.1111/1467-9507.00114
- Bryk, A.S., & Raudenbush, S.W. (1992). *Hierarchical Linear Models in Social and Behavioral Research: Applications and Data Analysis Methods* (First Edition). Newbury Park, CA: Sage Publications.
- Bukowski, W. M., Gauze, C., Hoza, B., & Newcomb, A. F. (1993). Differences and consistency between same-sex and other-sex peer relationships during early adolescence. *Developmental Psychology, 29*, 255-263. doi: 10.1037/0012-1649.29.2.255
- Bukowski, W. M., & Hoza, B. (1989). Popularity and friendship: Issues in theory, measurement, and outcome. In T.J. Berndt & G.W. Ladd (Eds.), *Peer relations in child development* (pp. 15-45). New York: Wiley.
- Bukowski, W.M., Hoza, B., Boivin, M. (1994). Measuring Friendship Quality During Pre- and Early Adolescence: The Development and Psychometric Properties of the

- Friendship Qualities Scale. *Journal of Social and Personal Relationships*, *11*, 471-484. doi: 10.1177/0265407594113011
- Burt, K. B., Obradović, J., Long, J. D., & Masten, A. S. (2008). The interplay of social competence and psychopathology over 20 years: Testing transactional and cascade models. *Child Development*, *79*, 359-374. doi:10.1111/j.1467-8624.2007.01130.x
- Bussey, K., & Bandura, A. (1999). Social cognitive theory of gender development and differentiation. *Psychological Review*, *106*, 676-713. doi: 10.1037/0033-295X.106.4.676
- Cairns, R. B., & Cairns, B. D. (1994). *Lifelines and risks: Pathways of youth in our time*. New York, NY US: Cambridge University Press.
- Cairns, R. B., Cairns, B. D., Neckerman, H. J., Ferguson, L. L., & Gariépy, J. L. (1989). Growth and aggression: I. Childhood to early adolescence. *Developmental Psychology*, *25*, 320-330. doi: 10.1037/0012-1649.25.2.320
- Cairns, R. B., Cairns, B. D., Neckerman, H. J., Gest, S. D., & Gariépy, J. (1988). Social networks and aggressive behavior: Peer support or peer rejection? *Developmental Psychology*, *24*, 815-823. doi:10.1037/0012-1649.24.6.815
- Cairns, R. B., Gariépy, J-L, & Kindermann, T. (1991). *Identifying social clusters in natural settings*. Unpublished manuscript, University of North Carolina at Chapel Hill.
- Cairns, R. B., Leung, M. C., Buchanan, L., & Cairns, B. D. (1995). Friendships and social networks in childhood and adolescence: Fluidity, reliability, and interrelations. *Child Development*, *66*, 1330-1345. doi: 10.1111/j.1467-8624.1995.tb00938.x

- Cairns, R. B., Perrin, J. E., & Cairns, B. D. (1985). Social structure and social cognition in early adolescence: Affiliative patterns. *The Journal of Early Adolescence*, 5, 339-355. doi:10.1177/0272431685053007
- Cairns, R. B., Xie, H., & Leung, M.C. (1998). The popularity of friendship and the neglect of social networks: Toward a new balance. In W. M. Bukowski and A. H. Cillessen (Eds), *Sociometry then and now: Building on six decades of measuring children's experiences with the peer group*. *New Directions for Child Development*, 80, 25-53. doi: 10.1002/cd.23219988104
- Campbell, A. (1999). Staying alive: Evolution, culture, and women's intrasexual aggression. *Behavioral and Brain Sciences*, 22, 203-214.
- Card, N. A., & Little, T. D. (2006). Proactive and reactive aggression in childhood and adolescence: A meta-analysis of differential relations with psychosocial adjustment. *International Journal Of Behavioral Development*, 30, 466-480. doi:10.1177/0165025406071904
- Card, N. A., Stucky, B. D., Sawalani, G. M., & Little, T. D. (2008). Direct and indirect aggression during childhood and adolescence: A meta-analytic review of gender differences, intercorrelations, and relations to maladjustment. *Child Development*, 79, 1185–1229. doi: 10.1111/j.1467-8624.2008.01184.x
- Cavell, T. A. (1990). Social adjustment, social performance, and social skills: A tri-component model of social competence. *Journal Of Clinical Child Psychology*, 19, 111-122. doi:10.1207/s15374424jccp1902_2

- Charlesworth, W. R. (1996). Co-operation and competition: Contributions to an evolutionary and developmental model. *International Journal of Behavioral Development, 19*, 25-38. doi: 10.1080/016502596385910
- Chen, B.-B. and Chang, L. (2012). Are ‘Machiavellian’ Chinese children well-adapted in the peer group? The relationship between resource acquisition strategies and social functioning and status. *Asian Journal of Social Psychology, 15*, 122–131. doi: 10.1111/j.1467-839X.2012.01373.x
- Cillessen, A. H., & Bellmore, A. D. (2011). Social skills and social competence in interactions with peers. *The Wiley-Blackwell Handbook of Childhood Social Development, Second Edition*, 393-412. doi: 10.1002/9781444390933.ch21
- Cillessen, A. H. N. and Mayeux, L. (2004), From Censure to Reinforcement: Developmental Changes in the Association Between Aggression and Social Status. *Child Development, 75*: 147–163. doi: 10.1111/j.1467-8624.2004.00660.x
- Cillessen, A. H., & Rose, A. J. (2005). Understanding popularity in the peer system. *Current Directions in Psychological Science, 14*, 102–105. doi: 10.1111/j.0963-7214.2005.00343.x
- Coie, J. D., Dodge, K. A., & Coppotelli, H. (1982). Dimensions and types of social status: A cross-age perspective. *Developmental Psychology, 18*, 557–570. doi: 10.1037/0012-1649.18.4.557
- Côté, S., Tremblay, R. E., Nagin, D., Zoccolillo, M., & Vitaro, F. (2002). The development of impulsivity, fearfulness, and helpfulness during childhood: Patterns of consistency and change in the trajectories of boys and girls. *Journal of Child Psychology and Psychiatry, 43*, 609–618. doi: 10.1111/1469-7610.00050

- Crick, N. R., Bigbee, M. A., & Howes, C. (1996). Gender differences in children's normative beliefs about aggression: How do I hurt thee? Let me count the ways. *Child Development, 67*, 1003–1014. doi: 10.1111/j.1467-8624.1996.tb01779.x
- Crick, N. R., & Dodge, K. A. (1994). A review and reformulation of social information-processing mechanisms in children's social adjustment. *Psychological Bulletin, 115*, 74-101. doi:10.1037/0033-2909.115.1.74
- Crick, N. R., & Dodge, K. A. (1996). Social information-processing mechanisms on reactive and proactive aggression. *Child Development, 67*, 993-1002. doi:10.2307/1131875
- Crick, N. R., & Grotpeter, J. K. (1995). Relational aggression, physical aggression, and social-psychological adjustment. *Child Development, 66*, 710–722.
doi:10.1111/j.1467-8624.1995.tb00900.x
- Daly, M. & Wilson, M. (1994). Evolutionary psychology of male violence. In J. Archer (Ed), *Male violence*. London: Routledge.
- Darwin, C. (2009). The origin of species (1859). In B. F. Gentile, B. O. Miller (Eds.), *Foundations of psychological thought: A history of psychology* (pp. 320-336). Thousand Oaks, CA US: Sage Publications, Inc.
- de Waal, F. M. (1993). Reconciliation among primates: A review of empirical evidence and unresolved issues. In W. A. Mason, S. P. Mendoza (Eds.), *Primate social conflict* (pp. 111-144). Albany, NY US: State University of New York Press.
- Dishion, T. J., Andrews, D. W., & Crosby, L. (1995). Antisocial boys and their friends in early adolescence: Relationship characteristics, quality, and interactional process. *Child Development, 66*, 139-151. doi:10.2307/1131196

- Dodge, K. A. (1991). The structure and function of reactive and proactive aggression. In D. J. Pepler, K. H. Rubin (Eds.), *The development and treatment of childhood aggression* (pp. 201-218). Hillsdale, NJ England: Lawrence Erlbaum Associates, Inc.
- Dodge, K. A., & Coie, J. D. (1987). Social-information-processing factors in reactive and proactive aggression in children's peer groups. *Journal Of Personality And Social Psychology*, *53*, 1146-1158. doi:10.1037/0022-3514.53.6.1146
- Dodge, K. A., Lochman, J. E., Harnish, J. D., Bates, J. E., & Pettit, G. S. (1997). Reactive and proactive aggression in school children and psychiatrically impaired chronically assaultive youth. *Journal of Abnormal Psychology*, *106*, 37-51. doi:10.1037/0021-843X.106.1.37
- Dodge, K. A., Pettit, G. S., McClaskey, C. L., & Brown, M. M. (1986). Social competence in children. *Monographs Of The Society For Research In Child Development*, *51*, 1-85. doi:10.2307/1165906
- Eisenberg, N., Fabes R. A. (1998). Prosocial development. In Damon, W., Eisenberg, N. (Eds) *Handbook of Child Psychology. Social, Emotional, and Personality Development*. *3*, 701–778. New York: Wiley & Sons
- Eisenberg, N., Zhou, Q., Liew, J., Champion, C., & Pidada, S. (2006). Emotion, Emotion-Related Regulation, and Social Functioning. In X. Chen, D. C. French, B. H. Schneider (Eds.), *Peer relationships in cultural context* (pp. 170-197). New York, NY US: Cambridge University Press. doi:10.1017/CBO9780511499739.008
- Eisenberg, N., Morris, A., McDaniel, B., & Spinrad, T. L. (2009). Moral cognitions and prosocial responding in adolescence. In R. M. Lerner, L. Steinberg (Eds.), *Handbook*

- of adolescent psychology*, Vol 1: Individual bases of adolescent development (3rd ed.) (pp. 229-265). Hoboken, NJ US: John Wiley & Sons Inc.
- Faris, R., & Felmlee, D. (2014). Casualties of Social Combat School Networks of Peer Victimization and Their Consequences. *American Sociological Review*, 79, 228-257. doi: 10.1177/0003122414524573
- Farmer, T. W., Leung, M., Pearl, R., Rodkin, P. C., Cadwallader, T. W., & Van Acker, R. (2002). Deviant or diverse peer groups? The peer affiliations of aggressive elementary students. *Journal of Educational Psychology*, 94, 611-620. doi:10.1037/0022-0663.94.3.611
- Findley, D., & Ojanen, T. (2013). Adolescent resource control Associations with physical and relational aggression, prosocial and withdrawn behaviors, and peer regard. *International Journal of Behavioral Development*, 37, 518-529. doi: 10.1177/0165025413503420
- Garandau, C. F., Ahn, H.-J., & Rodkin, P. C. (2010). The social status of aggressive students across contexts: The role of classroom status hierarchy, academic achievement, and grade. *Developmental Psychology*, 47, 1699-1710. doi:10.1037/a0025271
- Geary, D. C., Byrd-Craven, J., Hoard, M. K., Vigil, J., & Numtee, C. (2003). Evolution and development of boys' social behavior. *Developmental Review*, 23, 444-470. doi:10.1016/j.dr.2003.08.001
- Hartup, W. W., & Moore, S. G. (1990). Early peer relations: Developmental significance and prognostic implications. *Early Childhood Research Quarterly*, 5, 1-17. doi: 10.1016/0885-2006(90)90002-I

- Hawley, P. H. (1999). The ontogenesis of social dominance: A strategy-based evolutionary perspective. *Developmental Review, 19*, 97–132. doi: 10.1006/drev.1998.0470
- Hawley, P. H. (2003). Prosocial and coercive configurations of resource control in early adolescence: A case for the well-adapted Machiavellian. *Merrill-Palmer Quarterly: Journal Of Developmental Psychology, 49*, 279-309. doi:10.1353/mpq.2003.0013
- Hawley, P. H. (2007). Social dominance in childhood and adolescence: Why social competence and aggression may go hand in hand. In P. H. Hawley, T. D. Little, P. C. Rodkin (Eds.), *Aggression and adaptation: The bright side to bad behavior* (pp. 1-29). Mahwah, NJ US: Lawrence Erlbaum Associates Publishers.
- Hawley, P. H., Johnson, S. E., Mize, J. A., & McNamara, K. A. (2007). Physical attractiveness in preschoolers: Relationships with power, status, aggression and social skills. *Journal of School Psychology, 45*, 499–521. doi: 10.1016/j.jsp.2007.04.001
- Hawley, P. H., Little, T. D., & Card, N. A. (2007). The allure of a mean friend: Relationship quality and processes of aggressive adolescents with prosocial skills. *International Journal of Behavioral Development, 31*, 22–32. doi: 10.1177/0165025407074630
- Hawley, P. H. (2011). The evolution of adolescence and the adolescence of evolution: The coming of age of humans and the theory about the forces that made them. *Journal Of Research On Adolescence, 21*, 307-316. doi:10.1111/j.1532-7795.2010.00732.x
- Howes, C. (1987). Social competence with peers in young children: Developmental sequences. *Developmental Review, 7*, 252-272. doi:10.1016/0273-2297(87)90014-1
- Jarvinen, D. W., & Nicholls, J. G. (1996). Adolescents' social goals, beliefs about the causes of social success, and satisfaction in peer relations. *Developmental Psychology, 32*, 435-441. doi: 10.1037/0012-1649.32.3.435

- Kaukiainen, A., Björkqvist, K., Lagerspetz, K., Österman, K., Salmivalli, C., Rothberg, S., & Ahlbom, A. (1999). The relationships between social intelligence, empathy, and three types of aggression. *Aggressive behavior*, 25, 81-89. doi: 10.1002/(SICI)1098-2337(1999)25:2<81::AID-AB1>3.0.CO;2-M
- Kohlberg, L., Levine, C., & Hewer, A. (1983). *Moral stages: A current formulation and a response to critics*. Basel, Switzerland: Karger.
- Kokko, K., Tremblay, R. E., Lacourse, E., Nagin, D. S., & Vitaro, F. (2006). Trajectories of prosocial behavior and physical aggression in middle childhood: Links to adolescent school dropout and physical violence. *Journal of Research on Adolescence*, 16, 403-428. doi: 10.1111/j.1532-7795.2006.00500.x
- Ladd, G. W. (1999). Peer relationships and social competence during early and middle childhood. *Annual Review Of Psychology*, 50, 333-35. doi:10.1146/annurev.psych.50.1.333
- Ladd, G. W. and Burgess, K. B. (1999), Charting the Relationship Trajectories of Aggressive, Withdrawn, and Aggressive/Withdrawn Children during Early Grade School. *Child Development*, 70, 910–929. doi: 10.1111/1467-8624.00066
- LaFontana, K. M., & Cillessen, A. N. (2002). Children's perceptions of popular and unpopular peers: A multimethod assessment. *Developmental Psychology*, 38, 635-647. doi:10.1037/0012-1649.38.5.635
- Latané, B. (1981). The psychology of social impact. *American Psychologist*, 36, 343-356. doi:10.1037/0003-066X.36.4.343

- Lease, A. M., Musgrove, K. T., & Axelrod, J. L. (2002). Dimensions of social status in preadolescent peer groups: Likability, perceived popularity, and social dominance. *Social Development, 11*, 508-533.
- Masten, A. S., Coatsworth, J., Neemann, J., Gest, S. D., Tellegen, A., & Garmezy, N. (1995). The structure and coherence of competence from childhood through adolescence. *Child Development, 66*, 1635-1659. doi:10.2307/1131901
- Merten, D. E. (1997). The meaning of meanness: Popularity, competition, and conflict among junior high school girls. *Sociology of Education, 70*, 175–191. doi:10.2307/2673207
- Michelson, L., & Wood, R. (1980). A group assertive training program for elementary schoolchildren. *Child Behavior Therapy, 2*, 1-9. doi:10.1300/J473V02N01_01
- Mize, J., & Ladd, G. W. (1990). A cognitive-social learning approach to social skill training with low-status preschool children. *Developmental Psychology, 26*, 388-397. doi: 10.1037/0012-1649.26.3.388
- Moffitt, T.E. (1993). Adolescent-limited and life-course persistent antisocial behavior: A developmental taxonomy. *Psychological Review, 100*, 647–701. doi: 10.1037/0033-295X.100.4.674
- Moller, L. C., Hymel, S., & Rubin, K. H. (1992). Sex typing in play and popularity in middle childhood. *Sex Roles, 26*, 331-353. doi: 10.1007/BF00289916
- Monahan, K. C. and Steinberg, L. (2011), Accentuation of individual differences in social competence during the transition to adolescence. *Journal of Research on Adolescence, 21*, 576–585. doi: 10.1111/j.1532-7795.2010.00705.x

- Murphy, B. C. and Eisenberg, N. (2002), An Integrative Examination of Peer Conflict: Children's Reported Goals, Emotions, and Behaviors. *Social Development, 11*, 534–557. doi: 10.1111/1467-9507.00214
- Nagin, D.S., & Tremblay, R.E. (1999). Trajectories of boys' physical aggression, opposition, and hyperactivity on the path to physically violent and nonviolent juvenile delinquency. *Child Development, 70*, 1181–1196. doi: 10.1111/1467-8624.00086
- Nelson, D. A., & Crick, N. R. (1999). Rose-colored glasses: Examining the social information-processing of prosocial young adolescents. *The Journal of Early Adolescence, 19*, 17-38. doi: 10.1177/0272431699019001002
- NICHD (2004). Trajectories of physical aggression from toddlerhood to middle school. Monographs of the Society for Research in Child Development, Serial no. 278, vol. 69–4.
- Oden, S., & Asher, S. R. (1977). Coaching children in social skills for friendship making. *Child Development, 48*, 495-506. doi:10.2307/1128645
- Olthof, T., Goossens, F. A., Vermande, M. M., Aleva, E. A., & van der Meulen, M. (2011). Bullying as strategic behavior: Relations with desired and acquired dominance in the peer group. *Journal of School Psychology, 49*, 339-359. doi:10.1016/j.jsp.2011.03.003
- Olweus, D. (1994). *Bullying at school*. Springer: US.
- Orobio de Castro, B., Merk, W., Koops, W., Veerman, J. W., & Bosch, J. D. (2005). Emotions in social information processing and their relations with reactive and proactive aggression in referred aggressive boys. *Journal of Clinical Child and Adolescent Psychology, 34*, 105-116. doi:10.1207/s15374424jccp3401_10

- Osterman, K., Björkqvist, K., Lagerspetz, K.M.J., Kaukiainen, A., Landau, S.F., Fraczek, A., & Caprara, G.V. (1998). Cross-cultural evidence of female indirect aggression. *Aggressive Behavior, 24*, 1–8. doi: 10.1002/(SICI)1098-2337(1998)24:1<1::AID-AB1>3.0.CO;2-R
- Parker, J. G., & Asher, S. R. (1993). Friendship and friendship quality in middle childhood: Links with peer group acceptance and feelings of loneliness and social dissatisfaction. *Developmental Psychology, 29*, 611-621. doi: 10.1037/0012-1649.29.4.611
- Parker, J.G., Rubin, K. H., Erath, S., Wojslawowicz, J. C., & Buskirk, A. A. (2006). Peer relationships and developmental psychopathology. In D. Cicchetti & D. Cohen (Eds.), *Developmental psychopathology: Risk, disorder, and adaptation* (2nd ed., Vol. 2, pp. 419-493). New York: Wiley.
- Parker, J. G. and Seal, J. (1996). Forming, Losing, Renewing, and Replacing Friendships: Applying Temporal Parameters to the Assessment of Children's Friendship Experiences. *Child Development, 67*, 2248–2268. doi: 10.1111/j.1467-8624.1996.tb01855.x
- Parkhurst, J. T., & Asher, S. R. (1992). Peer rejection in middle school: Subgroup differences in behavior, loneliness, and interpersonal concerns. *Developmental Psychology, 28*, 231-241. doi: 10.1037/0012-1649.28.2.231
- Parkhurst, J. T., & Hopmeyer, A. G. (1998). Sociometric popularity and peer-perceived popularity: Two distinct dimensions of peer status. *Journal of Early Adolescence, 18*, 125–144. doi: 10.1177/0272431698018002001

- Patterson, G.R., DeBaryshe, B.D., & Ramsey, E. (1989). A developmental perspective on antisocial behavior. *American Psychologist*, *44*, 329–335. doi: 10.1037/0003-066X.44.2.329
- Pellegrini, A. D. (2008). The roles of aggressive and affiliative behaviors in resource control: A behavioral ecological perspective. *Developmental Review*, *28*, 461-487. doi:10.1016/j.dr.2008.03.001
- Pellegrini, A. D., & Bartini, M. (2001). Dominance in early adolescent boys: Affiliative and aggressive dimensions and possible functions. *Merrill-Palmer Quarterly*, *47*, 142–163. doi:10.1353/mpq.2001.0004
- Prinstein, M. J., & Cillessen, A. N. (2003). Forms and functions of adolescent peer aggression associated with high levels of peer status. *Merrill-Palmer Quarterly*, *49*, 310-342. doi:10.1353/mpq.2003.0015
- Raudenbush, S.W. and Bryk, A.S. (2002). *Hierarchical Linear Models* (Second Edition). Thousand Oaks: Sage Publications.
- Robertson, D. L., Farmer, T. W., Fraser, M. W., Day, S. H., Duncan, T., Crowther, A., & Dadisman, K. A. (2010). Interpersonal competence configurations and peer relations in early elementary classrooms: Perceived popular and unpopular aggressive subtypes. *International Journal Of Behavioral Development*, *34*, 73-87. doi:10.1177/0165025409345074
- Rodkin, P. C., Farmer, T. W., Pearl, R. and Acker, R. V. (2006), They're cool: Social status and peer group supports for aggressive boys and girls. *Social Development*, *15*, 175–204. doi: 10.1046/j.1467-9507.2006.00336.x

- Rose, A. J. and Asher, S. R. (2004), Children's Strategies and Goals in Response to Help-Giving and Help-Seeking Tasks Within a Friendship. *Child Development*, 75, 749–763. doi: 10.1111/j.1467-8624.2004.00704.x
- Rose, A. J., Swenson, L. P., & Waller, E. M. (2004). Overt and relational aggression and perceived popularity: Developmental differences in concurrent and prospective relations. *Developmental Psychology*, 40, 378–387. doi: 10.1037/0012-1649.40.3.378
- Rose-Krasnor, L. (1997). The nature of social competence: A theoretical review. *Social Development*, 6, 111-135. doi:10.1111/j.1467-9507.1997.tb00097.x
- Roseth, C. J., Pellegrini, A. D., Dupuis, D. N., Bohn, C. M., Hickey, M. C., Hilk, C. L., & Peshkam, A. (2011). Preschoolers' bistrategic resource control, reconciliation, and peer regard. *Social Development*, 20, 185–211. doi: 10.1111/j.1467-9507.2010.00579.x
- Rubin, K. H., Bukowski, W. M., & Parker, J. G. (2006). Peer Interactions, Relationships, and Groups. In N. Eisenberg, W. Damon, R. M. Lerner (Eds.), *Handbook of child psychology: Vol. 3, Social, emotional, and personality development* (6th ed.) (pp. 571-645). Hoboken, NJ US: John Wiley & Sons Inc.
- Savin-Williams, R. C. (1979). Dominance hierarchies in groups of early adolescents. *Child Development*, 50, 923-935. doi:10.2307/1129316
- Shi, B., & Xie, H. (2012a). Popular and nonpopular subtypes of physically aggressive preadolescents: Continuity of aggression and peer mechanisms during the transition to middle school. *Merrill-Palmer Quarterly*, 58, 530-553. doi: 10.1353/mpq.2012.0025

- Shi, B., & Xie, H. (2012b). Socialization of physical and social aggression in early adolescents' peer groups: High- status peers, individual status, and gender. *Social Development, 21*, 170-194. doi:10.1111/j.1467-9507.2011.00621.x
- Sijtsema, J. J., Veenstra, R., Lindenberg, S., & Salmivalli, C. (2009). Empirical test of bullies' status goals: Assessing direct goals, aggression, and prestige. *Aggressive Behavior, 35*, 57-67. doi:10.1002/ab.20282
- Sullivan, H. S. (1953). *The interpersonal theory of psychiatry*, New York: Norton.
- Tremblay, R.E. (2003). Why socialization fails: The case of chronic physical aggression. In B.B. Lahey, T.E. Moffitt, & A. Caspi (Eds.), *Causes of conduct disorder and juvenile delinquency*. New York: The Guilford Press.
- Underwood, M. K. (2003). *Social aggression among girls*. New York: Guilford Press.
- VanOostrum, N., & Horvath, P. (1997). The effects of hostile attribution on adolescents' aggressive responses to social situations. *Canadian Journal of School Psychology, 13*, 48-59. doi: 10.1177/082957359701300105
- Vaughn, B. E., & Santos, A. (2007). An evolutionary/ecological account of aggressive behavior and trait aggression in human children and adolescents. In P. H. Hawley, T. D. Little, P. C. Rodkin (Eds.), *Aggression and adaptation: The bright side to bad behavior* (pp. 31-63). Mahwah, NJ US: Lawrence Erlbaum Associates Publishers.
- Veenstra, R., Lindenberg, S., Zijlstra, B. H., De Winter, A. F., Verhulst, F. C., & Ormel, J. (2007). The dyadic nature of bullying and victimization: Testing a dual-perspective theory. *Child Development, 78*, 1843-1854. doi:10.1111/j.1467-8624.2007.01102.x
- von Eye, A. (1990). *Introduction to configural frequency analysis: The search for types and antitypes in cross-classifications*. New York, NY US: Cambridge University Press.

- Wentzel, K. R. (1991), Relations between Social Competence and Academic Achievement in Early Adolescence. *Child Development, 62*, 1066–1078. doi: 10.1111/j.1467-8624.1991.tb01589.x
- Witvliet, M., Olthof, T., Hoeksma, J. B., Goossens, F. A., Smits, M. S., & Koot, H. M. (2010). Peer group affiliation of children: The role of perceived popularity, likeability, and behavioral similarity in bullying. *Social Development, 19*, 285-303. doi: 10.1111/j.1467-9507.2009.00544.x
- Wolke, D., Woods, S., & Samara, M. (2009). Who escapes or remains a victim of bullying in primary school? *British Journal of Developmental Psychology, 27*, 835–851. doi: 10.1348/026151008X383003
- Wurster, T.J., Xie, H. (2014). Prosocial and aggressive behaviors: The social success of bistrategic preadolescents. *International Journal Of Behavioral Development, 38*, 367-377. doi: 10.1177/0165025414531463
- Xie, H., Cairns, R. B. and Cairns, B. D. (2002). The development of social aggression and physical aggression: A narrative analysis of interpersonal conflicts. *Aggressive Behavior, 28*: 341–355. doi: 10.1002/ab.80008
- Xie, H., Cairns, B. D., & Cairns, R. B. (2005). The development of aggressive behaviors among girls: Measurement issues, social functions, and differential trajectories. In D. J. Pepler, K. C. Madsen, C. Webster, K. S. Levene (Eds.), *The development and treatment of girlhood aggression* (pp. 105-136). Mahwah, NJ US: Lawrence Erlbaum Associates Publishers.

- Xie, H., Cairns, R. B., & Cairns, B. D. (1999). Social networks and social configuration in inner-city schools: Aggression, popularity, and implications for students with EBD. *Journal of Emotional and Behavioral Disorders, 7*, 147-156. doi:10.1086/226792
- Xie, H., & Shi, B. (2009). Gender similarities and differences in preadolescent peer groups: Group structure and ethnic diversity. *Merrill-Palmer Quarterly: Journal of Developmental Psychology, 55*, 157-183. doi:10.1353/mpq.0.0021
- Xie, H., Swift, D. J., Cairns, B., & Cairns, R. B. (2002). Aggressive behaviors in social interaction and developmental adaptation: A narrative analysis of interpersonal conflicts during early adolescence. *Social Development, 11*, 205-224. doi:10.1111/1467-9507.00195