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A Multi-informant, Longitudinal Study of Overt Aggression, Peer Rejection, and School Adjustment
in Italian Elementary School Children

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A Multi-informant, Longitudinal Study of Overt Aggression, Peer Rejection, and
School Adjustment in Italian Elementary School Children

Paul S. Greenman

Thesis submitted in partial fulfillment of the requirements for the degree Doctor of
Philosophy (Ph.D.) in Clinical Psychology

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TABLE OF CONTENTS

Abstract.....	p. iii
Literature Review:	
Prevalence of Aggressive Behaviour in Children.....	p. 1
Socioemotional Correlates of Aggressive Behaviour.....	p. 2
Socioemotional Correlates of Peer Rejection.....	p. 3
Aggression, Peer Rejection, and School Adjustment.....	p. 5
The Influence of Friends on Aggression and School Adjustment.....	p. 24
Aggression, Peer Rejection, and School Adjustment in Italy.....	p. 29
Purpose of the Present Study.....	p. 35
Hypotheses.....	p. 36
Method.....	p. 38
Results.....	p. 50
Discussion.....	p. 83
Conclusion.....	p. 107
References.....	p. 108
Author Note.....	p. 130
Tables	p. 131
Figure Captions.....	p. 146
Figures.....	p. 147
Appendix A.....	p. 152
Appendix B.....	p. 153
Appendix C.....	p. 154

Abstract

This longitudinal, multi-informant study is an examination of aggressive behaviour and peer rejection as predictors of children's school adjustment over time. 524 children between the ages of seven and eight (272 boys, 252 girls) in greater Florence, Italy and their mathematics/science and language arts/social studies teachers participated in the investigation, which spanned 18 months. Following a review of the relation among children's aggressive behaviour, rejection from the peer group, their adjustment to school, and the Italian cultural context, analyses of hierarchical linear models indicated that children who were rejected by their peers generally liked school less, avoided school more, and performed worse academically over time than did children who were not rejected. The onset of peer rejection predicted a decline in academic performance in some cases. Peer rejection also forecast increased aggression in boys. Children who were aggressive avoided school more than nonaggressive children did. The present findings support the claim that peer rejection might be a pivotal contributor to the development of children's academic difficulties over time with aggressive behaviour, school avoidance, and school dislike as potential mechanisms of decline.

A Multi-informant, Longitudinal Study of Aggression, Peer Rejection, and School
Adjustment in Elementary School Children

The Prevalence of Aggressive Behaviour in Children

Children engage in a variety of aggressive behaviours with disturbing regularity and with numerous dire consequences. The “remarkable array of social-relational weapons” (Deater-Deckard, 2001, p. 566) that children employ includes outright physical assaults on peers, extortion, stealing, teasing, taunting, destruction of property, manipulation of or damage to a peer’s relationships through gossip and the spreading of rumours, sexual harassment, and exclusion from social circles and group activities (Connor, 2002; Crick, Casas, & Nelson, 2002; Dupper & Meyer-Adams, 2002). All of these behaviours fall under the rubric of aggression. For this reason, definitions and subclassifications of aggressive behaviour abound. Coie and Dodge (1998) merged several well-established descriptions (e.g., Brain, 1994; Parke & Slaby, 1983) of aggression into a working definition of the construct as any behaviour intended to hurt others that involves arousal on the part of the aggressor, that has “the potential for harm or damage” (p. 783), and that is “aversive to the victim” (p. 784). Coie and Dodge’s (1998) designation will serve as the conceptualization of aggression for the present investigation because it encompasses a broad range of behaviours nonetheless unified in their reflection of the intention of harm on the part of the perpetrator and in the suffering of harm on the part of the victim. In the present study, overt aggressive behaviours including the verbal disparagement of peers, starting fights, and disruptiveness were the focus of investigation.

Information on the frequency of aggressive behaviour among children often varies due to methodological differences and to dissimilar definitions of aggression. In general, the rates reported in the literature suggest that from 5% to almost half of school-

age students across cultures are involved in bullying (defined as the repeated engagement over time in negative actions such as the ones outlined above; Boulton & Smith, 1994; Olweus, 1993; Smith, Morita, Junger-Tas, Olweus, Catalano, & Slee, 1999), either as bullies or victims. A recent large-scale cross-sectional study of the prevalence of bullying in over 123,000 adolescents ranging in age from 11 to 15 years in 28 countries illustrates this variation: Prevalence rates for bullying across the entire sample were 18.4% for boys and 15.2% for girls (i.e., bullied on a weekly basis), but they were as low as 5.1% among girls in Sweden, as high as 41.4% among boys in Lithuania, with a great deal of variability in between (e.g., 17% among boys and 12.3% among girls in Canada, 26% among boys and 24.2% among girls in Denmark, 31% among boys and 26% among girls in Germany, 17.5% among boys and 16.2% among girls in France, 15.3% among boys and 10.6% among girls in Norway, 16% among boys and 11.3% among girls in the United States; Due et al., 2005). Bullying tends to be more prevalent in Italy than in other cultures, with prevalence rates as high as 45% (Genta, Menesini, Fonzi, Costabile, & Smith, 1996) to 50% (Baldry & Farrington, 1999).

There are other forms of childhood aggressive behaviour in addition to bullying. For example, 0.9% to 20% (once again, the numbers vary greatly due to different methods and definitions of aggression) of the general population of children engages in the type of more serious and persistent aggressive behaviour (e.g., violent physical aggression, fighting with weapons, fire setting) that would warrant a psychiatric diagnosis (Connor, 2002).

Socioemotional Correlates of Aggression

Research on aggressive behaviour throughout the lifespan has established links across nations and cultures (e.g., Broidy et al., 2003; Khatri & Kupersmidt, 2003) between a tendency to aggress in childhood on the one hand, and a plethora of negative

outcomes on the other. For example, Huesmann and colleagues discovered that children from rural New York State who were aggressive at age eight were more likely than children who were not aggressive to engage in antisocial behaviour such as spouse abuse, traffic violations, and physical aggression 22 years later (Huesmann, Eron, Lefkowitz, & Walder, 1984). More recent longitudinal studies of aggressive boys have generated similar results: Those who display aggressive behaviour toward peers in childhood are at an elevated risk of engaging in delinquent and criminal acts as they mature (Farrington, 1991; Olweus, 1993; Vitaro, Gendreau, Tremblay, & Oligny, 1998). Other research findings signal relations between childhood aggression and suicidal ideation (Rigby & Slee, 1999), poor academic performance (Connor, 2002), drug abuse (Brook, Whiteman, Finch, & Cohen, 1995; Vitaro et al., 1998), physical and mental health problems in childhood and adolescence (Connor, 2002; Slee, 1995a; 1995b), and long-term unemployment in adulthood (Kokko & Pulkkinen, 2000). The most frequently reported correlate of aggression toward peers in childhood, however, is peer rejection (Coie & Dodge, 1998; Deater-Deckard, 2001; Hartup, 1983; Hymel, Vaillancourt, McDougall, & Renshaw, 2002; Rubin, Bukowski, & Parker, 1998).

Socioemotional Correlates of Peer Rejection

Like aggression, peer rejection in childhood is also pervasive and destructive. Empirical results suggest that as many as 13 to 16 percent of elementary school students are actively disliked and excluded by their peers (Terry & Coie, 1991). It is important to note that the exclusion and active dislike on the part of peers that typify peer rejection distinguish peer rejection from a lack of close friendships. It is possible, for example, for a child to maintain the esteem of a majority of his or her peers (i.e., to be popular) without actually having a close, intimate friendship with any of them, just as it is possible to endure peer rejection but to have at least one or two close friends (Bierman,

2004; Schneider, Wiener, & Murphy, 1994). The phenomenon of active peer rejection, which may or may not involve a complete lack of close friendships, is a principle focus of the present research.

Both aggression toward and fearful withdrawal from peers are related to peer rejection (Coie & Dodge, 1998; Newcomb, Bukowski, & Pattee, 1993). In their classic review of the extant literature on the long-term outcomes of peer rejection, Parker and Asher (1987) concluded that individuals who are not accepted by their peers in childhood are at an elevated risk for both dropping out of school and committing crimes. Research conducted since has implicated peer rejection as a unique contributor to the development of internalizing problems such as depression and anxiety (Deater-Deckard, 2001; Kupersmidt, Coie, & Dodge, 1990; McDougall, Hymel, Vaillancourt, & Mercer, 2001), and an important factor in the development and exacerbation of “externalizing problems” (i.e., aggressive behaviour; Laird, Jordan, Dodge, Pettit, & Bates, 2001).

Peer rejection appears to have other negative consequences as well. Vandell and Hembree (1994) found it to be a significant negative predictor of children’s emotional adjustment, classroom performance, and self-concept. Brendgen and colleagues found that the teachers of unpopular children perceived them to be consistently more antisocial (i.e., fighting and destroying property) than popular children as they progressed from kindergarten through grade 12 (Brendgen, Vitaro, Bukowski, Doyle, & Markiewicz, 2001). In addition, they detected a significantly greater decrease in teachers’ perceptions of popular children’s normative anxiety over time, whereas unpopular and average children’s (i.e., children who are neither popular nor rejected) levels of childhood anxiety remained salient into preadolescence. Finally, peer rejection in grade five predicted poor overall adjustment at age 28 in an 18-year follow-up study: Adult respondents indicated difficulty in school across their academic lives, low levels of aspiration in general, and

were likely to exhibit signs of psychopathology such as paranoid ideation (Bagwell, Schmidt, Newcomb, & Bukowski, 2001). The lack of a close friend in preadolescence also predicted more numerous symptoms of depression among adult participants in this longitudinal investigation (Bagwell et al., 2001). Thus, rejection by peers in childhood is related to poor social, psychological, and academic adjustment both in childhood and well into adulthood.

Aggression, Rejection, and School Adjustment

Of all the potential consequences of aggressive behaviour and peer rejection outlined above, poor school adjustment (i.e., low marks, absenteeism, dislike or avoidance of school, and school dropout) is amongst the most common and the most immediate. This is an issue of considerable importance, given the well-established relation between academic achievement in childhood and future opportunities for social and economic advancement (Stipek, 2001).

Some theorists (e.g., Flook & Repetti, 2003) stipulate that the psychological difficulties (e.g., anxiety and depression) that accompany peer rejection have a negative impact on children's ability to concentrate and hence on their academic performance. According to this perspective, the school adjustment of rejected children continues to decline once they associate, perhaps out of loneliness, with deviant peers who reinforce aggressive behaviour and negative attitudes toward school. All of this may culminate in the development of externalizing problems, further rejection, and school dropout (Connor, 2002; DeRosier, Kupersmidt, & Patterson, 1994; McDougall et al., 2001). Alternatively, academic difficulties might precede and contribute to peer rejection and aggression (e.g., Dishion, 1990; Welsh, Parke, Widaman, & O'Neil, 2001). The aforementioned progression from rejection to poor performance in or dissatisfaction with school and aggression is therefore not always clear or even apparent (e.g., Caprara,

Barbaranelli, Pastorelli, Bandura, & Zimbardo, 2000). Accordingly, further clarification of the relation among aggression, rejection, and school adjustment is necessary.

Academic Performance: Coercion Models and Peer Learning

Effects of aggression. The results of several studies attest to the possible role of aggressive behaviour in children's school maladjustment. For example, the aggressive behaviour of children in grade three in the Southern United States made a unique statistical contribution to the erosion of their teacher-rated academic and social skills as early adolescents in one study (Coie, Lochman, Terry, & Hyman, 1992), whereas in another study, actively prosocial behaviours such as sharing with and helping others as rated by peers in grades two and three in an Italian community were the strongest predictors of increases in children's school marks by grades six and seven (Caprara, Barbaranelli, Incatasciato, Pastorelli, & Rabasca, 1997). Similarly, children in grades four, five, and six in Los Angeles who according to their classmates tended to start fights with, tease, or bully other children received significantly lower ratings from their teachers on measures of academic performance than did their nonaggressive peers in a cross-sectional investigation (Schwartz, 2000).

Despite such empirical evidence of a link between aggressive behaviour in childhood and poor academic achievement, there are relatively few theories to explain or elaborate upon this relation. The theoretical frameworks that do exist suggest that aggressive children help set in motion a chain of events that culminate, among other things, in their academic failure or underachievement. They also postulate that other variables precede and mediate the association between aggression and poor academic performance.

For example, Patterson and colleagues stipulate in their *coercion model* that antisocial children establish reinforcement contingencies that foster their aggressive

behaviour at home, and that they do so with the aid of their parents' inconsistent discipline (Patterson, DeBaryshe, & Ramsey, 2000; Patterson, Reid, & Dishion, 1992). Next, their aggressive behaviour generalizes to the school setting with all of the features that typically accompany it at home, including noncompliance (Patterson et al., 1992). The model specifies further that this noncompliant component of aggressive or antisocial behaviour then becomes a principal contributor to academic disengagement and subsequent decline in academic achievement. Structural equations modelling performed on data from two large cohorts of boys in grades four and five in Oregon support this theoretical model (Patterson et al., 1992). Likewise, Ledingham (1999) indicated in her review of the literature on oppositional defiant disorder and conduct disorder that the preponderance of available evidence highlights the influence of variables such as the academic prowess of children's parents, parents' responses to their children's aggressive behaviour, and children's academic engagement on both their subsequent aggression and academic achievement. These coercion models thus portray an indirect relation between childhood aggression and academic performance.

It might also be possible for aggression to exert a direct effect on children's performance in school, as Coie and colleagues' finding of a unique statistical contribution of aggression to the worsening of elementary school children's academic skills by adolescence (1992) would suggest. If changes in children's levels of aggression over time were to predict specific changes in their academic performance over time, the potential causal role of aggressive behaviour in the development of academic difficulty would require more attention than it currently has in coercion models of school adjustment problems in children. However, aggression toward peers is not the only contributor to children's troubles in the classroom.

Effects of acceptance and rejection. Membership in social groups seems to be a key element in children's positive academic development, whereas exclusion from social circles appears to hinder it. The potential impact of children's peers on their own individual academic outcomes has been a focus of much theory and research since the early part of the twentieth century. For example, Piaget (1929, 1952, 1970, 1978) postulated that development is the result of continuous mental processes known as *assimilation* and *accommodation*. Assimilation involves the incorporation of new information and experiences into existing cognitive structures (which Piaget called "schemes") in order to arrive at a working understanding of the world, whereas accommodation involves the change of existing schemes in order to take new information from external stimuli into account (Piaget, 1929, 1978). In this way, children infuse meaning into their experiences and refine their capacity to comprehend their experiences more fully. According to Piaget and to other cognitive developmental theorists who have since expanded on his pioneering work, "peer interactions provide rich and necessary contexts for students to revise their current cognitive systems" (De Lisi & Goldbeck, 1999, p. 5); interaction with other children thus hones the cognitive structures and skills necessary for success in school.

Doise, one of Piaget's contemporaries, elaborated on the concepts of assimilation and accommodation. He specified social interactions as a principal source of "socio-cognitive conflicts" (i.e., contact with perspectives on a problem or situation that differ from one's own), which lead to a reorganization of children's cognitive resources (Doise & Mugny, 1984; Doise, Mugny, & Pérez, 1998). From this perspective, children's initial collaboration with peers or adults on difficult cognitive tasks culminates in their ability to complete them independently later on (Doise et al., 1998).

Similarly, one of Vygotsky's (1978) many scientific propositions included the existence of a "zone of proximal development" in young children, which is a theoretical space that consists of their cognitive or problem-solving potential when assisted by others, either through imitation or direct instruction. Vygotsky noticed that children who appeared to be at the same level of cognitive development when judged on their independent problem-solving abilities actually differed from one another when aided by their teachers or more competent peers. He therefore defined cognitive learning in children as contingent upon imitation of and interaction with other children and adults in their environment, followed by assimilation of information from their own and their observations of others' experiences. According to Vygotsky (1978), the development of children's cognitive skills depends on these exchanges with others. Thus, from this perspective, human learning is an inherently social enterprise. Both Piaget's and Vygotsky's ideas have inspired collaborative learning programs in schools, which feature structured interactions among children intended to increase their potential for knowledge acquisition (De Lisi & Goldbeck, 1999; Doise et al., 1998; Hogan & Tudge, 1999).

The results of many studies support the notion that children learn and perform better when they are part of a social group. Conversely, these studies also point out the potential dangers of peer rejection for positive academic development. For instance, Austin and Draper (1984) provided early evidence of a link between social standing in the classroom and academic performance with significant correlations between the sociometric status (i.e., popular or rejected) of children in grades three and six in Iowa and their scores on an academic achievement test: Popular children tended to perform better on the test than rejected children did. Years later, a study of children in grades six and seven in the Midwestern United States yielded similar results: Children whose peers

rejected them (as determined by peer nomination scales) had lower grade point averages than did popular children, even after statistical controls for intelligence, school absence, and family variables were in place (Wentzel, 1991). Wentzel and Caldwell's (1997) longitudinal investigation of changes in sixth grade children's grade point averages revealed that group membership and peer acceptance predicted increases in school performance. Finally, Guay and collaborators discovered that children in grades three and four in French Canada who were rejected by their peers experienced significant levels of loneliness, which had a negative effect on their judgments of their academic competence and culminated in a decrease in their academic performance over time (Guay, Boivin, & Hodges, 1999). Peer rejection, like aggression, might thus deter academic development.

Results of this kind, which indicate a negative link between peer rejection and academic performance and a positive link between popularity or social acceptance and the same, support Piaget's (1929, 1952), Doise's (Doise & Mugny, 1984; Doise et al., 1998), and Vygotsky's (1978) original ideas about the importance of the peer group for intellectual development. It appears likely that children without friends or meaningful social contacts in their peer group lack the sheer exposure to other individuals who can provide them with the cognitive scaffolding necessary to develop their academic skills, and this dearth of cognitive or intellectual exercise that usually transpires in social contexts in turn hinders their classroom performance.

Some researchers have elaborated on this perspective and come to the conclusion that in addition to the intellectual scaffolding that takes place in the peer group, the social support that children derive from peers and the sense of relatedness or connection that they feel toward their agemates on an emotional level also represent integral (and often overlooked) components of their success in school (Hymel, Comfort, Schonert-Reichl, &

McDougall, 1996; Wentzel, 1996). According to this point of view, students who do not receive social support from friends in school “are likely to experience psychological distress and, as a consequence, disengage from classroom learning and social interactions” (Wentzel & Watkins, 2002, p. 368). Similar to the results of the studies outlined above, one investigation of this “relatedness” construct showed that a sense of relatedness to friends and classmates (e.g., “I feel accepted”) contributed to the self- and teacher-rated academic engagement of students in grades three through six (Furrer & Skinner, 2003). A different study of kindergarten children in their first two months at school revealed that children who successfully made friends at the beginning of the school year liked school more and performed better two months later than did their peers who were rejected (Ladd, 1990). Perhaps, then, children who are rejected by their peers lack both the cognitive *and* emotional support from peers that assist their academic development.

In light of these theoretical positions and their supporting evidence, it is clear that peer rejection can indeed jeopardize children’s performance in school. However, it is not clear whether a direct link between peer rejection and poor academic performance exists, or if the apparent effects of peer rejection on school adjustment have more to do with other potential intervening variables that sometimes coincide with peer rejection, including association with deviant peers and aggression (McDougall et al., 2001). It would be necessary to demonstrate that fluctuations in children’s peer-rejected status over time predict fluctuations in their academic performance over time in order to lay the foundation for a theoretical framework to resolve this controversy.

Aggressive-rejected children. The effects of aggressive behaviour and peer rejection on academics appear to be intimately intertwined and difficult to tease apart completely. From the theoretical standpoints outlined earlier, children who both aggress

against and endure the rejection of their peers would be deprived of opportunities for normative academic development in two ways. First, they might engage in coercive interactions with teachers and peers that reinforce their characteristic noncompliance and academic disengagement (Patterson et al., 1992), and second, they are bereft of the social exchanges hypothesized to foster their cognitive development (Doise & Mugny, 1984; Doise et al., 1998; Piaget, 1952, 1978; Vygotsky, 1978) and encourage academic engagement (Furrer & Skinner, 2003). For example, children who were not accepted by their peers in grade 4 in one study received significantly higher teacher ratings of conduct problems and aggression and significantly higher peer ratings of aggression five years later than did children of popular, average, or neglected (i.e., neither liked nor disliked by classmates) sociometric status (Ollendick, Weist, Borden, & Greene, 1992). Rejected children in that sample from rural West Virginia also had significantly more academic problems according to their teachers and peers at follow-up than did their nonrejected peers (Ollendick et al., 1992).

Other studies have yielded similar results. In Schwartz and colleagues' investigation of the social and academic lives of children in China, those who aggressed against or withdrew from their peers were more likely to be victimized by their peers and to exhibit poor academic functioning, as rated by teachers (Schwartz, Chang, & Farver, 2001). In a more recent investigation, children whose teachers described them as both aggressive and socially withdrawn in grade one had worse marks in school in grade three than did their peers and they endured the most peer rejection of all 754 children in a multi-site sample in the United States (Farmer & Bierman, 2002). The fact that this difference persisted when the experimenters controlled for kindergarten levels of aggressive and socially withdrawn behaviour indicates a possible direct contribution of these problem behaviours to the development of rejected status and of poor school

adjustment. Finally, Gorman, Schwartz, Nakamoto, Abou-ezzeddine, and Toblin (2003) found that progressively higher social status predicted increases in the grade point averages of students in grade nine over the course of the school year, but only for children who exhibited little or no aggression; aggressive children's grade point averages did not improve even if they were accepted by their peers. This finding highlights the possibility that children who maintain their aggressive behaviour and unpopular status have more problematic academic outcomes than do children who manage to change both their behaviour and their social standing in the peer group. Aggression and rejection thus appear to follow each other in time in certain cases, and this combination seems to have nefarious consequences for children's achievement in school. However, these particular findings do not explicitly specify outcomes for children who are both aggressive and rejected at the same time.

Some researchers have addressed directly the issue of concurrent aggression and rejection as a risk factor for problems in school, above and beyond the risk posed by aggression or rejection alone. For example, Wentzel and Asher (1995) found that children in the Midwestern United States in grades six and seven who were both aggressive toward and rejected by their peers received lower teacher and peer ratings of academic achievement and motivation than did popular children, children of average social status, and children who were rejected but not aggressive. In a similar vein, hierarchical regression analyses in another study indicated that teacher-rated aggressive behaviour (e.g., kicking, biting, hitting, threatening verbally) in kindergarten put perpetrators at risk for poorer school adjustment (as designated by indices of children's cooperative participation, school liking, and achievement test scores) over the course of two years than their classmates who were not aggressive (Ladd & Burgess, 2001). Persistent rejection by peers compounded the risk for poor school adjustment when the

children's baseline levels of aggression were taken into account (Ladd & Burgess, 2001).

Aggression and rejection together therefore appeared to have more of an effect on children's academic adjustment over time than did either aggression or rejection alone.

The research of Estell and colleagues (Estell, Cairns, Farmer, & Cairns, 2002; Estell, Farmer, Cairns, & Cairns, 2002) has generated similar findings. In their cluster analyses of peer group behaviour among African American first-grade students in the Southeastern United States, high-risk peer groups characterized by low levels of teacher-rated popularity and academic performance and high levels of teacher-rated aggression emerged consistently among boys. Boys in these peer groups were significantly less popular and demonstrated significantly more academic difficulties than did boys in high competence (i.e., low aggression, high academics, high popularity) and aggressive-competent (i.e., high aggression, high academics, high popularity) peer groups (Estell, Cairns, et al., 2002; Estell, Farmer, et al., 2002). Stated differently, boys who were both aggressive and unpopular had more problems with their schoolwork than did boys who were aggressive and popular or nonaggressive and popular.

These authors attribute the absence of a similar peer cluster among girls to the fact that they measured overt aggressive behaviours such as fighting and arguing that were more common among boys in their particular sample (Estell, Cairns, et al., 2002). Yet Farmer and colleagues did detect the presence of a peer cluster of girls defined by high levels of aggression, below average academic functioning, and low popularity in a different study (Farmer et al., 2002). Their investigation included teacher, self, and peer reports of aggressive behaviour, popularity, and academic competence among fourth-through sixth-grade children in Chicago and rural North Carolina. This result suggests more problematic academic performance among boys and girls who are both aggressive and rejected than among children who are not.

It is noteworthy that the multi-informant method employed in Farmer and colleagues' study (Farmer et al., 2002) led to the detection of this group of at-risk aggressive-unpopular girls, whereas reliance on one measurement source (i.e., teachers) in other investigations (Estell, Cairns, et al., 2002; Estell, Farmer et al., 2002) did not. As the authors suggest, this discrepancy might be due to the fact aggressive behaviour in girls usually involves more covert forms of inflicting harm such as the vilification of peers, which is less obvious and therefore harder to detect than the more overt forms of physical aggression that boys tend to favour (Crick, 2000; Crick et al., 2002). However, it is also conceivable that the failure to uncover the group of aggressive-unpopular girls in some studies reflects the researchers' reliance on only one source of information. This prospect, coupled with the fact that there are currently few available studies of the academic consequences over time of aggressive-rejected status in schoolchildren, points toward the need for more multi-informant research on the topic.

*Aggression and Peer Rejection as Predictors of School Attendance and School Liking:
Completing the School Adjustment Picture*

Other research findings complement those that suggest a relation among aggression, peer rejection, and children's academic functioning to paint an overall picture of problematic school adjustment for children who aggress, children who endure peer rejection, or both. School attendance and school liking are two other components of "school adjustment" that have been examined in the literature, though not nearly to the same degree as academic performance. Similar to the studies of academic variables, the results of research in this area also highlight aggression effects, rejection effects, or a combination of the two depending on the method and specific hypotheses of the investigators.

Effects of aggression. Aggressive behaviour toward peers might set the stage for dislike of school, avoidance of school, and ultimately, school dropout. Two studies in particular support this contention. In one, the tendency to start fights as indicated by peers emerged in a series of multiple regressions as the sole predictor of fifth grade children's grade retention, truancy, and early school dropout (i.e., before high school graduation) over the course of seven years, even when variables that included peer rejection, academic performance, sex, and race were taken into account (Kupersmidt & Coie, 1990). In the other, statistically generated clusters of students who were most likely to drop out of school before completing grade 11 were significantly more aggressive and significantly less competent academically in grade seven (according to their teachers) than were clusters of students who were less likely to drop out of school early (Cairns, Cairns, & Neckerman, 1989). These results point toward aggressive behaviour as a key risk factor for poor school attendance and eventual dropout. They fit with theoretical models in which children's aggression and accompanying noncompliance become negatively reinforced by teachers and peers over time (Patterson et al., 1992), until school is no longer of any major interest to the child.

Effects of rejection. A few studies conducted since Parker and Asher's (1987) seminal review paper emphasize the contribution of peer rejection to decreases in school attendance and school liking. For example, Ladd (1990) noted that kindergarten children in his study who were rejected by their classmates at the beginning of the school year exhibited higher levels of school avoidance (e.g., absences, requests to visit the school nurse) than did their peers who were more successful at making friends. In a later study, Buhs and Ladd (2001) found that over the course of one school year, peer rejection predated kindergarteners' victimization by peers, decreases in their performance on academic achievement tests, and increases in their self-rated desires to avoid school.

These findings imply a pivotal role of rejection in the development of active efforts to avoid going to school. Lastly, in one of a small handful of studies of school liking among older children, Verkuyten and Thijs (2002) discovered through their use of multilevel analyses that ostracism and maltreatment by peers among Dutch children between the ages of 10 and 12 appeared to lead to a decline in their self-reported social self esteem (i.e., perceived ease in their ability to make and keep friends), which in turn made a significant statistical contribution to a decrease in the amount of satisfaction with school that they indicated.

These findings are in accord with the theories of relatedness and social support introduced previously (see pp. 11-12), which posit that a lack of social and emotional support from peers in school can lead to psychological distress and withdrawal from school-related activities (Hymel et al., 1996; Furrer & Skinner, 2003; Wentzel & Watkins, 2002). In Verkuyten and Thijs's (2002) study, for instance, the effect of rejection seemed to be indirect, exerting its influence first on children's sense of their own social competence and by extension on their liking of school. This study featured a cross-sectional design, however, so it is difficult to draw meaningful conclusions about the order of events. It would be interesting to know whether changes in rejected status coincide with changes in school liking over time, or whether rejected status at one time point has an overarching effect on children's school liking, as Verkuyten and Thijs's (2002) findings intimate.

Aggressive-rejected children. There is also evidence of a more complex interplay among aggression, peer rejection, and children's avoidance of or premature dropout from school. An extensive review of over 40 years of research on the topic outlines empirically supported links between 1) peer rejection in elementary school and later dropout from school, and 2) aggressive behaviour toward peers and subsequent school

dropout (Hymel et al., 1996). Both rejection and aggression therefore appear to be important factors in children's decision to terminate their education early, just as they both appear to play a role in the development of academic problems.

For instance, French and Conrad (2001) found in their longitudinal study of students in grades eight through 10 in the Northwestern United States that those who eventually dropped out of high school were of significantly lower sociometric status in both grade eight and grade 10 than were their peers who did not drop out before graduation. According to their peers, these same students also engaged in more aggressive and antisocial behaviour (e.g., started fights, threatened others with physical harm) than did those who remained in school (French & Conrad, 2001). Multivariate statistical analyses revealed that only aggressive behaviour made a unique contribution to the prediction of the students' rate of dropout before the end of high school, which led the authors to interpret their findings as evidence of the central role of aggressive behaviour in the etiology of school dropout. They speculated that peer rejection might be a more important factor at an earlier developmental stage than the one they examined (French & Conrad, 2001). Whatever the interpretation, these findings indicate a relation between peer rejection and school dropout, as well as between aggressive behaviour and the same outcome. Aggressive behaviour was the stronger predictor of future dropout among early adolescents in this analysis, but the authors themselves pointed out that this does not preclude rejection from playing a more causal role earlier on in students' development.

A key element lacking in these studies is direct comparison, over time, of the trajectories on measures of school liking and school avoidance (i.e., the desire or tendency to avoid school that may ultimately lead to dropout) of children who are both aggressive and rejected with children who are neither aggressive nor rejected. Such

comparison would yield crucial information that is currently unavailable about the potentially different developmental pathways of children who demonstrate these disparate social-behavioural profiles. It is also unknown whether stability and change in aggressive-rejected patterns have different effects on school adjustment outcomes.

Previous results indicate that boys who continue to behave aggressively toward their peers over time are less likely to gain the acceptance of their peers than are boys who become less aggressive (Cillessen, van IJzendoorn, van Lieshout, & Hartup, 1992), but the consequences of this kind of stable aggression toward and rejection by peers for multiple aspects of boys' and girls' school adjustment (i.e., school liking, school avoidance, and academic performance) are vague, as are the consequences of changes in aggression and rejection over time. Bierman, Smoot, and Aumiller (1993) found that aggressive-rejected boys exhibited a significantly larger number of conduct problems such as verbal aggression, hyperactivity, and violation of rules than did boys who were only aggressive or only rejected, which testifies to the heightened risk for school adjustment problems among aggressive-rejected children. However, there have been as of yet no direct examinations of the link between aggressive-rejected status and school liking or school avoidance among boys and girls.

There is an important caveat to the research reviewed thus far: Aggression and peer rejection do appear to represent separate constructs worthy of investigation as such, as indicated by unique or differential contributions of each to the prediction of various school adjustment outcomes (e.g., Coie et al, 1992; French & Conrad, 2001; Kupersmidt & Coie, 1990; Ladd & Burgess, 2001). It is apparent that both aggression and rejection are involved in children's school adjustment, but it is not yet clear whether the combination of the two would predict more precarious trajectories than would either one alone or whether fluctuations in aggressive, rejected, and aggressive-rejected status

would predict different patterns of children's school adjustment than would sociometric and behavioural patterns that remain constant over time.

Limitations of Research on the Interrelation of Aggression, Peer Rejection, and School Adjustment

Although the research to date on the relation among aggression, peer rejection, and school adjustment is highly informative and has proven useful in guiding the assessment of and intervention with children at risk for school-related problems (Connor, 2002; Kazdin, 1994), it does have some shortcomings that limit its value and generalizability.

Limited number of indices and sources of measurement. First, most of the results and conclusions described herein have been drawn from only one or two indices of children's school adjustment (e.g., academic performance, truancy or school dropout, school liking), and from only one source of information per adjustment index (e.g., self ratings; Buhs & Ladd, 2001; Verkuyten & Thijs, 2002; teacher ratings; Cairns et al., 1989; Coie et al., 1992; Schwartz, 2000; Schwartz et al., 2001; school marks; Caprara et al., 1997; Estell, Farmer, et al., 2002; Farmer & Bierman, 2002; Gorman et al., 2003; Wentzel, 1991; Wentzel & Caldwell, 1997; or achievement test scores; Austin & Draper, 1984; Buhs & Ladd, 2001). This is problematic in light of the observations of a number of researchers (e.g., Bukowski, Hoza, & Newcomb, 1994; Hartup, 1995; Parker & Asher, 1987) that multiple perspectives are often necessary to paint the most complete and realistic picture of children's lives. Reliability of dependent variables may also be compromised when sources of information are limited (Coie & Dodge, 1988).

In addition, studies that contain measures solely of student grades or dropout rates do not take into account other important aspects of school adjustment, including school liking and avoidance, which might actually contribute to early dropout from

school. This lack of multiple measures and multiple informants might explain the shortage of strong correlations reported between such variables as social status and concomitant performance in school that McDougall and colleagues point out in their review of the consequences of peer rejection (McDougall et al., 2001).

Statistical limitations. There are also other important limitations to current research in this area. The few available results based on the observations of multiple informants over time (e.g., Ollendick et al., 1992; Wentzel & Asher, 1995) for more than one school adjustment variable (e.g., Buhs & Ladd, 2001) are the products of traditional multivariate statistical analysis techniques that do not present as accurate a representation of patterns of change on variables of interest as more recently developed hierarchical linear modeling techniques do (Raudenbush & Bryk, 2002; Osborne, 2000; Verkuyten & Thijs, 2002). Major problems with these conventional strategies for data analysis include violation of statistical independence assumptions and the deletion of large numbers of cases due to attrition, which can obfuscate and bias the interpretation of results (Burchinal, Little, & Widaman, 2003).

Lack of longitudinal data. Finally, there are virtually no studies of the potential changes over time in children's aggressive, rejected, and aggressive-rejected status and their corresponding academic performance, school liking, and school avoidance. The longitudinal studies in the realm of aggression, rejection, and school adjustment that do exist are either plagued by the shortcomings previously described, or they are not designed to measure the effects of change in an independent variable on school adjustment outcomes.

This is a gaping hole in the literature because only longitudinal designs allow for the prediction of change over time; cross-sectional ones do not (Schneider, 2000). In order to identify distinct patterns of change among individuals who display different

social and behavioural configurations, multiple measurements at multiple time points are necessary (Kazdin, 1998). Cross-sectional designs suffice when the goal of the research is to identify differences among stable groups (e.g., boys and girls) on stable behavioural configurations (e.g., left-handedness), but they do not lead to highly meaningful conclusions about differences among groups whose characteristics (e.g., aggressive status, rejected status) and behavioural configurations (e.g., academic performance, school liking, school avoidance) might vary over time. Longitudinal designs are thus the only ones that enable efforts to determine whether changes on independent variables predict stability or change on dependent variables.

The work of Vitaro and colleagues illustrates this point well. In a recent study that included analyses of data from over 7000 boys and girls in three different countries (Canada, New Zealand, and the United States), boys who displayed persistent aggressive behaviour (i.e., whose aggressive behaviour remained stable) such as fist fighting and bullying in elementary school were more likely to engage in violent and destructive behaviour in adolescence than were boys whose aggressive behaviour tapered off during elementary school (Broidy et al., 2003). In a different investigation of changes in French Canadian boys' and girls' externalizing (i.e., aggressive, disruptive) and internalizing (i.e., anxious, sad) behaviour profiles from kindergarten through grade six, Brendgen, Vitaro, and associates discovered decreases in all children's problem behaviour over time, but different rates of decrease and different overall levels of problem behaviour according to the children's sociometric status (stable popular, stable average, unpopular; Brendgen et al., 2001). Longitudinal designs in both of these studies made possible the identification of distinct trajectories for groups of children whose behaviour changed at different rates over time. In the former, aggressive boys who remained aggressive became more violent over time (Broidy et al., 2003). In the latter, children who were

unpopular at the beginning of the study and became steadily more unpopular over time exhibited a more stable level of externalizing behaviours than did children of popular and average status (Brendgen et al., 2001).

Peer Rejection as a Predictor of Aggressive Behaviour

The results of Brendgen, Vitaro, and associates' (2001) study not only highlight the usefulness of longitudinal research and the essential role it will play in learning more about the effects of change in aggressive, rejected, and aggressive-rejected status on children's school adjustment over time, but they also accentuate a theoretical argument that has become increasingly popular in the developmental psychology literature: Peer rejection might cause or exacerbate aggressive behaviour in children (Valois, Bretous, & Drane, 2002). Perhaps the provocation of aggressive behaviour is a further instrument of peer rejection's negative influence on children's academic adjustment, in addition to its hypothesized effects on the same due to psychological distress (Wentzel & Watkins, 2002), or to a lack of social interaction (Doise et al., 1999; Piaget, 1970, Vygotsky, 1978). Any study of the relation among peer rejection, aggression, and school adjustment must therefore take this possibility into account in order to reach a better understanding of the factors that contribute to children's school adjustment difficulties.

Empirical research supports this conclusion. In one study, for example, children who experienced peer rejection at age 5 were more likely to demonstrate externalizing problems at age 13; path analyses in that investigation indicated that rejection, not involvement with antisocial peers or previous aggressive behaviour, made the most direct predictive contribution to children's later aggressive behaviour (Laird et al., 2001). In a different study of children in the Northwestern, Southern, and Central United States who were followed from grade one through grade four, Miller-Johnson and colleagues noted that peer rejection made a unique statistical contribution to the development of

conduct problems in boys and girls over time (Miller-Johnson, Coie, Maumary-Gremaud, Bierman, & the Conduct Problems Prevention Research Group, 2002). It therefore appears that peer rejection can aggravate aggressive tendencies in children. It is not yet known, however, whether changes in peer-rejected status coincide with changes in aggressive behaviour over time. Such knowledge would solidify the contention that peer rejection contributes to children's aggression.

The Influence of Friends on Aggression and School Adjustment

Any thorough understanding of the complex relation among peer rejection, aggression, and school adjustment in childhood requires some exploration of the conduct of children's friends, because the behaviour and attitudes of children's friends seem to affect their own individual levels of aggressive behaviour and academic adjustment (Coie & Dodge, 1998; Connor, 2002; Harris, 1995, 1998; Kindermann, 2003). The deviant behaviour of friends and peer groups has been linked, for example, to school violence (e.g., bullying; Salmivalli, Lagerspetz, Björqvist, Östermann, & Kaukiainen, 1996), gang membership (Craig, Vitaro, Gagnon, & Tremblay, 2002), and health-risk behaviours such as drug use and sexual promiscuity (Dishion, 2000; Dishion, Capaldi, Spracklen, & Li, 1995).

Cohen (1983) postulated that the influence of friends depends on selection effects. This means that children who resemble one another along certain personality or behavioural characteristics will seek each other out (i.e., selection). Since no group of children is completely homogeneous along all dimensions of personality and behaviour, pressure will then exist within peer groups for children to change those behaviours that are dissimilar to those of the larger peer group and to maintain or increase the frequency of those that are common to the group (Cohen, 1983), although such pressure is rarely overt (Berndt & Keefe, 1996). Pepler and Slaby (1994) applied a similar idea in their

theory of the development of aggressive behaviour, in which aggressive children seek out the company of other aggressive children, which in turn leads to the socialization of further aggressive behaviour. Decades of research on the etiology of aggressive behaviour support this notion (Coie & Dodge, 1998), with the general finding that children whose friends are aggressive are more likely to behave aggressively themselves and to become more aggressive over time than are children whose friends and peers are not aggressive (e.g., Dishion, Patterson, & Griesler, 1994; Keenan, Loeber, Zhang, Stouthamer-Loeber, & Van Kammen, 1995; Isaacs & Hodges, 2003).

Friends can also influence children's school adjustment. Kindermann and colleagues (Kindermann, 2003; Kindermann, McCollam, & Gibson, 1996; Sage & Kindermann, 1999) have concluded based on their extensive research into the relation between children's social networks and school outcomes that the general attitude of children's peer groups toward school affects their engagement in academic activities as well as their motivation to perform in the classroom. Epstein (1983) found that children in grades five, six, eight, and 11 whose friends had high marks in their English courses and on standardized English and mathematics tests had significantly higher marks themselves one year later, even when their baseline levels of course marks, test performance, and similarity to their friends were taken into account. The reverse did not hold true in this particular study: Children with initially low scores did not appear to affect their friends' performance, but their scores improved significantly over time if they had reciprocated friendships, even when their friends were low-scorers themselves (Epstein, 1983). These findings point strongly toward the positive effect of close friendships on academic achievement. Perhaps this is due to the support and caring that these children experience in their relationships, which may foster positive reactions to both the academic and social demands of school life (Wentzel, 1996; Wentzel &

Watkins, 2002), or to the cognitive scaffolding hypothesized to take place in their relationships (Vygotsky, 1978).

Yet the influence of friends on academic outcomes is by no means always positive. Jain and Buhrmeister (2003) uncovered results similar to Epstein's (1983) in their study of elementary and high school students: Children who had low grades in grade six were more likely to improve their marks by grade eight if they had high-achieving friends. However, unlike Epstein (1983), they also found evidence of friends' negative influence on children's grade point averages. In their sample, children who consistently achieved high marks in grade six but whose friends did not exhibited significant decreases in their own performance by grade eight (Jain & Buhrmeister, 2003).

Cohen's (1983) ideas about the impact of selection and reciprocal influence in friendships have thus withstood the test of time and served as explanations for the observations of friends' and peers' influence both on children's aggressive behaviour and their school performance. Some theorists have revised Cohen's theory slightly to illustrate the multiplication and promulgation of behaviours and values in peer groups through the behavioural principles of reinforcement (e.g., Boivin & Vitaro, 1995; Catalano & Hawkins, 1996), but the basic tenets of the theory have remained the same: 1) Children tend to become friends and form groups with other children whose values and behaviours are similar to their own; and 2) behaviours and values that conform to these group norms are systematically reinforced whereas behaviours and values that do not are ignored or punished (Boivin & Vitaro, 1995; Catalano & Hawkins, 1996; Cohen, 1983). In this way, children who behave aggressively in contexts where aggression is prized or valued do not necessarily spark the ire of their peers (Cairns & Cairns, 2001; Poulin & Boivin, 1995); instead the attitudes that children perceive their classmates to

have toward aggressive behaviour appear to dictate the degree of aggressive behaviour and the type of response to it that takes place in their schools (Salmivalli & Voeten, 2004).

The results of recent studies extend the boundaries of this theory to portray an association between the aggressive behaviour of children's friends and their own individual school adjustment. For instance, Cairns and Cairns (1994) found in their extensive longitudinal investigation of the school and life adjustment trajectories of hundreds of children in the Southern United States that aggressive children were judged by their teachers as less academically competent, more likely to affiliate with other aggressive children, and more likely to drop out of school than their nonaggressive peers. Vitaro and colleagues ascertained that French Canadian boys whose friends engaged in deviant behaviours (e.g., participating in gang activity, dropping out of school) were more likely to become disengaged from and drop out of school over the course of their 12-year study than were boys whose friends did not (Vitaro, Larocque, Janosz, & Tremblay, 2001). Similarly, the results of structural equations modeling in a different investigation suggest that bonding to antisocial peers can lead to a decrease in academic performance and an increase in the likelihood of dropping out of school between the ages of 14 and 16 (Battin-Pearson et al., 2000). In each case, children associated with other children who resembled them along the dimension of peer aggression, and their academic adjustment over time suffered as an apparent consequence. There are as of yet, however, few studies of the effect of friends' aggression on other aspects of school adjustment, including school liking and school avoidance.

The Importance of Longitudinal Designs in Measuring the Influence of Friends

The measurement of change in children's behaviour over time is absolutely essential in order to make any meaningful inferences whatsoever about the influence of

friends on the behaviour in question. The principle is the same in studies of interpersonal influence as it is in studies of distinct patterns of change for different groups outlined earlier: Peer affiliations in studies of influence represent “characteristics” (i.e., a child either does or does not have an aggressive best friend); time-varying dependent variables in this case would be aggression, rejected status, and school adjustment. If children’s friends influence their aggressive behaviour and school adjustment, then any change in their scores on measures of these constructs should be related to their friend’s scores on the same measures at earlier time points. Various types of regression analyses (e.g., multiple regressions, hierarchical linear modeling, structural equations modeling) can then be used to assess whether the scores of children’s friends on measures of aggression predict their own aggression and school adjustment scores at future time points while taking their own earlier levels of aggression and school adjustment into account (Kindermann et al., 1996).

Virtually all of the studies of friendship influence reported here involved this kind of inference from changes on indices of children’s behaviour over time. In a study similar in design to the ones described above, Vitaro, Tremblay, Kerr, Pagani, and Bukowski (1997) examined changes in the aggressive behaviour of 868 French Canadian boys who were six years old at the first measurement point and 13 years old at the time of the final one. They used teacher, peer, and self ratings as indices of aggressive behaviour and they asked participating boys to nominate their best friends in their class. Results indicated that moderately disruptive boys (i.e., boys who scored between the mean and three quarters of a standard deviation above the mean on teacher-rated disruptiveness) whose friends consistently engaged in aggressive behaviours (as rated by teachers, peers, and themselves) at age 6 were more aggressive and delinquent at age 13 (after statistically controlling for their baseline levels of aggressive behaviour) than were

moderately disruptive boys whose friends did not consistently engage in aggressive behaviours. These authors therefore concluded that friends did indeed influence the aggressive behaviour of this particular group of boys (Vitaro et al., 1997). They were able to draw this conclusion because the aggressive behaviour of the boys' friends predicted individual boys' behaviour at later points in time.

Studies without a time component might also yield indications of possible influence such as similarity between individual children's behaviour and the behaviour of their friends at one particular point in time, but such findings leave the researcher guessing as to whether the detected similarity is the result of influence or other factors (e.g., selection of friends based on their behavioural characteristics). In longitudinal studies with results such as Vitaro and colleagues' (1997), individuals initially differ on measures of certain behaviours but demonstrate greater similarity at later time points, which effectively reduces the number of possible inferences and points toward the possibility that one person's behaviour has a direct effect on the behaviour of another.

Aggression, Peer Rejection, and School Adjustment in Italy

The vast majority of research on children's aggression, peer rejection, and school adjustment has been conducted in North America, with relatively few exceptions (e.g., Caprara et al., 1997; Schwartz et al., 2001; Tomada & Schneider, 1997; Verkuyten & Thijs, 2002) considering the number of empirical studies in each of these domains. Yet a sizable body of theory and research suggests that culture might play an extremely important role in myriad aspects of human thought, development, and behaviour.

According to Hofstede (1991), "*culture is the collective programming of the mind which distinguishes the members of one category of people from another*" (p. 4, italics in original). Individuals within a particular society appear to contribute to the formation, maintenance, and change of cultural norms in spheres that range from child rearing

practices to cognition and schooling (Rogoff, 2003). Knowledge of the characteristics of a particular culture might therefore provide important insight into the attitudes and behaviour of its constituents, including its children (Schneider, 2000).

Investigators have indeed uncovered noteworthy differences across cultures along several dimensions of children's peer relations, such as the acknowledgement and impact of conflict in childhood friendship (e.g., Benjamin, Schneider, Greenman, & Hum, 2001; Orlick, Zhou, & Partington, 1990), the relation between shyness or social withdrawal on one hand and loneliness (Chen et al., 2004) or sociometric status in childhood (Kupersmidt & Terjos, 1987) on the other, and the salience of cooperative or competitive behaviours in children's interactions (Miller & Thomas, 1972). Scholars have attributed such findings largely to cultural differences in attitudes, values, and social structures. However, in addition to these differences, a number of investigations have also yielded evidence of cross-cultural similarities in numerous aspects of children's relationships and interactions, including those under investigation in the present study. In general, children in cultures whose social and economic systems reinforce collectivist values such as cooperation and interdependence tend to demonstrate less conflict in their peer relationships and to have more positive consequences for shyness and sensitivity than do children in cultures whose social and economic systems reflect individualist values such as independence and personal achievement. On the other hand, there is evidence of cross-cultural similarity in the correlates of peer acceptance, peer rejection, and aggressive behaviour (see Schneider, 2000 and Schneider, Smith, Poisson, & Kwan, 1997 for reviews). It is therefore likely that patterns of peer relations and school adjustment in the current sample of Italian children will be different from those detected in children outside of Italy in some aspects but similar in others.

The results of several recent studies support this idea. For example, Casiglia and colleagues found in their large sample of children between the ages of 10 and 13 in Palermo, Italy that boys and girls designated as aggressive by their peers endured the highest levels of peer rejection within their respective gender groups (Casiglia, LoCoco, & Zappulla, 1998). Similarly, Attili, Vermigli, and Schneider (1997) studied seven- and eight-year olds in two Italian cities and found that children whose peers rejected them also rated them as significantly more aggressive than their nonrejected agemates. Likewise, Menesini (1997) noted in her study of eight- to 10-year-old schoolchildren in Italy that boys and girls who had reciprocal friends received significantly lower teacher-ratings of aggressive behaviour than did children who did not have reciprocal friends. Finally, Österman and associates remarked that a cross-section of 2094 eight-, 11-, and 15-year old girls from Italy, Finland, Israel, and Poland demonstrated about equal levels of the indirect, relational aggression (i.e., vilification, social exclusion, the spreading of rumours) observed to be prevalent among girls in North America, whereas boys engaged in significantly more physical aggression than did girls at ages eight and 11, after which their aggression took a more indirect form (Österman et al., 1998). All of these findings mirror the results of studies conducted in North America, in which rejected children generally appear to be more aggressive than nonrejected children, and girls seem to display more relational than overt, physical aggression than boys (Coie & Dodge, 1998).

However, other evidence suggests that aggressive behaviour might be more prevalent among Italian children than among children in other cultures. For instance, 50% of the children between 11 and 14 years of age who participated in a study of bullying in Rome reported that they had bullied their peers “sometimes or more” in the three months prior to the study (Baldry & Farrington, 1999). This rate of bullying is substantially higher than that generally reported in other countries (Genta et al., 1996;

Olweus, 1993; Smith et al., 1999). The results of cross-cultural comparisons of children's aggressive behaviour solidify this notion. In one study of bullying and victimization in over 1000 schoolchildren who ranged in age from eight to 14 years in central and southern Italy, 23% of the students in the sample reported bullying others, and 45% of them reported that they had been victims of bullying (Genta et al., 1996). The rates of occasional and frequent bullying in Italy reported in this study were twice as high as those reported among children in England, Ireland, Norway and Japan (Genta et al., 1996). In another cross-cultural comparison of children's attitudes toward bullying and victimization in school, the incidence of self-reported bullying in children between the ages of eight and 14 was twice as high in Italy as it was in England (Menesini et al., 1997). In addition, primary school children in Italy in the same study appeared to be more accepting of bullying than were secondary school children, whereas the reverse was true in the English sample (Menesini et al., 1997). Finally, Italian participants in a recent cross-cultural study of boys' aggressive behaviour between 11 and 15 years of age in Italy, Hungary, and the Czech Republic engaged in significantly more aggressive behaviours toward their peers (i.e., fighting, inflicting physical injury, making derogatory comments) than did their counterparts in the other two countries (Caprara, Barbaranelli, Pastorelli, Cermak, & Rosza, 2001). Perhaps this high incidence of bullying among children of both sexes reflects an acceptance of conflict in adults' and children's relationships that appears to typify the Italian culture (Argyle, Henderson, Bond, Contarello, & Iizuka, 1986; Schneider et al., 1997). It thus appears that although the link between aggressive behaviour and peer rejection is as evident in Italy as it is in other cultures, aggression might nonetheless be more prevalent among youth there than it is elsewhere.

Whereas the aforementioned aspects of children's aggressive behaviour might be distinct in Italy, other empirical evidence suggests that the correlates of peer rejection and children's school adjustment in Italy are quite similar to those detected in North America and elsewhere. For example, Zappulla and LoCoco (2002) found a significant association between children's self reports of social isolation and teachers' perceptions of internalizing problems (i.e., depression, withdrawal) in their study of Italian children between 10 and 11 years of age. Tomada's (2002) study of seven-year-olds in Italy revealed that according to their teachers, Italian children who experienced this kind of isolation or who did not have friends in school performed more poorly in their studies than did their peers who had friends. In their comprehensive investigation of the social standing, academic performance, and aggressive behaviour of students in grades six through eight in Italy, Pastorelli and colleagues concluded that peer rejection and delinquent behaviour had a negative impact on children's school achievement (Pastorelli et al., 2002). Similarly, Amodeo and Bacchini (2002) discovered in their study of Italian secondary school students that peer rejection and self-reported aggression made significant, independent contributions to the prediction of school failure. In a more recent comparison of school liking in Italian and American children, Holmes and colleagues observed similar patterns of school liking among children in grades six through eight in the two cultures: Both American and Italian girls reported that they derived greater enjoyment from an array of school activities than did American and Italian boys (Holmes et al., 2004). Thus, patterns of peer rejection and school adjustment among children in Italy appear to more closely resemble those observed in North American children than do patterns of aggressive behaviour among children in Italy.

The Present Study

Several conclusions can be drawn from the research reviewed thus far. First, children who are aggressive toward or rejected by their peers appear to be at risk for school adjustment problems. However, due to the absence of studies that include multiple indices of adjustment from more than one or two observers, it is unclear to what degree these problems are predominantly academic in nature or involve other aspects of school adjustment such as school liking and school avoidance. Next, there is a lack of empirical knowledge about the contributions of changes over time in aggressive, rejected, and aggressive-rejected status to an array of school adjustment problems among both boys and girls. Does change in these sociometric and behavioural profiles imply change in school adjustment?

The pursuit of an answer to the preceding question necessitates longitudinal research with statistical methods that allow for measurement of change in both independent and dependent variables over time and with more than one index of school adjustment. However, many of the existing studies on this topic contain methodological shortcomings that preclude an adequate response to such an inquiry, most notably a dearth of longitudinal results on school adjustment problems other than academic achievement.

Next, it is clear that peer rejection and the influence of friends might affect children's aggressive behaviour, which may in turn have an impact on their school adjustment. But it is unclear what the effect of change in peer-rejected status on aggression over time might be, and the influence of friends on other facets of school adjustment is vague.

Finally, aggressive behaviour appears to be more common in Italy than in other countries. Yet relations among aggression, peer rejection, and school adjustment there seem to mirror the ones detected elsewhere. Therefore, the current study ought to help

further clarify which aspects of childhood aggression, peer rejection, and adjustment to school are more unique to the Italian culture and which features might be more universal.

Purpose of the Present Study

The purpose of the present study is to fill the gaps in the literature on the links between changes in boys' and girls' aggression toward and rejection by peers over time and their school adjustment, and on the influence of children's friends on their aggressive behaviour and school adjustment. Unlike previous studies, this one involves direct longitudinal analysis of changes in the developmental trajectories of aggressive, rejected, and aggressive-rejected children and included information from multiple informants (peers, two teachers, and participants). Three indices of school adjustment were examined: academic performance, school liking, and school avoidance. The present study also features the most accurate techniques that are currently available for measuring change over time on the school adjustment variables.

Another unique aspect of this investigation is its sample of Italian children. Thus, in addition to distinctive features such as breadth of informants and school adjustment variables, focus on the impact of change in sociometric and aggressive status on school adjustment, clarification of the relation between peer rejection and aggressive behaviour, and examination of friends' influence on aggressive behaviour and multiple facets of school adjustment, the present study also provides insight into patterns of Italian children's aggressive behaviour, peer rejection, and academic performance. These patterns may differ from those observed among North American children, given the high prevalence of aggressive behaviour among Italian children (Baldry & Farrington, 1999; Caprara et al., 2001; Genta et al., 1996).

Persistent, Desisting, Onset, and Intermittent Sociometric and Behavioural Profiles

There is a finite number of sociometric and behavioural patterns or profiles that

children in the present sample might exhibit. Groups of similar profiles lend themselves to different hypotheses about specific outcomes, as Kochenderfer-Ladd and Wardop (2001) illustrated in their study of victimization in elementary-school children. In the present study, for example, children might remain rejected by their peers across all four time points of the investigation, or they might never be rejected at all. These children would belong to the group with “persistent” rejected status. Other children, however, might endure peer rejection at one or more points early on in the study, but become accepted by their peers as time moves on. Children with these particular patterns of sociometric status would belong to the group with “desisting” rejected status. Still other children might be accepted at one or more points early on in the study and become rejected by their peers. These children would belong to the group with an “onset” of rejected status. Finally, some children might experience fluctuations in their rejected status over time (e.g., rejected at Time 1, not rejected at Time 2, rejected at Time 3, not rejected at Time 4). Those children whose rejected status changes in this way over time would belong to the group with “intermittent” rejected status. The same persistent, desisting, onset, and intermittent patterns are possible for aggressive and for aggressive-rejected status: Children might exhibit no change in their aggressive behaviour or aggressive-rejected status across the four time points of the study (persistent), they may become nonaggressive or they may stop being aggressive and rejected simultaneously (desisting), they may become aggressive or aggressive and rejected, or their status as aggressive or aggressive-rejected might sway back and forth over time (intermittent).

Hypotheses

The following hypotheses are based on the evidence outlined in this review that peer rejection and aggressive behaviour are related to children’s school adjustment difficulties (e.g., Schwartz, 2000; Wentzel, 1991), that children appear to benefit both

academically and psychologically from the company of friends at school (Furrer & Skinner, 2003), that peer rejection might exacerbate children's aggressive behaviour (Brendgen et al., 2001), and that children's influence on one another's aggressive behaviour might also affect their school adjustment (e.g., Cairns & Cairns, 1994; Vitaro et al., 2001). In light of this evidence and in line with the goals of the present study, the following hypotheses were tested:

- 1) That children who were rejected, aggressive, or both aggressive and rejected at all four data collection points would exhibit consistently higher levels of self- and teacher-rated school avoidance over time and consistently lower levels of self- and teacher-rated school liking and teacher-rated academic performance over time than would their peers who were not rejected, not aggressive, and not aggressive-rejected;
- 2) That children who were not rejected, aggressive, or both aggressive and rejected at any point in the study would exhibit consistently lower levels of self- and teacher-rated school avoidance over time and consistently higher levels of self- and teacher-rated school liking and teacher-rated academic performance over time than would their peers who were rejected, aggressive, or both aggressive and rejected;
- 3) That children who became accepted, nonaggressive, or ceased to be both aggressive and rejected at the same time would demonstrate significant increases over time in their self- and teacher-rated school liking and teacher-rated academic performance and significant decreases over time in their self- and teacher-rated avoidance of school;
- 4) That children who became rejected, aggressive, or aggressive-rejected over the course of the study and who maintained this new status would demonstrate significant decreases over time in their self- and teacher-rated school liking and teacher-rated

academic performance and significant increases over time in their self- and teacher-rated avoidance of school;

5) That the self- and teacher-rated school liking, self- and teacher-rated school avoidance, and teacher-rated academic performance of children whose status as rejected, aggressive, or aggressive-rejected vacillated over time would fluctuate as a function of their rejected, aggressive, or aggressive-rejected status;

6) That children who were rejected by their peers at all four data collection points would exhibit consistently higher levels of aggression (as indicated by their classmates) over time than would their nonrejected peers;

7) That children who were not rejected by their peers at any point during the study would exhibit consistently lower levels of aggression (as indicated by their classmates) over time than would their peers who were rejected one or more times;

8) That children who became accepted by their peers during the course of the study and who maintained this new status would demonstrate significant decreases in their peer-rated aggressive behaviour over time;

9) That children who became rejected during the course of the study and who maintained this new status would demonstrate significant increases in their peer-rated aggressive behaviour over time;

10) That the peer-rated aggressive behaviour of children whose status as rejected vacillated over time would fluctuate as a function of their rejected status; and

11) That children whose friends were deemed aggressive by their peers would demonstrate significant increases over time in their self- and teacher-rated school avoidance and peer-rated aggression, along with significant decreases over time in their self- and teacher-rated school liking and teacher-rated academic performance.

Method

Participants

The present study includes analyses of data collected over a two-year period from 524 children in 11 schools in the city of Florence, Italy and neighbouring towns. Researchers in Italy collected the data and were responsible for the selection of the measures employed in the study. The mean age of the children at Time 1 was 7.42 years. There were 272 male and 252 female participants at the first data collection point, with minimal attrition over the course of the investigation (7% after one year, a further 1% during the second year). The consent rate was 97%. The schools were located in neighbourhoods ranging in socioeconomic status from low to high; the sample therefore essentially reflects the socioeconomic layout of the area.

Experimental Design

As previously mentioned, the goals of the present study were to examine the ability of children's aggressive behaviour and peer rejection to predict their school adjustment over time, to investigate the degree to which changes in peer rejected status would relate to children's aggressive behaviour toward peers, and to observe the influence of children's friends on their aggressive behaviour and school adjustment. Data collection took place in November and May of the seven-and eight-year-old children's Grade 2 year (2000-2001), and once again at the same intervals when they were in Grade 3 (2001-2002). Participating children nominated their school friends and indicated the degree to which they liked or avoided going to school. Their teachers recorded their own perceptions of the children's school liking and school avoidance, in addition to their evaluations of the children's academic performance. Peers identified aggressive and rejected children.

Measurement of School Liking and School Avoidance

SLAQ. At each data collection point, participants indicated the degree to which they liked or avoided school using the School Liking and Avoidance Questionnaire (SLAQ; Ladd & Price, 1987). This instrument consists of questions that address children's school liking (e.g., "Is school fun?") and their tendency to avoid or want to avoid going to school (e.g., "Do you wish you didn't have to come to school?"). The children responded to the SLAQ items using a three-point Likert scale (0 = "no"; 1 = "sometimes"; 2 = "yes"). Several analyses have indicated that the SLAQ factors load consistently into School Liking and School Avoidance subscales (Birch & Ladd, 1997; Ladd, Kochenderfer, & Coleman, 1996). Cronbach's alphas that ranged in previous studies from .87 to .91 for School Liking and from .76 to .81 for School Avoidance testify to the internal reliability of this measure (Birch & Ladd, 1997; Ladd et al., 1996).

The research team in Italy conducted a confirmatory factor analysis in order to verify the applicability of the original factor structure to the items in the Italian version of the SLAQ employed in this study. The original American structure (14 items and two factors: School Liking and School Avoidance) was not fully confirmed. One of the items from the original 14-item scale ("Do you hate school?") did not load on the School Liking factor. However, a similar two-factor solution (School Liking and School Avoidance) emerged upon elimination of that one item, with a satisfactory fit:

Comparative Fit Index (CFI) = .97; Root Mean Square Error Approximation (RMSEA) = .04; $\chi^2(70) = 2352.24, p < .001$. Chronbach's alphas for the school liking and school avoidance scales were .89 and .82, respectively. There was a significant negative correlation between the School Liking and School Avoidance scales ($r = -.38; p < .001$). The items of the SLAQ school liking and school avoidance scales employed in the present study can be found in Appendix A of this document. The item-total correlations for each of the items and their corresponding factors are listed in Table 1. The means and

standard deviations of school liking and school avoidance as measured by the SLAQ in the present study can be found in Table 3.

Teacher Ratings

Teachers evaluated the participants' school liking and avoidance as well. The language arts/social studies and mathematics/science teachers of each participating child completed an Italian version of the Teacher Rating Scale of School Adjustment (TRSSA; Ladd et al., 1996). This scale consisted of Italian versions of questions about children's self-directedness and engagement employed in Ladd and colleagues' (1996) study of children's friendship quality and school adjustment, along with other unpublished items pertaining to children's school liking and school avoidance that the authors sent to the research team in Italy. A confirmatory factor analysis conducted on these items yielded a three-factor solution with good reliability (Cooperation, $\alpha = .87$; School Liking, $\alpha = .85$; and School Avoidance, $\alpha = .68$) and acceptable fit: CFI = .95; RMSEA = .04; $\chi^2(55) = 2932.66$, $p < .001$. Teachers' impressions of children's school liking and school avoidance were culled from the four-item School Liking scale and the three-item School Avoidance scale that emerged. Teachers responded to each item on a three-point Likert scale (0 = doesn't apply, 1 = applies sometimes, 2 = certainly applies). The Cooperation factor was not part of the present analyses. The items of the TRSSA can be found in Appendix B. The item-total correlations for each of the items and their corresponding factors are listed in Table 2. The means and standard deviations of school liking and school avoidance as measured by the TRSSA can be found in Table 3.

Measurement of Academic Performance

Italian children do not regularly take standardized tests, as do their counterparts in North America. For this reason, teacher ratings of participating children's scholastic prowess served as a barometer of their academic performance. The language arts/social

studies and mathematics/science teachers of the children used a five-point Likert scale that ranged from 0 (“very unsatisfactory”) to 4 (“excellent”) to assess their academic achievement. The means and standard deviations of teacher-rated academic performance are listed in Table 3.

Friendship Nominations

Participating children were asked to write down the names of up to six close friends in their class. They did so during each of the four data collection sessions. Analyses of these nominations led to the identification of reciprocal friendship dyads in the sample and allowed for the exploration of the influence of friends on children’s aggressive behaviour and school adjustment. In order to be considered reciprocal friends, at least one child per dyad had to specify the other as a best friend, while the other child had to list the partner as a friend but not necessarily as a best friend (e.g., Adams, Bukowski, & Bagwell, 2005).

Sociometric Status

The students in the sample named children in their class whom they liked the most, liked the least, and who corresponded to a number of behavioural descriptions. Social preference scores were calculated from these data according to the procedure outlined by Coie, Dodge, and Coppotelli (1982): I subtracted each child’s total number of standardized “Liked Least” nominations at each time point from his or her total number of standardized “Liked Most” nominations at that time point. I then standardized these social preference scores. Children with standardized social preference scores of less than -1 , standardized Liked Least scores greater than 0, and standardized Liked Most scores less than 0 belong to the category of socially rejected children for that particular measurement point.

Aggressive Behaviour

The type of aggression observed in the present study was overt. Peer nominations were the source of information about children's physical aggression, verbal aggression, bullying behaviour, and classroom disruptiveness. In an adaptation of Boulton and Smith's (1994) procedure for identifying bullies, participating children indicated up to three classmates who fit the description of a bully (i.e., "someone who often picks on other children, or hits them, or teases them, or does any other nasty things to them for no good reason"; Boulton & Smith, 1994, p. 318). They also responded to questions about other behavioural characteristics of their peers, including which of their classmates start fights, engage in verbal aggression toward others, and disrupt classroom activities. I used these data to form an aggression variable that consisted of Boulton and Smith's (1994) bullying question and items 2, 4, and 6 from the behavioural nomination questionnaire in Appendix C (e.g., "Who starts fights?"). First, I noted the total number of peer nominations of aggression that each child received within each class, based on their classmates' responses to these items. Next, I averaged these totals, dividing the number of each child's aggressive nominations by the number of items to form a raw score of aggression. Then, I standardized the children's raw aggression scores. Children whose final, scaled aggression scores were one standard deviation or more above the sample mean at each time point were classified as aggressive for that measurement point.

Grouping of Children According to Rejected, Aggressive, and Aggressive-Rejected Status

Children in this study exhibited different patterns of aggression, rejection, and a combination of the two over four measurement points. In their investigation of the effects of stability and change in children's victimization status on their loneliness and social satisfaction over time, Kochenderfer-Ladd and Wardop (2001) assigned

participants to one of 16 mutually exclusive groups defined by their particular pattern of victimization over four time points. For instance, “YYYY” was the designation for the group of children in their study who were victimized at all four data collection points (“Y = *Yes*, victimized” Kochenderfer-Ladd & Wardop, 2001, p. 139). “NNYY” was the designation for the group of children who were not victimized at the first two time points but who were victimized at the final two (“Y = *Yes*, victimized; N = *No*, not victimized” Kochenderfer-Ladd & Wardop, 2001, p. 139). Since the potential patterns of stability and change in children’s aggressive, rejected, and aggressive-rejected status in the current investigation mirror the ones that Kochenderfer-Ladd and Wardop (2001) examined for children’s victimization status, and since the principal aim of the present study was to examine the relation between stability or change in aggressive behaviour or peer rejection and children’s school adjustment over time, I followed Kochenderfer-Ladd and Wardop’s (2001) procedure and grouped participating children according to patterns of change (or lack thereof) in their aggressive, rejected, and aggressive-rejected status across the four measurement points.

Children’s membership in one of 16 possible groups (YYYY, YYNN, NNYY, and so on) for each criterion (i.e., rejected, aggressive, and aggressive-rejected) constituted the predictor variables for the hierarchical analysis. Each variable was dummy coded to signify children’s membership status in that particular group (0 = nonmember, 1 = member). Thus, the designation for children rejected by peers at Time 1 and Time 2 but not rejected at any measurement point thereafter was “Rej.: YYNN” (“Rej.” = *rejected*, Y = *yes*, and N = *no*) and the code for those children was “1.” Similarly, the designation for children rated as aggressive by their peers at Time 1 and Time 2 but not aggressive at any point thereafter was “Agg.: YYNN” (“Agg.” = *aggressive*, Y = *yes*, and N = *no*) and the code for those children was “1.” Finally, the

designation for children whose peers rated them as both aggressive and rejected at Time 1 and Time 2 but not both aggressive and rejected at any point thereafter was “Agg.-Rej.: YYNN” (“Agg.-Rej.” = *aggressive-rejected*, Y = *yes*, N = *no*) and the code for those children was “1.” All children received codes of either “1” or “0” for their membership or nonmembership in each of the 16 possible groups for the three descriptors (rejected, aggressive, and aggressive-rejected). Tables 1, 2, and 3 (located after the author note) illustrate this classification scheme. They contain the frequencies for children identified as members of each rejected, aggressive, and aggressive-rejected group.

Subgroupings: Persistent, Desisting, Onset, and Intermittent Patterns.

Once participating children’s membership in each of the 16 possible groups for the four descriptors was determined, I classified them further into categories that corresponded to the persistent, desisting, onset, and intermittent patterns of change over time used to formulate the hypotheses of the present investigation. Specifically, children whose rejected, aggressive, or aggressive-rejected status was YYYY or NNNN across the four data collection points of the study belonged to the group with “persistent” status on the predictor variable in question. Children whose profiles were YYNN, YYYN, and YNNN for those predictor variables were part of the “desisting” group. The “onset” category consisted of children whose status for each of the predictor variables was NNYN, NYNN, or NNNY. Finally, the “intermittent” category contained the remaining eight possible patterns for each predictor variable: YNNY, YNNY, YNNY, NYNN, NNNY, NYNN, NYNN, and YNNY. These subgroupings are based on those formulated by Kochenderfer-Ladd and Wardop (2001) in their study of change in children’s victimization status over time.

Hierarchical Data Modelling: Rationale

The principle objective of this study was to predict children's school adjustment trajectories from their individual patterns of rejected, aggressive, and aggressive-rejected status. The main analyses consisted of the formulation and testing of hierarchical linear models (HLM) to examine the effects of aggression and peer rejection on children's school adjustment both at the beginning of the study and over time. Each index of school adjustment included in the study (i.e., self and teacher reports of school liking and school avoidance; teacher ratings of academic performance) served as an outcome variable with the children's rejected, aggressive, and aggressive-rejected status (obtained in the manner described above) as predictors.

There are some key advantages to HLM analyses. First, they involve the formulation of a single regression equation for the entire sample from several individual regressions (Raudenbush & Bryk, 2002; Sayer, 2003). This provides a more accurate estimate of individual growth than do other types of analyses because the final model of change in hierarchical analysis incorporates both individual and group data, whereas ordinary least squares regression equations do not (Raudenbush & Bryk, 2002; Osborne, 2000; Ryan, 2000; Verkuyten & Thijs, 2002). Another distinct characteristic of HLM is the ability to incorporate data from all individuals with a complete set of observations from at least one data collection point (Raudenbush & Bryk, 2002). In terms of the present study, Level-1 data from an individual child were included in the estimation of final models for the outcome variables even if some data were missing for that child from one or more observation points. In such cases, the HLM program automatically performs a multiple, model-based imputation procedure to account for missing data and to preserve cases that contain missing observations (Raudenbush & Bryk, 2002; Raudenbush et al., 2001). This is an advantage over traditional regression analysis

techniques, which often necessitate the elimination of large numbers of cases due to attrition and thereby obscure the interpretation of results (Burchinal et al., 2003).

Consider the following illustration of the logic of hierarchical linear models. For repeated-measures data, multiple observations are nested within individuals to form a two-level hierarchy (Osborne, 2000; Raudenbush & Bryk, 2002; Raudenbush et al., 2001). Level 1 consists of a growth trajectory that represents an individual's development over time on a measure of a particular outcome variable. These growth trajectories hinge on certain parameters, which in the case of Level-1 analyses are the slope and intercept of an equation that is essentially identical to a traditional regression equation: $Y_{it} = \beta_{0i} + \beta_{1i}X_{it} + r_{it}$, where Y_{it} = the observed score on the outcome variable for person i at time t , β_{0i} = the intercept of the regression equation for person i , β_{1i} = the slope of the equation for person i , X_{it} = a predictor variable for person i at time t , and r_{it} = the random variance or error term (Hox, 1995; Osborne, 2000; Raudenbush & Bryk, 2002).

In repeated-observations designs, the predictor X_{it} = time. In the present study, for example, X_{it} was coded as the number of weeks since the first data measurement point ($X_{1i} = 0$, $X_{2i} = 24$, $X_{3i} = 48$, $X_{4i} = 72$). In this way, the intercept in the current model represents the school adjustment (i.e., self-rated school liking as measured by the SLAQ, self-rated school avoidance as measured by the SLAQ, teacher rated school liking as measured by the TRSSA, etc.) for child i at Time 1 and the slope represents the growth or change rate in that child's school adjustment (Kochenderfer-Ladd & Wardop, 2001; Raudenbush & Bryk, 2002). Time is thus the principle predictor of children's school adjustment at the first level of analysis.

The second level of analysis in hierarchical modeling of individual change is based on the premise that individual factors affect the intercept and the slope of the

Level-1 equation and consequently also affect outcome (Hox, 1995; Raudenbush & Bryk, 2002). In this study, for example, the hypotheses stipulate that the different patterns of children's sociometric and behavioural status (e.g., Rej.: YYYY, Agg.: YYYY, Agg.-Rej.: RYYNN, etc.) will predict both their school adjustment at the beginning of the investigation (i.e., the intercept) and any changes in their school adjustment over time (i.e., the slope). In order to evaluate these hypotheses, the intercept and slope become outcome variables at Level 2. Here, γ_{00} and γ_{10} represent the intercepts of the newly formed Level-2 regression equations, γ_{01} and γ_{11} are their slopes, W_i is a characteristic of person i , and u_{0i} and u_{1i} are the unique effects of person i on β_{0i} and β_{1i} , respectively (i.e., the error terms; Osborne, 2000; Raudenbush & Bryk, 2002). The intercepts, slopes, and error terms at Level 2 are all used to predict the Level-1 parameters (β_{0i} and β_{1i}) from the variable W . The two equations below illustrate this type of multilevel analysis (Osborne, 2000):

$$\beta_{0i} = \gamma_{00} + \gamma_{01}W_i + u_{0i}$$

$$\beta_{1i} = \gamma_{10} + \gamma_{11}W_i + u_{1i}.$$

In the present investigation, the different patterns of children's rejected status (e.g., Rej.: YYYY), their aggressive behaviour (e.g., Agg.: YYNN), and their aggressive-rejected status (e.g., Agg.-Rej.: YYYY) served as Level-2 predictors (W s). This procedure enabled the identification of specific factors that affected children's initial levels of school adjustment at the beginning of the study (β_{0i}), along with changes in their school adjustment over time (β_{1i}).

Hierarchical Linear Modelling Procedures

There are several steps involved in the analysis of hierarchical linear models. The first involves examination of an "unconditional" model that does not contain any predictors at Level 1 or Level 2. These unconditional models include an intercept term

but they do not include any linear, quadratic, or cubic growth parameters. The purpose of this step is to determine whether there is sufficient variability in the sample on the outcome measures of interest to warrant further analysis (Hox, 1995; Kochenderfer-Ladd & Wardop, 2001).

The next step entails the introduction of linear, quadratic, or cubic growth parameters into the unconditional model from the first step, followed by the analysis of deviance statistics. “Deviance” in this instance refers to the fit of the proposed model to the data, such that a reduction in deviance indicates a better fit (Hox, 1995; Raudenbush & Bryk, 2002; Roberts, 2004: ADD; Sayer, 2003; Schaeffer, Petras, Ialongo, Poduska, & Kellam, 2003). If deviance reduces upon inclusion of a growth parameter such as a slope, that parameter remains in a subsequent model, which is once again tested for enough between-subject variability in each outcome variable *over time* to call for the introduction of specific predictors to explain it (Kochenderfer-Ladd & Wardop, 2001; Spieker, Larson, Lewis, Keller, & Gilchrist, 1999). The final step in HLM analysis involves adding and testing the effects of specific Level-2 predictors on the outcome variable.

In terms of the present study, I first created unconditional models for each of the 9 outcome variables of interest: 1) children’s self-reported levels of school liking (SLAQ School Liking), 2) children’s self-reported levels of school avoidance (SLAQ Avoidance), 3) language arts/social studies teachers’ ratings of children’s school liking (TRSSA School Liking, Teacher A), 4) mathematics/science teachers’ ratings of children’s school liking (TRSSA School Liking, Teacher B), 5) language arts/social studies teachers’ ratings of children’s school avoidance (TRSSA School Avoidance, Teacher A), 6) mathematics/ science teachers’ ratings of children’s school avoidance (TRSSA School Avoidance, Teacher B), 7) language arts/social studies teachers’

evaluations of children's academic performance (Teacher A Academics), 8) mathematics/ science teachers' evaluations of children's academic performance (Teacher B Academics), and 9) aggression. I then proceeded through the aforementioned steps and arrived at final models that included Level-2 predictors (Rej.: YYYY, Rej.: YYYN, Agg.: YYYY, Agg.: NNNN, etc.).

Results

Version 5.05 of Raudenbush, Bryk, Cheong, and Congdon's (2001) HLM program was used to test the primary hypotheses. This program executes an iterative, restricted maximum likelihood analysis of the data in order to provide the best possible estimates of the Level-1 and Level-2 coefficients that affect outcomes (Raudenbush et al., 2001).

Unconditional Models

As stated above, the first step in the analysis consisted of the construction and testing of unconditional models, with no linear-, quadratic-, or cubic-change parameters and no predictors at either Level 1 or Level 2. The Level-1 and Level-2 equations were therefore $Y_{it} = \beta_{0i} + r_{it}$ and $\beta_{0i} = \gamma_{00} + u_{0i}$, respectively. These models are also known as "intercept-only" models because they do contain an intercept term. At this stage of the analysis, χ^2 test results were conducted in order to test the tenability of the null hypothesis that children did not vary significantly from one another in their school adjustment or aggressive behaviour (Kochenderfer-Ladd & Wardop, 2001; Raudenbush & Bryk, 2002). The χ^2 test statistics for all 8 of the school adjustment outcome variables and for aggression as an outcome variable were highly significant ($p < .001$ in all cases), which indicates that children did indeed appear to vary significantly from one another on every school adjustment variable. This finding suggests that the fitting of more complex

models for each of the variables is warranted, in order to explain and, if possible, reduce the variability uncovered in the intercept-only models with no predictors.

Linear-Change and Quadratic Models

Next, models that included the two growth parameters β_{0i} and β_{1i} (intercept and slope) were created for each of the eight school adjustment variables, followed by comparison of the deviance statistics of the intercept-only models and the models with two growth parameters. In every case where deviance reduced in a model with two growth parameters, a third parameter (β_{2i}^2) was subsequently added to see if quadratic models of growth provided an even more adequate fit to the data.

χ^2 tests were performed to compare the deviance of intercept-only, linear-change, and quadratic models (Hox, 1995; Schaeffer et al., 2003). Results indicated that deviance did not reduce following the introduction of additional growth parameters into the intercept-only models for four of the school adjustment variables: 1) TRSSA School Liking, Teacher A ($\chi^2(2) = 9.10, p = .011$); 2) TRSSA School Liking, Teacher B ($\chi^2(2) = 101.55, p < .001$); 3) TRSSA School Avoidance, Teacher A ($\chi^2(2) = 5.85, p = .05$); and 4) TRSSA School Avoidance, Teacher B ($\chi^2(2) = 42.58, p < .001$). In light of these results, intercept-only models were used in subsequent analyses of these four outcome variables.

Tables 4 and 5 represent the original intercept-only models for these variables. The coefficients in the upper portion of the tables represent the estimated mean intercept values for each school adjustment variable; the significant t -ratios for each of them indicate the necessity of the intercept parameter to describe the mean trajectory for all five school adjustment variables. Of particular interest, however, are the lower portions of the tables, where the significant χ^2 results illustrate the significant between-subject variability for the intercept in the model of all four school adjustment variables and

invite the inclusion of predictors (Kochenderfer-Ladd & Wardop, 2001; Raudenbush & Bryk, 2002).

In contrast, deviance did reduce significantly following the inclusion of linear-change parameters into the models for aggression as an outcome variable ($\chi^2(2) = 64.64$, $p < .001$) and for three of the other four school adjustment variables: 1) SLAQ School Liking ($\chi^2(2) = 745.88$, $p < .001$), 2) SLAQ School Avoidance ($\chi^2(2) = 14.40$, $p = .001$), and 3) Teacher B Academics ($\chi^2(2) = 26.82$, $p < .001$). The χ^2 test for Teacher A Academics revealed a marginally significant reduction in deviance with the linear-change parameter added to the model ($\chi^2(2) = 5.46$, $p = .06$). However, deviance did not reduce any further after the addition of a third growth parameter, $\beta_2 t^2$, to the equations for these five outcome variables; all χ^2 test statistics were significant at the .001 level. Linear-change models were therefore examined for these five variables, including Teacher A Academics.

Models of Linear Change

Following the steps outlined earlier, I next constructed models with the additional growth parameters from the previous step but without any Level-2 predictors for the outcome variables SLAQ School Liking, SLAQ School Avoidance, Teacher A Academics, Teacher B Academics, and aggression, and evaluated the between-subject variability in each model. The four outcome variables for which intercept-only models fit the data adequately (TRSSA School Liking, Teacher A; TRSSA School Liking, Teacher B; TRSSA School Avoidance, Teacher A; and TRSSA School Avoidance, Teacher B) are not included in this section because they are not models of linear change.

The significant t -ratios in Tables 9, 10, and 11 indicate the necessity of both the intercept parameter and the linear-change parameter to describe the mean growth trajectory of each of these five outcome variables (Kochenderfer-Ladd & Wardop, 2001;

Raudenbush & Bryk, 2002). Most importantly, however, the significant χ^2 results for both γ_{00} and γ_{10} for all five variables mean that *individual* children do indeed vary significantly from one another on SLAQ School Liking, SLAQ School Avoidance, Teacher A Academics, Teacher B Academics, and aggression, both in initial status and over time (Kochenderfer-Ladd & Wardop, 2001; Raudenbush & Bryk, 2002). This finding signifies the need for further investigation of the factors that contribute to this variation.

Conditional Models

The goal of this step in the analysis was to understand the ability of specific patterns of children's peer rejection, aggressive behaviour, and aggressive-rejected status to predict their school adjustment trajectories. The link between peer rejection and aggression over time was also examined, as was the possible influence of children's friends on their aggression and school adjustment. To achieve these aims, I added the dummy-coded level-2 predictors derived from children's membership or nonmembership in each one of the rejected (e.g., Rej.: YYYY, Rej.: YYNN, etc.), aggressive (e.g., Agg.: YYYY, Agg.: YYNN, etc.), and aggressive-rejected (e.g., Agg-Rej.: YYYY, Agg.-Rej.: YYNN, etc.) groups to separate intercept-only models for: 1) TRSSA School Liking, Teacher A; 2) TRSSA School Liking, Teacher B; 3) TRSSA School Avoidance, Teacher A; and 4) TRSSA School Avoidance, Teacher B. I also inserted these predictors into separate linear-change models for: 1) SLAQ School Liking, 2) SLAQ School Avoidance, 3) Teacher A Academics, and 4) Teacher B Academics. Finally, I examined the relation between different patterns of peer rejection on boys' and girls' aggression. Hierarchical models such as these with Level-2 predictors are known as "conditional models" (Kochenderfer-Ladd & Wardop, 2001; Raudenbush & Bryk, 2002; Raudenbush et al., 2001). I analyzed the teacher-rated variables (academics, school liking, and school

avoidance) independently because they had different patterns of missing data, which necessitated separate hierarchical analyses in order to preserve as many cases as possible.

Several precautions were taken to reduce multicollinearity and ensure the accuracy of the HLM analysis. First, only those groups that consisted of five or more participants were included as predictors in the conditional models, as per the recommendations of Hox (1995). Second, preliminary exploratory analyses were conducted for every Level-2 model that could potentially have included more than two predictors. In these cases, only those predictors with estimated t scores greater than or equal .80 were included for testing in the conditional models (Hox, 1995). Finally, the creation of separate models for persisting, desisting, onset, and intermittent status was also necessary in order to reduce the risk of multicollinearity.

Gender Differences

In order to determine whether sex might account for differences in children's school adjustment trajectories, models with children's sex as a potential predictor of each school adjustment variable were tested before the construction of models that included the behavioural and sociometric status variables. Results of these analyses revealed that sex did not account for change over time in children's scores on any of the school adjustment measures. However, sex did explain some of the difference among children in their initial scores on SLAQ Avoidance; TRSSA School Avoidance, Teacher A; TRSSA School Liking, Teacher A; and Teacher A Academics. The dummy-coded sex variable (0 = female, 1 = male) was therefore included in the conditional models for these five variables. In these cases, girls liked school significantly more than boys, they avoided it less than boys, and they demonstrated better academic performance than did boys.

Sex was also a significant contributor to differences in children's scores on aggression both at the beginning of the study ($\gamma_{01} = .90, p < .001$) and over time ($\gamma_{11} = .002, p = .01$). Boys demonstrated more aggressive behaviours than did girls throughout the study. For this reason, I analyzed boys' and girls' aggression separately.

Models of Stable Outcomes

As indicated above, the final step in HLM analysis involves the specification and testing of Level-2 predictors. The object of the analyses that follow was therefore to identify Level-2 predictors of the Level-1 intercept in equations for the four school adjustment variables to which intercept-only models fit the data best. Recall the Level-1 equation for intercept-only models: $Y_{ti} = \beta_{0i} + r_{ti}$, where Y = outcome for person i at time t , β_{0i} = the intercept, and r_{ti} = error. The intercept was defined in this study as children's initial status on the school adjustment variable at hand. Prior analysis of the deviance of linear-change and intercept-only models indicated that linear-change parameters decreased the fit of the models to be elaborated upon in this section. There are therefore no predictors of change over time in the following models. Given this absence of significant predictors of change and the fact that children's membership in a particular predictor group depended on their status over the four data collection points (e.g., Rej.: YYNN), it is feasible to infer stability across time for significant predictors of the school adjustment variables under investigation in this part of the study (see Kochenderfer-Ladd & Wardop, 2001). As previously mentioned, sex was included as a predictor in the models constructed for TRSSA School Liking and TRSSA School Avoidance, as rated by students' language arts/social studies teachers (Teacher A).

Language Arts/Social Studies Teacher-rated School Liking

Persistent rejected status. The level-2 model tested for the effect of stable rejected status on children's school liking as rated by their language arts/social studies

teachers (TRSSA School Liking, Teacher A) was $\beta_{0i} = \gamma_{00} + \gamma_{01}(\text{SEX}) + \gamma_{02}(\text{Rej.: YYYYY}) + \gamma_{03}(\text{Rej.: NNNN}) + u_{0i}$. All three predictors were significant ($\gamma_{01} = -.06, p = .002$; $\gamma_{02} = -.14, p = .05$; $\gamma_{03} = .09, p = .001$), which means that according to their language arts/social studies teachers, girls liked school more than boys, children who were rejected by their peers throughout the study appeared to like school consistently less across time than did children who were not rejected throughout, and children who were never rejected during the study liked school significantly more across time than did their peers with other sociometric profiles. These findings for children rejected throughout the study and children accepted throughout the study support Hypothesis 1 and Hypothesis 2, respectively.

Desisting rejected status. The level-2 model tested for the effect of desisting rejected status on TRSSA School Liking as rated by Teacher A was $\beta_{0i} = \gamma_{00} + \gamma_{01}(\text{SEX}) + \gamma_{02}(\text{Rej.: YYNN}) + \gamma_{03}(\text{Rej.: YYYN}) + \gamma_{04}(\text{Rej.: YNNN}) + u_{0i}$. Contrary to the predictions in Hypothesis 3, none of the predictors other than gender ($\gamma_{01} = -.07, p = .001$) were significant. Desisting rejected status was thus unrelated to children's school liking as rated by language arts/social studies teachers.

Onset of rejected status. The level-2 model tested for the effect of the onset of rejected status on TRSSA School Liking as rated by Teacher A was $\beta_{0i} = \gamma_{00} + \gamma_{01}(\text{SEX}) + \gamma_{02}(\text{Rej.: NNY}) + \gamma_{03}(\text{Rej.: NY}) + \gamma_{04}(\text{Rej.: NN}) + u_{0i}$. Once again, children's sex was the only significant predictor ($\gamma_{01} = -.07, p = .001$) of school liking in this model, contrary to the expectations outlined in Hypothesis 4. The onset of rejected status did not predict school liking in this instance.

Intermittent rejected status. The level-2 model tested for the effect of intermittent rejected status on TRSSA School Liking as rated by Teacher A was $\beta_{0i} = \gamma_{00} + \gamma_{01}(\text{SEX}) + \gamma_{02}(\text{Rej.: YNY}) + \gamma_{03}(\text{Rej.: NYN}) + \gamma_{04}(\text{Rej.: NNY}) + \gamma_{05}(\text{Rej.: NYN}) + \gamma_{06}(\text{Rej.:$

NYNY) + u_{0i} . Although sex remained a significant predictor of school liking in this model, none of the rejected-status predictors were significant.

Persistent aggressive status. The level-2 model tested for the effect of persistent aggressive status on children's school liking as rated by their language arts/social studies teachers was $\beta_{0i} = \gamma_{00} + \gamma_{01}(\text{SEX}) + \gamma_{02}(\text{Agg.: YYY}) + \gamma_{03}(\text{Agg.: NNN}) + u_{0i}$. Neither pattern of children's aggressive behaviour predicted their school liking in this instance.

Desisting aggressive status. The level-2 model tested for the effect of desisting aggressive status on TRSSA School Liking as rated by Teacher A can be represented as $\beta_{0i} = \gamma_{00} + \gamma_{01}(\text{SEX}) + \gamma_{02}(\text{Agg.: YYN}) + \gamma_{03}(\text{Agg.: YNN}) + u_{0i}$ (the group Agg.: YYN was not included because it did not have enough members; $N = 3$). Contrary to predictions, only children's sex emerged as a significant predictor ($\gamma_{01} = -.07, p = .001$). In this way, desisting aggression was not related to school liking in this model.

Onset of aggressive status. Here is the level-2 model tested for the effect of the onset of aggressive status on TRSSA School Liking as rated by Teacher A: $\beta_{0i} = \gamma_{00} + \gamma_{01}(\text{SEX}) + \gamma_{02}(\text{Agg.: NNY}) + \gamma_{03}(\text{Agg.: NY}) + \gamma_{04}(\text{Agg.: NNN}) + u_{0i}$. Continuing the trend, children's sex remained a significant predictor of the level-1 intercept ($\gamma_{01} = -.06, p = .002$); girls liked school more over time than did boys. In partial support of Hypotheses 2 and 4, Agg.: NY and Agg.: NNN were significant predictors of the intercept in this model ($\gamma_{03} = -.50, p = .05$; and $\gamma_{04} = .09, p = .01$). Children who were not aggressive until the final data collection point (Agg.: NNN) appeared to like school more across time than did their peers with different patterns of aggression, whereas children who became aggressive at the second data collection point and remained aggressive until the end of the study (Agg.: NY) liked school consistently less over time than did the rest of their peers.

Intermittent aggressive status. None of the groups of children with intermittent aggressive status contained enough members to warrant entry into statistical analysis (see Table 6).

Persistent aggressive-rejected status. The level-2 model tested for the effect of persistent aggressive-rejected status on children's TRSSA School Liking as rated by Teacher A was $\beta_{0i} = \gamma_{00} + \gamma_{01}(\text{SEX}) + \gamma_{02}(\text{Agg.-Rej.: YYYYY}) + \gamma_{03}(\text{Agg.-Rej.: NNNN}) + u_{0i}$. In partial support of Hypothesis 1, children who were not both aggressive and rejected at any point in the study (Agg.-Rej.: NNNN) liked school consistently more over time ($\gamma_{03} = .16, p = .004$) than did their peers with other sociometric and behavioural patterns. Sex was also a significant predictor of the intercept in this model ($\gamma_{01} = -.04, p = .03$).

Desisting aggressive-rejected status. None of the groups of children with desisting aggressive-rejected status had enough members to enter into hierarchical analysis (see Table 6).

Onset of aggressive-rejected status. Only the group of children with the "Agg.-Rej.: NYYY" pattern contained enough members for analysis. Consequently, the level-2 model for the effect of the onset of aggressive-rejected status on children's school liking as rated by their language arts/social studies teachers was: $\beta_{0i} = \gamma_{00} + \gamma_{01}(\text{SEX}) + \gamma_{02}(\text{Agg.-Rej.: NYYY}) + u_{0i}$. There were significant effects of sex ($\gamma_{01} = -.06, p = .002$) and aggressive-rejected status ($\gamma_{02} = -.44, p = .01$) in this model. Thus, in partial support of Hypothesis 4, children in this model who became both aggressive and rejected and maintained this status after the first data collection point liked school significantly less than did the rest of their peers both at the beginning of the study and across time.

Intermittent aggressive-rejected status. The model tested for the effect of intermittent aggressive-rejected status on teacher-rated school liking was $\beta_{0i} = \gamma_{00} +$

$\gamma_{01}(\text{SEX}) + \gamma_{02}(\text{Agg.-Rej.: NYNN}) + u_{0i}$. None of the other groups of children with intermittent patterns of aggressive-rejected status had enough members to enter into the hierarchical analysis. Agg.-Rej.: NYNN did not emerge as a significant predictor of children's school liking as rated by Teacher A. Intermittent aggressive-rejected status was therefore unrelated to children's school liking as rated by language arts/social studies teachers.

The influence of friends. Two models were examined for the effect of children's friends' aggression on their language arts teacher-rated school liking over time. In one, the aggressive status of aggressive children's best friends at Time 1 served as predictors in addition to gender ($\beta_{0i} = \gamma_{00} + \gamma_{01}(\text{SEX}) + \gamma_{02}(\text{Agg. w/Agg. Fr.}) + \gamma_{03}(\text{Agg. w/Nonagg. Fr.}) + u_{0i}$) and in the other, the aggressive status of nonaggressive children's best friends at Time 1 served as predictors ($\beta_{0i} = \gamma_{00} + \gamma_{01}(\text{SEX}) + \gamma_{02}(\text{Nongg. w/Nonagg. Fr.}) + \gamma_{03}(\text{Nonagg. w/Agg. Fr.}) + u_{0i}$). There were two reasons for conducting these analyses in this manner. First, assignment of children's friends into the persistent, desisting, onset, and intermittent groups created for other predictor variables resulted in a vast majority of groups with fewer than the five required members for analysis (Hox, 1995). Second, entry of the four predictor variables other than children's sex into the same hierarchical linear model resulted in a singular relationship among variables and rendered the analysis untenable. Results of the analysis indicated no significant effect of best friends' aggressive behaviour on children's school liking as judged by Teacher A.

Mathematics/Science Teacher-rated School Liking

The following level-2 models were constructed to gauge the effects of the same patterns of children's sociometric status, aggressive behaviour, and best friends' aggressive behaviour on their school liking as rated by their mathematics/science teachers (Teacher B). The representations of the hierarchical linear models tested in this

section are identical to those in the previous section, except that children's sex was not entered into any of the equations here because it did not emerge as a significant predictor of the intercept in preliminary analyses of the level-1 equation with mathematics/science teacher-rated school liking as the outcome variable.

Persistent rejected status. As predicted in Hypothesis 2, children who were not rejected by their peers at any point during the study (Rej.: NNNN) liked school significantly more than their peers who were rejected one or more times ($\gamma_{02} = .10, p = .002$). Since the Rej.: NNNN pattern of sociometric status predicted the level-1 intercept in an intercept-only model, it is safe to infer that this higher level of school liking remained constant over time (Kochenderfer-Ladd & Wardop, 2001). Contrary to predictions, however, children who were rejected at each time point did not like school significantly less than their peers who were not rejected throughout the study ($\gamma_{01} = -.12, p = .14$).

Desisting rejected status. Of the three level-2 predictors tested in the model of the effect of desisting rejected status on children's TRSSA School Liking as rated by Teacher B, only Rej.: YYNN was significant ($\gamma_{01} = -.61, p = .04$). Thus, children who were not rejected by their peers at the first two measurement points but who were rejected at the final two appeared to like school significantly less than their classmates over time. This finding contradicts Hypothesis 3, because children who became accepted did not begin to like school more than they previously had.

Onset of rejected status, intermittent rejected status. None of the level-2 predictors in either of these two models were significant. Thus, the fact that certain children became rejected over time did not affect their liking of school according to their mathematics/science teachers, as predicted in Hypothesis 4, and erratic changes in rejected status also had no effect as projected they would in Hypothesis 5.

Aggressive behaviour. None of the level 2 predictors introduced into any of the three models of aggression's effect on school liking tested here (persisting, desisting, and onset of aggressive status) were significant. The aggressive behaviour of children in this sample was thus not related to their TRSSA School Liking as rated by Teacher B.

Patterns of aggressive-rejected status. In the three models tested with different patterns of children's aggressive-rejected status as predictors of their mathematics/science teacher-rated school liking (persistent, onset of, and intermittent aggressive-rejected status), only persistent lack of aggression and peer rejection over time (Agg.-Rej.: NNNN) had a marginally significant effect on children's school liking ($\gamma_{02} = .10, p = .09$). Children who never had aggressive-rejected status thus appeared to like school consistently more than their peers over time, as predicted in Hypothesis 2.

The influence of friends. There were no significant level-2 predictors of children's school liking as rated by Teacher B in either of the models of friends' influence tested. The aggressive behaviour of children's friends therefore does not appear to predict this outcome variable, as hypothesized.

Language Arts/Social Studies Teacher-rated School Avoidance

The level-2 models tested in this section are identical to those tested for the effects of children's sociometric status, aggressive behaviour, and best friends' aggressive behaviour on their school liking as rated by their language arts/social studies teachers (Teacher A), except that the outcome variable here was TRSSA School Avoidance as perceived by Teacher A.

Persistent rejected status. As envisaged in Hypotheses 1, children who were rejected by their peers at all four data collection points (Rej.: YYYY) demonstrated a significantly higher level of school avoidance (as judged by their language arts/social studies teachers) than did their peers who were not rejected throughout the study, and

they maintained this tendency to avoid school over time ($\gamma_{02} = .19, p = .01$). In contrast, children who were not rejected by their peers at any point during the study (Rej.: NNNN) received significantly lower ratings of school avoidance from Teacher A across time than did their peers who were rejected on one or more occasions ($\gamma_{03} = -.04, p = .01$). This finding supports Hypothesis 2.

Desisting rejected status. Of the four predictors entered into the model of the effects of gender and different patterns of desisting rejected status on children's language arts/social studies teacher-rated school avoidance (sex, Rej.: YYNN, Rej.: YYYN, Rej.: YNNN), only Rej.: YYNN was significant ($\gamma_{02} = -.06, p < .001$). Thus, children who became accepted by their peers at Time 3 avoided school less than did the rest of their peers with different patterns of rejection, both at the beginning of the study and across time. This finding offers partial support for Hypothesis 3 because children's acceptance by their peers at Time 3 and Time 4 coincided with low levels of school avoidance. However, the fact that the level of school avoidance that these children demonstrated was lower than that of their peers across all time points of the study was unexpected.

Onset of rejected status. None of the predictors entered into the level-2 model for the effect of the onset of rejected status on TRSSA School Avoidance as rated by Teacher A were significant. There was thus no support for Hypothesis 4 for TRSSA School Avoidance as rated by Teacher A.

Intermittent rejected status. Only two of the six predictors in the level-2 model for the effect of intermittent rejected status on TRSSA School Liking (Teacher A) were significant: Rej.: YNYY ($\gamma_{02} = .25, p = .002$) and Rej.: NNYN ($\gamma_{04} = -.09, p < .001$). This means that according to Teacher A, children who were rejected by their peers at Time 1, Time 3, and Time 4 (Rej.: YNYY) avoided school consistently more over time than did the rest of their peers in this particular model, whereas children who were only rejected

at Time 3 (Rej.: NNYN) avoided school consistently less over time than did their peers. The constancy of these tendencies to avoid school over time on the part of children with these patterns of sociometric status does not support Hypothesis 5.

Persistent aggressive status. As predicted in Hypothesis 1, children who behaved aggressively toward their peers throughout the study (Agg.: YYYY) avoided school significantly more over time than did their peers who did not exhibit aggressive behaviour consistently ($\gamma_{02} = .10, p = .03$). Children's sex was also a significant predictor of school avoidance in this model ($\gamma_{01} = .19, p = .01$); girls avoided school more than boys did, according to Teacher A. These results do not completely support Hypothesis 2, however, because Agg.: NNNN was nonsignificant.

Desisting aggressive status and onset of aggressive status. There were no significant predictors of school avoidance in these level-2 models with children's desisting aggressive status (Agg.: YYYN, Agg.: YNNN) and onset of aggressive status (Agg.: NNYN, Agg.: NYNN, Agg.: NNNY) as predictors. These changes in aggressive status were not related to children's school avoidance as rated by their language arts/social studies teachers. Thus, there was no support for Hypothesis 3 or for Hypothesis 4 with TRSSA School Avoidance (Teacher A) as the level-1 outcome variable.

Persistent aggressive-rejected status. In support of Hypothesis 2, children who were never both rejected by and aggressive toward their peers at any point during the study (Agg.-Rej.: NNNN) avoided school significantly less according to Teacher A than did their peers who were both aggressive and rejected at one or more junctures ($\gamma_{03} = -.07, p = .02$). However, children who were both aggressive and rejected throughout the study (Agg.-Rej.: YYYY) did not avoid school any more than did the rest of their peers, as predicted in Hypothesis 1.

Onset of aggressive-rejected status and intermittent aggressive-rejected status.

None of the predictors entered into these level-2 models for the effect of the onset of aggressive-rejected status on TRSSA School Liking as rated by Teacher A were significant. Onset of and intermittent aggressive-rejected status did not predict school avoidance over time, which does not support Hypothesis 4 or Hypothesis 5 with TRSSA School Liking as rated by Teacher A as the outcome variable.

The influence of friends. Curiously, analyses of the two models constructed with children's friends' aggression as predictors of their language arts teacher-rated school avoidance over time indicated that children who were aggressive and who had an aggressive best friend (Agg. w/Agg. Fr.) at Time 1 avoided school significantly less on a consistent basis over time than did their peers ($\gamma_{02} = -.10, p < .001$), and that children who were not aggressive but who had an aggressive best friend at Time 1 (Nonagg. w/Agg. Fr.) avoided school consistently more than did their peers without an aggressive friend over time ($\gamma_{03} = .15, p = .04$). The former result therefore does not support Hypothesis 11, whereas the latter does.

Mathematics/Science Teacher-rated School Avoidance

The following level-2 models are identical to those in the previous section, except that the outcome variable for all of their corresponding level-1 models was TRSSA School Avoidance as perceived by Teacher B.

Persistent rejected status. As predicted in Hypothesis 1, children who were rejected at all four junctures of the study (Rej.: YYYY) avoided school consistently more over time according to their mathematics/science teachers than did their peers who were accepted by their peers on one or more occasions ($\gamma_{01} = .15, p = .05$). Yet children who were never rejected by their classmates (Rej.: NNNN) did not avoid school any less over time than did their peers who were rejected more often, as predicted in Hypothesis 2.

Desisting rejected status, onset of rejected status, and intermittent rejected status.

Desisting rejected status (Rej.: YYNN, Rej.: YYYN, Rej.: YNNN), the onset of rejected status (Rej.: NNYY, Rej.: NYYY, Rej.: NNNY), and the different patterns of intermittent rejected status (Rej.: YNYY, Rej.: NYNN, Rej.: NNYN, Rej.: NYYN, Rej.: NYNY) were not related to school avoidance over time in this model.

Persistent aggressive status. Contrary to expectations, neither pattern of children's aggressive behaviour predicted their school avoidance in this model. Children who were aggressive throughout the study (Agg.: YYYY) and children who were not aggressive at any point during the study (Agg.:NNNN) did not avoid school any more or any less than did their peers.

Desisting aggressive status. In partial support of Hypothesis 3, analysis of the level-2 model for the effect of desisting aggressive status on school avoidance revealed that children whose aggressive behaviour toward their peers abated over time (Agg.: YYYN, Agg.: YNNN) avoided school consistently less than did the rest of their peers with different behavioural profiles ($\gamma_{01} = -.54, p = .001$; $\gamma_{02} = -.54, p = .001$).

Onset of aggressive status. According to Teacher B, children who became aggressive at Time 3 and remained aggressive at Time 4 (Agg.: NNYY) avoided school steadily more across the four time points of the study than did their peers with other behavioural profiles ($\gamma_{01} = .13, p = .05$). Yet the other two "onset" predictors (Agg.: NYYY, Agg.: NNNY) were not significant in this model. These findings offer partial support for Hypothesis 4.

Persistent aggressive-rejected status. Neither predictor of persistent aggressive-rejected status (Agg.-Rej.: YYYY, Agg.-Rej.: NNNN) was significant in the level-2 model for the effect of this behavioural profile on the level-1 intercept with school avoidance (as rated by mathematics/science teachers) as the outcome variable.

Onset of aggressive-rejected status. In this level-2 model of the effect of the onset of aggressive-rejected status on children's school avoidance, children who became both aggressive and rejected at Time 2 and maintained this status until the end of the study (Agg.-Rej.: NYYY) avoided school significantly less than did the rest of their peers with different sociometric and behavioural profiles ($\gamma_{01} = -.05, p = .004$). This result is directly counter to the expectation that children who became aggressive and rejected would avoid school significantly more than their peers over time.

Intermittent aggressive-rejected status. None of the predictors in this model of children's school avoidance were significant. Thus, children's intermittent aggressive-rejected status (Agg.-Rej.: NYNN) did not predict their levels of school avoidance, as judged by their mathematics/science teachers.

The influence of friends. This level-2 model did not contain any significant predictors of children's school avoidance as rated by their mathematics/science teachers. The aggressive behaviour of their best friends did not predict their school avoidance as judged by Teacher B.

Models of Linear Change

The models that follow contain a level-1 slope (β_{1i}) and consequently also contain predictors of change over time at level 2 ($\gamma_{11}, \gamma_{12} \dots \gamma_{1i}$). The level-1 equation for these models of linear change is therefore: $Y_{ti} = \beta_{0i} + \beta_{1i} + r_{ti}$, where Y = outcome for person i at time t , β_{0i} = the intercept, β_{1i} = the slope, and r_{ti} = error. The same patterns of rejected, aggressive, and aggressive-rejected status as in the previous section served as level-2 predictors of the level-1 intercept and slope for 1) children's self-rated school liking (SLAQ Liking), 2) children's self-rated school avoidance (SLAQ Avoidance), 3) their academic performance as judged by their language arts/social studies teachers (Teacher A Academics), and 4) their academic performance as judged by their

mathematics/science teachers. Finally, there are linear-change models of the effects of peer rejection on boys' and girls' aggression over time at the end of this segment.

SLAQ School Liking

The purpose of the models that follow was to determine the link between the various level-2 predictors outlined above and children's own ratings of their school liking, as measured by the SLAQ.

Persistent rejected status. The level-2 model tested here may be represented as:

1. $\beta_{0i} = \gamma_{00} + \gamma_{01}(\text{Rej.}: \text{YYYY}) + \gamma_{02}(\text{Rej.}: \text{NNNN}) + u_{0i}$; and
2. $\beta_{1i} = \gamma_{10} + \gamma_{11}(\text{Rej.}: \text{YYYY}) + \gamma_{12}(\text{Rej.}: \text{NNNN}) + u_{1i}$.

Neither predictor was significant, which indicates that stable rejected status did not affect children's self-reported school liking over time.

Desisting rejected status. The level-2 model tested for the effect of different patterns of desisting rejected status on SLAQ School Liking was:

1. $\beta_{0i} = \gamma_{00} + \gamma_{01}(\text{Rej.}: \text{YYNN}) + \gamma_{02}(\text{Rej.}: \text{YYYN}) + \gamma_{03}(\text{Rej.}: \text{YNNN}) + u_{0i}$; and
2. $\beta_{1i} = \gamma_{10} + \gamma_{11}(\text{Rej.}: \text{YYNN}) + \gamma_{12}(\text{Rej.}: \text{YYYN}) + \gamma_{13}(\text{Rej.}: \text{YNNN}) + u_{1i}$.

None of the above predictors were significant for the intercept or the slope. Contrary to predictions, children who became accepted by their peers as time passed did not report increases in their school liking, despite their new sociometric status.

Onset of rejected status. The level-2 model tested for the effect of different patterns of the onset of rejected status on SLAQ School Liking was:

1. $\beta_{0i} = \gamma_{00} + \gamma_{01}(\text{Rej.}: \text{NNYY}) + \gamma_{02}(\text{Rej.}: \text{NYYY}) + \gamma_{03}(\text{Rej.}: \text{NNNY}) + u_{0i}$; and
2. $\beta_{1i} = \gamma_{10} + \gamma_{11}(\text{Rej.}: \text{NNYY}) + \gamma_{12}(\text{Rej.}: \text{NYYY}) + \gamma_{13}(\text{Rej.}: \text{NNNY}) + u_{1i}$.

Once again, none of these predictors were significant. Children who became rejected by their peers as the study progressed thus did not demonstrate the hypothesized decrease in school liking.

Intermittent rejected status. The level-2 model tested for the effect of fluctuating rejected status on children's self-rated school liking was:

1. $\beta_{0i} = \gamma_{00} + \gamma_{01}(\text{Rej.}: \text{YNYYY}) + \gamma_{02}(\text{Rej.}: \text{NYNN}) + \gamma_{03}(\text{Rej.}: \text{NNYN}) + \gamma_{04}(\text{Rej.}: \text{NYYN}) + \gamma_{05}(\text{Rej.}: \text{NYNY}) + u_{0i}$; and
2. $\beta_{1i} = \gamma_{10} + \gamma_{11}(\text{Rej.}: \text{YNYYY}) + \gamma_{12}(\text{Rej.}: \text{NYNN}) + \gamma_{13}(\text{Rej.}: \text{NNYN}) + \gamma_{14}(\text{Rej.}: \text{NYYN}) + \gamma_{15}(\text{Rej.}: \text{NYNY}) + u_{1i}$.

In this hierarchical model, children who endured the rejection of their peers at Time 1, Time 3, and Time 4 (Rej.: YNYYY) exhibited a significant decrease in their self-rated school liking over time. Although this finding supports the notion that rejection might have a nefarious effect on school liking over time, the absence of such findings for the other intermittent predictors and of quadratic change suggests the need for refinement of Hypothesis 5.

Persistent aggressive status. The level-2 model for the effect of persistent aggressive status on SLAQ School Liking can be represented in the following way:

1. $\beta_{0i} = \gamma_{00} + \gamma_{01}(\text{Agg.}: \text{YYYY}) + \gamma_{02}(\text{Agg.}: \text{NNNN}) + u_{0i}$; and
2. $\beta_{1i} = \gamma_{10} + \gamma_{11}(\text{Agg.}: \text{YYYY}) + \gamma_{12}(\text{Agg.}: \text{NNNN}) + u_{1i}$.

Contrary to predictions, children's aggressive behaviour did not predict either the intercept or the slope of the level-1 equation that corresponds to this level-2 model. Aggression therefore did not appear related to children's self-reported school liking either at the beginning of the study or over time, as predicted.

Desisting aggressive status. The level-2 model for desisting aggressive status and its effect on children's self-rated school liking was:

1. $\beta_{0i} = \gamma_{00} + \gamma_{01}(\text{Agg.}: \text{YYYN}) + \gamma_{02}(\text{Agg.}: \text{YNNN}) + u_{0i}$; and
2. $\beta_{1i} = \gamma_{10} + \gamma_{11}(\text{Agg.}: \text{YYYN}) + \gamma_{12}(\text{Agg.}: \text{YNNN}) + u_{1i}$.

As in the previous model, neither of these predictors were significant estimators of the intercept of the slope. In this way, children whose aggressive behaviour decreased over time did not necessarily like school any more or less than their peers at the beginning of the study, and their school liking did not change over time.

Onset of aggressive status. Here, the level-2 model tested was:

1. $\beta_{0i} = \gamma_{00} + \gamma_{01}(\text{Agg.: NNYY}) + \gamma_{02}(\text{Agg.: NYYY}) + \gamma_{03}(\text{Agg.: NNNY}) + u_{0i}$; and
2. $\beta_{1i} = \gamma_{10} + \gamma_{11}(\text{Agg.: NNYY}) + \gamma_{12}(\text{Agg.: NYYY}) + \gamma_{13}(\text{Agg.: NNNY}) + u_{1i}$.

None of the predictors were significant in this model. This means that the onset of aggressive status did not have an effect on children's self-reported school liking over time.

Persistent aggressive-rejected status. The level-2 model for the effect of persistent aggressive-rejected status on children's SLAQ School Liking over time was:

1. $\beta_{0i} = \gamma_{00} + \gamma_{01}(\text{Agg.-Rej.: YYYY}) + \gamma_{02}(\text{Agg.: NNNN}) + u_{0i}$; and
2. $\beta_{1i} = \gamma_{10} + \gamma_{11}(\text{Agg.-Rej.: YYYY}) + \gamma_{12}(\text{Agg.-Rej.: NNNN}) + u_{1i}$.

Neither pattern of status was a significant predictor of the level-1 intercept or slope.

There was therefore no apparent link between stable aggressive-rejected status and children's self-reported school liking at the beginning of the study or over time.

Onset of aggressive-rejected status. The level-2 model tested in this instance was:

1. $\beta_{0i} = \gamma_{00} + \gamma_{01}(\text{Agg.-Rej.: NYYY}) + u_{0i}$; and
2. $\beta_{1i} = \gamma_{10} + \gamma_{11}(\text{Agg.-Rej.: NYYY}) + u_{1i}$.

Children who became both aggressive and rejected at Time 2 and remained so for the duration of the study did not report significant differences in their school liking relative to their peers with different sociometric and behavioural profiles. This result does not support Hypothesis 4.

Intermittent aggressive-rejected status. The level-2 model for the effect of fluctuating aggressive-rejected status on children's school liking over time was:

$$1. \beta_{0i} = \gamma_{00} + \gamma_{01}(\text{Agg.-Rej.: NYNN}) + u_{0i}; \text{ and}$$

$$2. \beta_{1i} = \gamma_{10} + \gamma_{11}(\text{Agg.-Rej.: NYNN}) + u_{1i}.$$

This predictor was not significant for either the slope or the intercept. This particular change in children's aggressive-rejected status therefore had no bearing on their self-reported school liking at any point during the study, as predicted it would in Hypothesis 5.

The influence of friends. The two models tested for the influence of best friends' aggressive behaviour on individual children's self-reported school liking over time were:

$$1. \beta_{0i} = \gamma_{00} + \gamma_{01}(\text{Agg. w/Agg. Fr. T1}) + \gamma_{02}(\text{Agg. w/Nonagg. Fr. T1}) + u_{0i};$$

$$2. \beta_{1i} = \gamma_{10} + \gamma_{11}(\text{Agg. w/Agg. Fr. T1}) + \gamma_{12}(\text{Agg. w/Nonagg. Fr. T1}) + u_{0i} \text{ for aggressive children who had either aggressive or nonaggressive best friends at Time 1 and:}$$

$$1. \beta_{0i} = \gamma_{00} + \gamma_{01}(\text{Nonagg. w/Nonagg. Fr. T1}) + \gamma_{02}(\text{Nonagg. w/Agg. Fr. T1}) + u_{0i};$$

$$2. \beta_{1i} = \gamma_{10} + \gamma_{11}(\text{Nonagg. w/Nonagg. Fr. T1}) + \gamma_{12}(\text{Nonagg. w/Agg. Fr. T1}) + u_{0i} \text{ for nonaggressive children with either nonaggressive or aggressive friends.}$$

Analyses of these two models showed that aggressive children who had aggressive friends at Time 1 liked school consistently more than did their peers throughout the study ($\gamma_{01} = .12, p = .04$). This result is counter to Hypothesis 11, which stipulated that children with aggressive friends would demonstrate significant decreases over time in their school liking. There were no significant predictors in the second level-2 model.

SLAQ School Avoidance

The models tested in this section are identical to those in the previous section, except that the outcome variable in the following analyses was SLAQ School Avoidance

instead of SLAQ School Liking. Children's sex was also added as a predictor of the intercept term in each level-2 model due to preliminary findings of differences between boys' and girls' school avoidance. Gender was significant in all models, with boys avoiding school more than girls at the beginning of the study and across time.

Persistent rejected status. Contrary to expectations, persistent rejected status did not predict children's self-reported school avoidance.

Desisting rejected status, onset of rejected status, and intermittent rejected status. None of the predictors in the level-2 models for the effects of desisting, onset of, and intermittent rejected status were significant. It therefore appears that changes in children's rejected status did not affect their self-reported tendency to avoid school, as predicted it would in Hypotheses 3, 4, and 5.

Persistent aggressive status and desisting aggressive status. Similarly, none of the predictors in the level-2 models for the effects of these patterns of aggressive behaviour were significant either. Stable aggressive behaviour in children over time and the cessation of were not related to their school avoidance as predicted.

Onset of aggressive behaviour. The onset of aggressive behaviour did predict children's self-reported school avoidance over time. Interestingly, those who became aggressive by Time 4 (Agg.: NNNY) demonstrated a significant *decrease* in their school avoidance over time ($\gamma_{13} = -.003, p = .04$), contrary to Hypothesis 4. The finding that children who became aggressive at Time 2 and remained aggressive thereafter (Agg.: NYYY) avoided school significantly more than did the rest of their peers in the model on a consistent basis over time ($\gamma_{03} = .51, p = .02$) was more congruent with expectations of school avoidance on the part of aggressive children.

Persisting, onset of, and intermittent aggressive-rejected status. None of these level-2 models contained significant predictors of the level-1 intercept or slope for

children's self-rated school avoidance. Aggressive-rejected status therefore did not affect SLAQ School Avoidance as predicted.

The influence of friends. None of the predictors in this model were significant: The aggressive behaviour of children's best friends did not affect their school avoidance.

Teacher A Academics

The predictors in the level-2 models in the following section are identical to those in the previous two. The outcome variable in the following analyses was children's academic performance as judged by their language arts/social studies teachers (Teacher A). Gender was a significant predictor of the intercept in all models, with girls performing better in school than boys at the beginning of the study and across time. Gender did not affect change over time in children's academic performance, however.

Persistent rejected status. As expected, children who were rejected at each data collection point (Rej.: YYYY) performed significantly worse in school according to their language arts/social studies teachers than did their peers who were not rejected throughout the study ($\gamma_{02} = -.70, p = .004$). On the other hand, children who were not rejected at any point during the study (Rej.: NNNN) performed significantly better in school than did their peers who were rejected one or more times ($\gamma_{03} = .59, p < .001$). Since neither predictor was significant in the level-2 equation for the prediction of the level-1 slope, it is reasonable to infer that these effects remained stable over time, as predicted in Hypotheses 1 and 2.

Desisting rejected status. Contrary to expectations, children who became accepted by their peers during the study did not improve their academic performance over time. In fact, children who became accepted at Time 2 and remained accepted after that (Rej.: YNNN) demonstrated consistently worse academic performance than their

peers with different patterns of sociometric status, both at the beginning of the study and over time ($\gamma_{02} = -.33, p = .03$).

Onset of rejected status. Of the three patterns of the onset of rejected status entered into this level-2 model (Rej.: NNYY, Rej.: NYYY, Rej.: NYNY), Rej.: NYYY emerged as a significant predictor of the level-1 intercept but not of the level-1 slope ($\gamma_{03} = -1.04, p < .001$). This means that children who were rejected by their peers at Time 2 and beyond displayed consistently poorer academic performance than did the rest of their peers in this model. Instead of a decrease in academic performance as predicted, this result indicates consistently poor academic performance across time.

Intermittent rejected status. Children who were rejected by their peers at Time 1, Time 3, and Time 4 (Rej.: YNYY) performed worse in school according to Teacher A than did the rest of their peers in the model ($\gamma_{02} = -1.30, p < .001$). This pattern of rejected status did not predict change over time, thus it appears that children who exhibited it maintained their low level of academic performance throughout the study. Children whose rejected status vacillated (Rej.: NYNY) performed more poorly in school according to Teacher A than did their peers with other sociometric profiles (except for Rej.: YNYY) at Time 1 ($\gamma_{06} = -.89, p = .04$), but their academic performance actually improved over time ($\gamma_{15} = .005, p = .01$). These results do not support Hypothesis 5, which stipulated that academic performance would vacillate along with changes in rejected status.

Persistent aggressive status. In this level-2 model, persistent aggressive status was not a significant predictor of children's academic performance, contrary to the expectations outlined in Hypotheses 1 and 2.

Desisting aggressive status. Neither of the level-2 predictors in this model (Agg.: YYYN, Agg.: YNNN) were significant. Decreases in children's aggressive behaviour

thus did not affect their academic performance, as rated by their language arts/social studies teachers.

Onset of aggressive status. Change in aggressive status did matter in this particular model, however. As predicted, children who became aggressive at Time 3 and remained aggressive at Time 4 (Agg.: NNYY) demonstrated a marginally significant decrease in their academic performance over time ($\gamma_{11} = -.004, p = .07$), although they did not differ from their peers in academics at the beginning of the study ($\gamma_{02} = -.18, p = .59$). The development of aggressive behaviour thus corresponded to the decline in children's classroom performance, as predicted in Hypothesis 4. Analysis of this model also revealed that children who displayed aggressive behaviour at the three final time points (Agg.: NYYY) performed consistently worse than did their peers in school. These results are illustrated in Figure 1.

Persistent aggressive-rejected status. As expected, Agg.-Rej.: NNNN was a significant predictor of the level-1 intercept in the model of the effect of persistent aggressive-rejected status on children's language arts/social studies teacher-rated academic performance ($\gamma_{03} = .77, p < .001$). However, children who were consistently both aggressive and rejected (Agg.-Rej.: YYYY) did not demonstrate significantly poorer school performance than did their peers as hypothesized.

Onset of aggressive-rejected status. In partial support of Hypothesis 4, children who became and remained simultaneously aggressive and rejected (Agg.-Rej.: NYYY) performed significantly worse on a consistent basis than did their peers with different sociometric and behavioural profiles ($\gamma_{02} = -1.19, p = .001$). However, this outcome did not change as a result of the change in their aggressive status as expected.

Intermittent aggressive-rejected status. The level-2 predictor (Agg.-Rej.: NYNN) in the model for the effect of intermittent aggressive-rejected status on academic

performance was not significant. Changes in aggressive-rejected status therefore did not affect academic performance as rated by Teacher A.

The influence of friends. The friends of aggressive children did appear to affect their academic performance, however. Specifically, aggressive children who had aggressive friends at Time 1 demonstrated a steady decrease in their academic performance as rated by Teacher A over time ($\gamma_{11} = -.004, p = .05$; see Figure 2).

Teacher B Academics

The models that follow are identical to those in the previous three sections, with two exceptions: 1) The level-1 outcome variable was children's academic performance as judged by their mathematics/science teachers (Teacher B), and 2) gender was not included as a predictor of the level-1 intercept because it did not emerge as significant in preliminary analyses.

Persistent rejected status. As expected, children who were rejected throughout the study (Rej.: YYYY) exhibited significantly and consistently lower academic performance (as rated by their mathematics/science teachers) than did their peers who did not endure constant rejection ($\gamma_{01} = -.56, p = .007$). Also as expected, children who were not rejected at any point during the study exhibited the highest levels of academic performance in this model ($\gamma_{02} = .60, p < .001$). The lack of significant findings for the level-1 slope again signifies the consistency of the participants' level of academic prowess over time.

Desisting rejected status. Findings from this level-2 model indicated that children who became accepted by their peers at the final data collection point (Rej.: YYYN) performed worse in mathematics and science than did the majority of their peers at the beginning of the study ($\gamma_{02} = -.52, p = .04$). This finding offers partial support for Hypothesis 3 (see Figure 3). Analysis of this model also revealed that children who were

rejected by their peers at Time 1 but who became accepted thereafter (Rej.: YNNN) performed worse in school than did the rest of the children in the model, both at the beginning of the study and over time ($\gamma_{03} = -.63, p = .001$). This result was not foreseen.

Onset of rejected status. This model also contained predictors that had the expected effects on children's academic performance. Specifically, children who became rejected at Time 2 and remained rejected for the rest of the study (Rej.: NYYY) exhibited poorer academic performance as rated by Teacher B than did the rest of their peers in this model at Time 1 ($\gamma_{02} = -.50, p = .006$), and their classroom functioning deteriorated over time ($\gamma_{12} = -.006, p = .003$). Thus, children who became rejected began to do worse in school. This result supports Hypothesis 4 and is represented graphically in Figure 4. The other patterns of onset (Rej.: NNYY, Rej.: NNNY) were not significant predictors of mathematics/science teacher-rated academic functioning in this model, however.

Intermittent rejected status. Although the lack of fit between a quadratic model and the present data precludes fluctuation of academic performance as an exact function of change in sociometric or behavioural status over time as hypothesized, there were nonetheless intriguing findings among the patterns of intermittent rejected status entered as predictors of mathematics/science teacher-rated academic functioning. Children who were accepted by their peers only at Time 2 but rejected at every other juncture (Rej.: YNYY) performed worse in school than did the rest of their peers in this model, both at the beginning of the study and over time ($\gamma_{01} = -1.13, p < .001$). Similarly, children who alternated between accepted and rejected status (Rej.: NYNY) performed consistently worse in school according to Teacher B than did the rest of the children in the model ($\gamma_{05} = -.53, p = .01$), except for those rejected three times out of four (Rej.: YNYY). These

results support the notion that rejection can hinder academic performance and that change in rejected status can contribute to improvement.

Persistent aggressive status. As predicted in Hypothesis 2, children who were never classified as aggressive by their peers during the study performed consistently better in school over time according to their mathematics/science teachers than did children who displayed other patterns of behaviour ($\gamma_{02} = .25, p = .04$). However, children who were aggressive throughout the study did not perform significantly worse in school than did their peers ($\gamma_{01} = -.22, p = .20$), as predicted they would in Hypothesis 1.

Desisting aggressive status. Neither of the level-2 predictors (Agg.: YYYN, Agg.: YNNN) in this model were significant. The elimination of aggressive behaviour thus did not affect children's academic performance as rated by their mathematics/science teachers.

Onset of aggressive status. Contrary to expectations, there were no significant linear trends in this model. However, children who were aggressive toward their peers over the final three time points of the study (Agg.: NYYY) displayed significantly worse academic performance than did their peers with different patterns of behaviour ($\gamma_{02} = -.79, p = .03$), both at the beginning of the study and over time.

Persistent aggressive-rejected status. As predicted, children who were not both aggressive and rejected at any point during the study (Agg.-Rej.: NNNN) demonstrated consistently better school performance over time than did the rest of their peers in the model ($\gamma_{02} = .74, p < .001$). Yet children who were both aggressive and rejected throughout the study did not demonstrate significantly different academic performance from their peers across time, which does not support Hypothesis 1.

Onset of aggressive-rejected status. Participants who were classified as both aggressive and rejected after Time 1 (Agg.-Rej.: NYYY) performed consistently worse in school than did their peers over time ($\gamma_{01} = -.91, p = .01$). Analysis of this model did not reveal the expected change over time, however.

Intermittent aggressive-rejected status. The predictor in this model (Agg.-Rej.: NYNN) was not significant. Fluctuating aggressive-rejected status therefore did not affect academic outcome.

The influence of friends. None of the predictors in this level-2 model were significant.

Boys' Aggression

Due to the significant effect of gender on aggressive behaviour both at the beginning of the study and over time, I analyzed the effect of the different patterns of peer rejection (persistent, desisting, onset, and intermittent) and best friends' aggressive behaviour on boys' and girls' aggression separately. The formal notation for the following level-2 models with aggression as the outcome variable is the same as in the previous section, itself patterned after the models for SLAQ School Liking. Since none of the predictor variables were significant in any of the models for girls, only the results for boys are reported here.

In order to make meaningful inferences about the direction of influence between peer rejection and aggression over time, I also performed analyses of the potential effects of patterns of children's aggressive behaviour on their peer rejection over time. Out of all possible patterns of aggressive behaviour over time, only one was a significant predictor of boys' peer rejected status over time. However, the statistical model that generated this finding was highly unreliable, with a reliability estimate of only .17. This means that

replication of such a finding is highly unlikely, even within the same data set (Raudenbush & Bryk, 2002).

Persistent rejected status. Boys who were constantly rejected by their peers (Rej.:YYYY) demonstrated significantly higher levels of aggression than did boys who were not rejected throughout the study ($\gamma_{01} = 1.82, p < .001$); this high level of aggression remained stable over time. In contrast, boys who were not rejected by their peers at all during the study (Rej.:NNNN) demonstrated significant and consistently lower levels of aggressive behaviour than did boys with different patterns of sociometric status ($\gamma_{02} = -.45, p = .01$). These findings support Hypotheses 6 and 7, which suggested that peer rejection would coincide with higher levels of aggression and that peer acceptance would predict lower levels of aggression.

Desisting rejected status. Contrary to expectations, desisting rejected status did not predict boys' aggressive behaviour over time.

Onset of rejected status. In this particular model, boys who were rejected by their peers at Time 4 (Rej.:NNNY) exhibited a significant increase in their aggressive behaviour over time ($\gamma_{13} = .008, p = .04$). This finding supports Hypothesis 9 and is represented in Figure 5.

Intermittent rejected status, the influence of friends. None of the predictors in these level-2 models were significant, which does not support Hypothesis 10 or Hypothesis 11, which put forth the expectation that fluctuating rejected status and best friends would appear to influence their aggressive behaviour. Fluctuations in boys' rejected status did not affect their aggressive behaviour over time, nor did the aggressive behaviour of their best friends at Time 1.

Reinterpretation of Results to Compensate for Problems of Alpha Slippage

The exploratory nature of the present study required a large number of analyses. The conduct of such a large number of separate analyses increases the risk of generating spurious results. The purpose of this section is therefore to highlight the most robust findings from the current investigation, in order to minimize the probability of drawing false conclusions about the relations among children's rejected status, aggressive behaviour, and school adjustment. Whereas alpha was set at .05 elsewhere in the results section, the results that follow are all significant at the .01 level.

Even with alpha set at .01, persistent rejected status remained a significant predictor of children's school liking, school avoidance, and academic performance. Specifically, both language arts/social studies and mathematics/science teachers noted that children who were not rejected at any point during the study (Rej.: NNNN) tended to like school better and to perform better academically over time than did their peers who were rejected at one time or another. In addition, language arts/social studies teachers indicated that children who were rejected throughout the study (Rej.: YYYYY) demonstrated a significantly higher level of school avoidance over time than did their peers who were not persistently rejected. Both teachers also observed that children who endured the rejection of their peers throughout the study exhibited consistently poorer academic performance than did their peers over time.

A number of other findings also remained significant at the .01 level. According to both teachers, children who were not both aggressive and rejected at any time during the study (Agg.-Rej.: NNNN) performed better in school than did their more frequently aggressive and rejected peers. Language arts/social studies teachers remarked that children who were both aggressive and rejected from the second data collection point on (Agg.-Rej.: NYYYY) tended to perform worse in school over time than did their peers and to like school less than their peers did. They also observed significant improvement in

the academic performance of some children whose rejected status fluctuated over time (Rej.: NYNY), and consistent levels of school avoidance for children who exhibited various patterns of rejected status (Rej.: YYNN, Rej.: YNYY, Rej.: NNYN). Finally, mathematics/science teachers indicated that two groups of children whose aggressive behaviour abated over time (Agg.: YYYN, Agg.: YNNN) tended to avoid school less than their peers.

Analysis of Simpler Configurations of Predictor Variables

In an effort to decrease the number of analyses and to increase some of the Level-2 cell sizes, I tested another series of hierarchical linear models for each of the Level-1 outcome variables (SLAQ School Liking; SLAQ School Avoidance; TRSSA School Liking, Teacher A; TRSSA School Liking, Teacher B; TRSSA School Avoidance, Teacher A; TRSSA School Avoidance, Teacher B; Teacher A Academics; Teacher B Academics, and aggression) with predictor variables that encompassed participating children's rejected, aggressive, and aggressive-rejected status at Time 1 and Time 4. It was thus still possible to examine the potential effects of persistent rejected status and aggressive behaviour, desisting rejected status and aggressive behaviour, and the onset of rejected status and aggressive behaviour on children's school adjustment over time. This procedure decreased the number of potential patterns of children's rejected, aggressive, and aggressive-rejected status from 16 to four: YY, NN, YN, and NY. However, this reduction precludes analysis of the effects of intermittent sociometric and behavioural status on children's school adjustment.

The procedure for analyzing the effects of these simpler configurations of children's rejected, aggressive, and aggressive-rejected status on their school adjustment outcomes was identical to the one followed in the analyses of the effects of Level-2 variables that spanned four data-collection points. I constructed separate models with

patterns of persistent, desisting, and onset of children's sociometric and behavioural status as Level-2 predictors of their self- and teacher-rated school liking, their self- and teacher-rated school avoidance, and their academic performance. I also once again tested the effect of children's rejected status on their aggressive behaviour over time. Boys and girls were analyzed together for all of the outcome variables, including aggression, in accordance with the endeavour to increase Level-2 cell sizes and enhance the accuracy of the results.

The results of these new analyses were largely nonsignificant. Those that were significant mirrored the findings for the effects of children's rejected, aggressive, and aggressive-rejected status over four time points. However, there were two important exceptions to this. First, in the new analyses, children who were not both aggressive and rejected at Time 1 but were both aggressive and rejected at Time 4 (Agg.-Rej.: NY) demonstrated a significant decrease over time in their academic performance ($\gamma_{02} = -.006$, $p = .01$). This finding supports Hypothesis 4, as the onset of aggressive-rejected status predicted an important decline in children's academic performance over time. The other new finding to emerge from the analysis of simpler configurations of Level-2 predictors was that children who were rejected by their peers at Time 1 but became accepted by Time 4 (Rej.: YN) exhibited a significant decrease in their aggressive behaviour over time ($\gamma_{02} = -.003$, $p = .02$). This finding supports Hypothesis 8.

Summary

In sum, rejected children appeared to like school less, avoid it more, and demonstrate more academic difficulty over time than did nonrejected children. The onset of peer rejection predicted a decline in academic performance in some cases, whereas gradual acceptance predicted improvement in others. A subgroup of boys who became rejected over time demonstrated a significant increase in their aggressive behaviour.

Overall, boys and girls who behaved aggressively tended to avoid school more than children who did not behave aggressively. Finally, children's academic performance showed a tendency to decline as their aggressive behaviour increased over time. Findings pertaining to persistent rejected status were the most robust and the most numerous in the present study.

Discussion

The principal aims of the present study were 1) to examine relations among different patterns of peer rejection, aggressive behaviour, and aggressive-rejected status and children's school liking, school avoidance, and academic performance over time; 2) to assess the link between peer rejection and aggressive behaviour over time; and 3) to explicate the influence of best friends' aggression on individual children's school adjustment. I constructed and analyzed one group of hierarchical linear models with children's teacher- and self-rated school liking, teacher- and self-rated school avoidance, and teacher-rated academic performance as outcome variables. The children's patterns of peer rejection, aggressive behaviour, and aggressive-rejected status served as predictors in these statistical models. Aggression was the outcome variable in another group of hierarchical models, in which patterns of rejected status were predictors. Overall, results provided mixed support for the hypothesized relations among variables and suggest several avenues for future research.

Intercept-only vs. Linear-change Models

A key expectation in this study was that changes over time in children's sociometric status and aggressive behaviour would correspond to changes over time in their school adjustment. However, analyses of deviance indicated that intercept-only models fit the data best for four school adjustment outcome variables (TRSSA School Liking, Teacher A; TRSSA School Liking, Teacher B; TRSSA School Avoidance,

Teacher A; and TRSSA School Avoidance, Teacher B), which precludes inferences about change over time in these cases. Instead, findings from the intercept-only models revealed remarkable consistencies across time in some instances in which change was expected. However, this does not necessarily detract from the notion that peer rejection and aggression might have profoundly negative effects on school adjustment. As shall become apparent in the following paragraphs, certain findings from a number of intercept-only models actually help to cement this idea.

Persistent Risk: Hypotheses 1 and 2

The first set of analyses involved children with patterns of sociometric status and behaviour that remained constant over time: They were rejected, aggressive, or aggressive-rejected either at all four time points or at none of them.

Peer Rejection

Against the backdrop of social and interpersonal conceptualizations of individual learning (Doise et al., 1998; Furrer & Skinner, 2003; Hymel et al., 1996; Piaget, 1970, 1978; Vygotsky, 1978; Wentzel, 1996; Wentzel & Watkins, 2002), I hypothesized that children who endured persistent rejection from their peers would like school less, avoid school more, and perform worse academically than would their peers who were not persistently rejected in this fashion.

School liking. Overall, the results from the hierarchical models of children's school liking support these assertions. This provides additional empirical evidence of the disengagement from classroom activities that Wentzel and Watkins (2002) suggested would be evident in children who lack social support at school. In this present study, however, children's disengagement extended beyond academic activities to a dislike of school in general. However, children's self-reports of their school liking were much less revealing than were teacher reports. This is not surprising given well-documented

tendencies for children to make themselves appear more socially competent than they actually are (especially aggressive children; Patterson, Kupersmidt, & Griseler, 1990), or to “distort...their perceptions” (Furman, 1996, p. 57) on self-report assessment instruments. It is therefore likely that some children in the present study did not want to admit the extent of their dislike of school, which would account for the disparity in results culled from teacher and self reports of school liking. It is also possible that the youth of the participants in the present study (seven and eight years of age) affected the credibility of their responses. Perhaps older children would have better understood the SLAQ and given a more accurate picture of their school liking and avoidance, although the SLAQ was developed and validated for children of this age group (Price & Ladd, 1987).

Nonetheless, in support of Hypothesis 2, children who were not rejected by their peers at any point during the study did report consistently greater school liking over time than did their peers who were rejected one or more times. These children were probably less inclined to distort reality than were children who were having difficulty fitting in with their peers. Taken together, these findings paint a bleak picture for the school liking of children who endure persistent rejection or who are rejected by their peers at one or more junctures during their school career.

School avoidance. The results for school avoidance were similar to the ones for school liking. Persistent rejection appeared to be detrimental to children’s interest in school and to contribute to their avoidance of it across time. This is in accord with the proposition that disengagement from school accompanies peer rejection, perhaps with psychological distress caused by ostracism as a mediator between the two (Guay et al., 1999; Wentzel & Watkins, 2002).

Academic performance. Teachers were in agreement that children who experienced peer rejection without reprieve performed consistently worse in school over time than did their peers who were not consistently rejected. They also observed that children who did not endure the rejection of their peers performed consistently better than did their agemates who were rejected one or more times during the study. These findings confirm and extend those of earlier research (e.g., Austin & Draper, 1984; Guay, et al., 1999; Wentzel, 1991); they suggest that consistent rejection coincides with persistent academic difficulties over time, whereas consistent acceptance might enable or hone children's focus on scholarly pursuits. Children who are rejected by their peers might be bereft of the social interactions and social support that seem to encourage mental health and academic engagement among their nonrejected counterparts (Doise, et al., 1998; Furrer & Skinner, 2003; Piaget, 1952, 1970, Vygotsky, 1978).

The Predictive Power of Persistent Rejected Status

It is noteworthy that persistent rejected status demonstrated the clearest, most consistent links to children's school liking, school avoidance, and academic performance of all the predictor variables in the present study. Chronic rejection by peers was related to significantly lower levels of school liking and academic performance over time, with no signs of improvement. It was also linked to persistent avoidance of school. Unrelenting rejection of this nature thus appears to signify substantial and enduring problems in numerous aspects of children's school experience. On the other hand, the present results suggest that consistent acceptance by peers bodes well for children's attitudes toward school and for their academic performance, which remained steadily more positive than those of their peers over time and showed no tendency toward decline.

Aggressive Behaviour

With Coie and colleagues' (1992) finding of a direct link between children's aggressive behaviour and their future academic difficulties as a guide, I hypothesized that children who displayed aggressive behaviour toward their peers on a consistent basis would demonstrate steadily less school liking, more school avoidance, and poorer academic performance over time than would their less aggressive peers. I also predicted that children who never reached aggressive status would exhibit the exact opposite profile over time.

School liking. The presence of persistent aggressive behaviour was not related to school liking over time in this sample. Perhaps children who aggress against their peers on a regular basis have some reasons to like school. Contrary to the notion that aggression begets peer rejection (e.g., Coie & Dodge, 1998; Hartup, 1983; Hymel et al., 2002), which might lead to a dislike of school in the absence of social support from peers (e.g., Wentzel & Watkins, 2002), the results of recent research consistently indicate a connection between aggressive behaviour (both physical and relational) and high perceived popularity or high social impact (Cairns & Cairns, 2001; Cillessen & Mayeux, 2004; Estell, Cairns, et al., 2002). Thus, some aggressive children appear to enjoy a type of high social status in the peer group under certain circumstances, which might reinforce their aggressive behaviour and increase their chances of liking school.

School avoidance. Teachers remarked that, as predicted, children who displayed aggressive behaviour throughout the study tended to avoid school more consistently than did children who were not aggressive throughout the study. This finding is congruent with the results of previous research (e.g., Cairns et al., 1992; Kupersmidt & Coie, 1990; Patterson et al., 1992), it confirms the presence of a relation between persistent

aggressive behaviour and school avoidance, and it suggests that this negative relation endures over time.

Academics. Similar to the finding of a link between aggressive behaviour and school liking, teachers in this sample also reported that children who were never aggressive toward their peers tended to perform better in school than did their classmates who were aggressive at one or more points during the study. This confirms one of the main tenets of Hypothesis 2 and suggests that a high level of academic achievement coincides with the absence of aggressive behaviour over time. However, the presence of persistent aggressive behaviour did not have the predicted effect on children's academic performance.

Although unexpected, this outcome extends recent findings that some aggressive children appear to be among the most popular and socially adept individuals in their peer groups (Estell, Cairns et al., 2002; Farmer et al., 2002; Rodkin, Farmer, Pearl, & Van Acker, 2000; Rodkin, Pearl, Van Acker, & Estell, 2003). It is therefore conceivable that the aggressive children in the present sample were also socially competent and enjoyed the company of peers, as the small number of aggressive-rejected children would suggest. Perhaps these socially astute aggressive children benefit from particular experiences in their friendship relations that offset the negative consequences of their aggressive behaviour, such as the emotional support and cognitive scaffolding thought to contribute to positive academic outcomes (Doise et al., 1998; Furrer & Skinner, 2003; Vygotsky, 1978).

Aggressive-Rejected Status

The purpose of the analyses with patterns of children's aggressive-rejected status as predictors was to add to the limited literature on the link between aggressive-rejected status and children's school adjustment over time. Given the findings of previous

investigations that suggested exceptional difficulty in school for children who were both aggressive and rejected at the same time (e.g., Farmer & Bierman, 2002; Gordon et al., 2003, Wentzel & Asher, 1995), I expected that stable or persistent aggressive-rejected status would predict consistently low levels of school liking and academic performance and consistently high levels of school avoidance. Unfortunately, the number of aggressive-rejected children at each time point was low, which precluded entry of a sizable number of particular patterns of simultaneous aggression and rejection over time into the hierarchical models.

School liking. As predicted in Hypothesis 2, children who were not simultaneously aggressive and rejected at any point during the study liked school more according to their language arts/social studies teachers than did their peers who were both aggressive and rejected at one or more points during the study. It is difficult to determine whether the dearth of other significant findings for aggressive-rejected children reflects the genuine absence of a relation between persistent aggressive-rejected status and school adjustment outcomes, or problems with the paucity of participants in the aggressive-rejected predictor groups. There were only eight participants who were simultaneously aggressive and rejected at every data collection point. There is some controversy about whether to include cells with this low a number of entries as predictors in hierarchical models. Some researchers encourage discarding cells that contain fewer than 10 participants due to low power (C. Blanchard, personal communication, February 16, 2004), whereas others maintain that five is an acceptable minimum (e.g., Hox, 1995). I chose the more liberal cut-off point of five in order to maximize the chance of uncovering a link should one actually be present. However, it is plausible that there simply were not enough children who were both aggressive and rejected throughout the

study to allow for a meaningful estimate of the relation between such status and their school adjustment over time.

School avoidance, academics. There were few significant relations uncovered between patterns of aggressive-rejected status and children's school avoidance or academic performance, most likely due to statistical limitations. The alternative explanation—that the combination of aggressive behaviour and peer rejection does not affect school liking, school avoidance, or academic performance—is not congruent with the results of a great deal of previous research, which point out significant predictive links among peer rejection, aggression, and various aspects of children's school adjustment (e.g., Coie et al., 1992; Farmer & Bierman, 2002; Gordon et al., 2003).

Patterns of Risk: Hypotheses 3 through 5

Patterns of change over time in participating children's rejected, aggressive, and aggressive-rejected status served as predictors in the next set of analyses. These results therefore address the key question of whether change in risk factors (e.g., desisting rejection, onset of aggressive behaviour) would predict school adjustment trajectories.

Peer Rejection

Analysis of desisting, intermittent, and the onset of rejected status as predictors of school liking, school avoidance, and academic performance provided mixed support for Hypotheses 3 through 5.

School liking. The fact that the two models of teacher-rated school liking were intercept-only models precludes conclusions about change over time. Nonetheless, mathematics/science teachers noted that children who became and remained accepted exhibited significantly low levels of school liking throughout the study, even though they eventually gained the acceptance of their peers. Although this result does not support Hypothesis 3, it does suggest that in some cases, the psychological consequences of peer

rejection might endure even when children do become accepted by their peers. Stated differently, the acquisition of social support from the peer group, with all of the cognitive (Doise & Mugny, 1984; Doise et al., 1998; Piaget, 1952, 1970; Vygotsky, 1978) and emotional (Hymel et al., 1996) benefits that purportedly accompany it, might not be enough to counter the effects of early peer rejection on children's attitude toward school. Thus, even when change in rejected status is taken into account, the present outcome echoes Verkuyten and Thijs's (2002) finding that difficulties in the peer group predicted global dissatisfaction with school among preadolescents.

Another possible explanation for this finding might have to do with fact that in Italy, children begin what is known as the "second cycle" in their grade 3 year, which signifies the transition from early-childhood schooling to formal education. There is greater structure and more emphasis on academic achievement in the second cycle (Parks, 1995; Tomada, Schneider, de Domini, Greenman, & Fonzi, 2005). The children in the present sample went through this transition just before Time 3; there is a collective decline in their school liking that might have to do with the stress of the change. Children who gained acceptance in their peer groups may still have had difficulty with the rigours of more formal education, which might have maintained their school liking at its low level.

Finally, intermittent rejected status did not demonstrate the predicted link with children's school liking as rated by any of the informants. It is important to note that only quadratic and cubic models of change would be able to support Hypothesis 5, because only they capture curvature and abrupt changes in trajectories (Kochenderfer-Ladd & Wardop, 2001; Raudenbush & Bryk, 2002). Since neither quadratic nor cubic models fit the present data, a plausible conclusion is that children's rejected, aggressive, or aggressive-rejected status at any one particular point in time does not have significant

implications for their developmental trajectories. For example, the school liking of children in the present study who endured peer rejection at Time 1, Time 3, and Time 4 (Rej.: YNYY) decreased significantly over time. Such temporary and fleeting improvements in sociometric status might not have a meaningful connection to outcome.

School avoidance. Interestingly, there was evidence that some children (Rej.: YYNN) who exhibited low school liking also avoided school consistently less over time than did their peers with other patterns of rejected status. It is possible that even though these children did not necessarily like school over time, their gradual acceptance into the peer group might have encouraged them just enough not to avoid it. Perhaps they were actually highly engaged in school from the beginning of the study (without necessarily liking it) and belonged to a group similar to the “submissive-rejected” children who did not demonstrate serious academic problems in Wentzel and Asher’s (1995) study of children in grades six and seven. A child’s high engagement in school might thus circumvent the negative effects of peer rejection under certain circumstances, as Wentzel and Asher (1995) indicated. Other teacher observations of children’s school avoidance in the present study make intuitive sense: Children who were rejected most of the time tended to avoid school most of the time whereas children who were not rejected most of the time did not. These results also fit with the notion put forth earlier that anomalous, ephemeral changes in sociometric status might not be sufficient to alter the course of children’s school adjustment.

Academics. Such was the case for the academic performance of children rejected three times out of four (Rej.: YNYY), who demonstrated consistent difficulties in school over time. But other findings support the study hypotheses. For example, some children who became and remained rejected (Rej.: NYYY) performed progressively worse in their mathematics and science classes over time. As their rejected status took

hold, their academic production steadily decreased. In contrast, the classroom performance of children who eventually became accepted by their peers (Rej.: YYYN) improved over time. These findings offer strong support for Hypotheses 3 and 4 and for the theory that children rely on one another for emotional and intellectual support in order to do well in school (Doise et al., 1998; Furrer & Skinner, 2003; Hymel et al., 1996; Piaget, 1952, 1978; Vygotsky, 1978). They also highlight a direct link between change in children's sociometric status and change in their academic performance.

Other findings were unexpected. In one case, even enduring change for the better in children's sociometric status did not predict improvement in their academic performance. This attests to the potential for peer rejection to jeopardize children's ability to do well in school over time, even when their access to the emotional and intellectual resources offered by peers improves. It also affirms the view presented in previous research that even peer rejection of short duration can be traumatic enough to have lasting effects on numerous aspects of children's lives, including their performance in school (Bagwell et al., 2001; Hymel et al., 1996; Parker & Asher 1987; Verkuyten & Thijs, 2002). In another instance, fluctuating rejected status predicted improvement in children's academic performance over time. The case could be made that periods of peer acceptance might have a positive effect on children's academic performance, but it is more likely that irregular sociometric status has different effects on different children: Some might respond positively in school during periods of peer acceptance and maintain their high level of functioning during periods of peer rejection, whereas others might be unable to overcome the burden of peer rejection. In these cases peer rejection might affect academic performance over time through mediating variables such as loneliness or self-esteem, as Guay and Colleagues (Guay et al., 1999) and Verkuyten and Thijs (2002) found, respectively, in their studies of stable peer rejected status. For this reason, it will

be important in future research to address other intra- or interpersonal factors that may affect outcomes in the wake of intermittent rejected status.

Aggression

School liking. The school-liking and aggression components of Hypotheses 3, 4, and 5 did not receive support in the present study. However, there were signs of significant links between certain patterns of aggressive behaviour and children's school liking as judged by language arts/social studies teachers. Children who were aggressive toward their peers for the majority of the study liked school less than did children who were nonaggressive for the majority of the study. This finding further illustrates the resistance in the current sample of school adjustment variables to change and suggests that more lasting changes in aggressive behaviour and sociometric status might be necessary in order to alter the course of school adjustment.

School avoidance. The components of Hypotheses 3 and 4 that pertained to school avoidance received some support. Some children whose aggressive behaviour abated (Agg.: YYYN, Agg.: YNNN) displayed consistently low school avoidance as rated by their mathematics/science teachers across time. Others whose aggressive behaviour increased (Agg.: NNYY) displayed consistently more. From one perspective, these results might represent a positive effect of children's desisting aggression on their school avoidance across time (in partial support of Hypothesis 3), along with the negative effect of the onset of aggression (in partial support of Hypothesis 4). On the other hand, the lack of change over time in school avoidance as a function of aggressive behaviour highlights an unforeseen stability in children's school avoidance that defies the concept of change in aggression predicting change in avoidance. Plus, some children (Agg.: YYYN, Agg.: YNNN) who were aggressive some or most of the time did not avoid school as predicted, whereas others (Agg.: NNYY) did. A logical conclusion based

on these findings is that the children who became less aggressive over time might have already been on a path toward improved school adjustment at the beginning of the study while they were still behaving aggressively, whereas those children who became aggressive were on a path heading in the opposite direction even before they started to exhibit signs of aggressive behaviour.

Academics. There was a clear relation between aggression and academic performance in the present study. Although children whose aggression subsided during data collection did not exhibit the predicted improvement in their academic performance over time (which attests to the possibility of lasting effect of early aggressive behaviour on academic performance that is similar to the effect of early peer rejection discussed earlier), a number of children who became aggressive (Agg.: NNY) performed progressively worse in school over time. This, coupled with the finding that children with this particular behavioural profile did not differ from their peers in academic performance at the beginning of the study, suggests a strong link between their aggressive behaviour and their academic decline, in support of Hypothesis 4. In addition, children who aggressed against their peers over the last three data collection points (Agg.: NY) performed consistently worse in school according to both language arts/social studies and mathematics/science teachers than did their less aggressive peers, which also illustrates a firm connection between aggression and poor academic performance. These findings extend previous research on the relation between children's aggressive behaviour and their academic performance (Coie et al., 1992; Schwartz, 2000). The presence of a linear trend for aggressive behaviour in a model of academic performance is particularly important because it demonstrates the notable contribution of an increase in children's aggressive behaviour to the prediction of change for the worse in their academic competence over an extended period of time. It thus reaffirms and

expands upon Coie and colleagues' (1992) finding of a direct effect of children's aggression on the corrosion of their academic skills.

The general attenuation of findings for aggressive behaviour might have to do with the legitimization of aggression in Italian children's culture. As previously mentioned, interpersonal conflict seems to be a more commonplace, accepted phenomenon in the Italian culture than it is elsewhere (Argyle et al., 1986; Maraspin, 1968). Perhaps this widespread tolerance of conflict in the relationships of adults and children of both sexes has established aggressive behaviour as a cultural norm with less of an impact on social or academic outcomes than might be expected.

Aggressive-Rejected Status

The results for associations among different patterns of aggressive-rejected status and children's school liking, school avoidance, and academic performance were generally weak due to the aforementioned scarcity of aggressive-rejected children in the current sample. For this reason, it is important to interpret these results with caution. There were nonetheless some notable findings.

School liking. Although they were not both aggressive and rejected at Time 1, children who became and remained both aggressive and rejected thereafter (Agg.-Rej.: NYYY) liked school significantly less across time according to their language arts/social studies teachers than did their peers. This result offers some new insight into the school liking of aggressive-rejected children. It demonstrates for the first time the consistently low level of enthusiasm for school that they appear to have and complements previous findings that emphasize their academic difficulties (e.g., Bierman et al., 1993; Cillessen et al., 1992; French & Conrad, 2001). This low level of school liking is not surprising given the noncompliance typical of aggressive children that, according to some theorists, generalizes to school settings and morphs into dislike of school (Patterson et al., 1992). It

is also compatible with the negative relation of peer rejection to children's school liking documented in a handful of previous studies (e.g., Ladd, 1990; Verkuyten & Thijs, 2002). It is important to note, however, that the absence of significant links between the onset of aggressive-rejected status and school liking prohibit generalization of the present result to all children who are both aggressive and rejected.

School avoidance. There were, for the most part, no significant relations between aggressive-rejected status and children's self- or teacher-rated school avoidance in the present study. The only exception to this went uncorroborated by two out of three informants and most likely represents an anomaly that derives from the particularities of mathematics/science teachers' perceptions.

Academic performance. There was minimal support for the academic components of Hypotheses 3 and 4 with aggressive-rejected status as predictors. Once again, it is not clear whether the lack of significant findings with regard to children's aggressive-rejected status reflects its feeble association with school adjustment outcomes, or whether a more complete picture of its potential effects on academic performance would require investigation of a larger number of children.

Peer Rejection and Aggression: Hypotheses 6-10

Given recent theories that posit a causal role of peer rejection in the development of children's aggressive behaviour (Dodge et al., 2003; Valois et al., 2002) and empirical results to support them (Dodge et al., 2003; Laird et al., 2001; Miller-Johnson et al., 2002), I conducted a series of analyses of the longitudinal links between all possible patterns of peer rejection and the development of aggressive behaviour. None of the analyses for girls generated significant results, which was not surprising given the major disparity between Italian boys' and girls' aggressive tendencies detected in previous research (Tomada & Schneider, 1997). The results for boys' aggression strongly support

Hypotheses 6 through 9. However, there was not any evidence in the current sample that intermittent rejected status affected the development of aggression.

Persistent Rejected Status

As predicted, boys who endured the persistent rejection of their peers (Rej.: YYYY) were significantly more aggressive across time than were their peers who were not rejected throughout the study. The opposite was also true: Boys who were never rejected (Rej.: NNNN) displayed significantly low levels of aggressive behaviour across time. Thus, persistent rejection appears to contribute to the exacerbation and maintenance of aggressive behaviour, as hypothesized by Dodge and others (Dodge et al., 2003; Valois et al., 2002). But the strongest support for this theory in the current results actually derives from findings of significant effects of patterns of change in boys' rejected status on their aggressive behaviour trajectories.

Desisting Rejected Status and the Onset of Rejected Status

As predicted, boys who became rejected by the end of the study (Rej.: NNNY) demonstrated a significant increase in their aggressive behaviour over time. As their sociometric status became increasingly unfavourable over time, so too did their behaviour. This result, in conjunction with the finding that boys' aggressive behaviour did not reliably predict their peer rejection over time, suggest that changes in peer rejection might lead to changes in aggressive behaviour over time, but that changes in aggressive behaviour do not necessarily lead to changes in sociometric status. The longitudinal evidence provided in the present study therefore solidifies somewhat the theory that peer rejection might actually cause or exacerbate aggressive behaviour in children. It also clarifies somewhat the well-documented link between peer rejection and aggression in childhood (Coie & Dodge, 1998): Peer rejection appears to predate the

onset of aggressive behaviour, whereas peer acceptance appears to contribute to the waning of aggressive behaviour over time.

The Influence of Friends: Hypothesis 11

There was no substantiation in the present results for the claim that best friends' aggressive behaviour would influence all aspects of individual children's own school adjustment and aggressive behaviour. Best friends' aggression did not predict children's school avoidance or aggressive behaviour. Nonetheless, there were signs of a connection between friends' aggression and children's academic performance and school liking over time.

School liking. Teacher observations did not reveal any significant association between children's best friends' aggression and their school liking. Aggressive children with aggressive friends, however, reported significantly greater school liking than did the rest of their peers on a consistent basis throughout the study. Although this contradicts Hypothesis 11, it does make sense that children who are themselves aggressive would enjoy their school experience more in the company of aggressive friends. In fact, established theories of aggressive behaviour in children postulate that peers reinforce such behaviour systematically (Boivin & Vitaro, 1995; Catalano & Hawkins, 1996; Cohen, 1983). It is therefore possible that children whose aggressive behaviour is reinforced in this way would derive pleasure from their behaviour and hence from going to school, where the behaviour takes place.

Academics. According to language arts/social studies teachers, aggressive children with aggressive best friends demonstrated a significant decline in their academic performance over time. Perhaps children's best friends exert an influence on academic performance through their own aggressive behaviour: Friends might reinforce each other's aggression, thereby feeding the noncompliance and academic disengagement

thought to accompany it (Cohen, 1983; Patterson et al., 1992). This finding offers longitudinal evidence in support of this idea. However, mathematics/science teachers did not make a similar observation, which highlights the need for more research on the link between best friends' aggression and children's academic performance.

In summary, the behaviour of friends was not as strong a predictor of change in school adjustment trajectories as were the other variables under investigation in the present study. However, children in this sample who had best friends who were aggressive and who were aggressive themselves tended to do steadily worse in school as time went on. It is not clear, however, if their decline had more to do with the influence of their aggressive friends, their own aggressive behaviour, or both.

Limitations

The results of the present study must be interpreted with some caution. First, the lack of consistent concordance among all informants for each school outcome variable raises the possibility of bias on the part of individual observers that do not necessarily reflect genuine differences in the children observed. Second, not all predictors that consisted of patterns of rejected, aggressive, or aggressive-rejected status were significant even in instances where certain findings were in accord with the stated hypotheses of the study. Again, it is not clear whether this is the result of statistical anomalies or a genuine lack of effect for certain groups of individuals. It is possible, for example, that two years is too short a period to capture changes over time in children's school liking, school avoidance, and academic performance. Ideally, future research would involve a more extended timeframe, in order to tap into what may actually be slow and subtle but significant changes in these variables. It is also possible that the sample size in the present study is too small to test the hypotheses that pertain to intermittent and desisting rejected or aggressive status. A large number of those

predictors and practically all of the aggressive-rejected status predictors were not included in the final hierarchical models because the cell sizes were too small.

Other limitations have to do with the age of the children who participated in the present study, the multitude of factors other than the ones included in the experimental design that might affect the variables under investigation, and the type of aggressive behaviour that was actually measured here. It is possible that children between the ages of seven and eight who are about to undergo or who have only recently undergone a significant transition in their academic and social lives might not have responded as accurately or as consistently as slightly older children with more established patterns of social standing, behaviour, and academic performance may have. This important transition to a more formal academic environment is but one of a host of potential variables not included in the present research design that might influence children's school adjustment and aggressive behaviour. Children's genetic disposition, their experiences in the home, and their exposure or lack of exposure to intellectual stimuli have all been shown to relate to their aggressive behaviour and school adjustment (Connor, 2002; Forehand, Long, Brody, & Fauber, 1986; Steinberg & Darling, 1994).

It is also noteworthy that the type of aggressive behaviour actually measured in the present study is of the direct, overt kind more typical of boys than of girls, which might be one reason why boys appeared to be more aggressive than girls in the present study. It would be better in future studies to include more items that tap into the indirect forms of aggression favoured by girls, in order to have a more accurate picture of the prevalence and correlates of a fuller range of aggressive behaviours. Finally, the present analyses are not statistical tests of an explicit theoretical model. The present study consists instead of several tests of individual models with specific outcomes. The inferences drawn about directions of effects and the relative contribution of peer

rejection, aggression, or both to school adjustment over time are therefore preliminary and require statistical confirmation in a more comprehensive, theory-based model. Further research must therefore build upon the findings in the present study to develop and test a theoretical model of the interrelation of peer rejection, aggression, and school adjustment.

Stability in the Italian Culture

As the lack of significant findings for change over time discussed in previous sections suggests, there was a striking amount of stability in the present study. Children did not tend to vary as much as anticipated over time on any of the outcome variables, and the groups of children with stable rejected, aggressive, and aggressive-rejected status over four data collection points were generally the largest in the sample. In many cases, this stability prevented analysis of outcomes for those children whose behaviour and sociometric status did change during the course of the investigation, because there were not enough of them to analyze reliably.

Although it is possible that a larger sample of children might have demonstrated more palpable changes over time in their behaviour, sociometric status, and school adjustment outcomes, it is also possible that the current findings reflect an undercurrent of stability in the Italian culture that may permeate many aspects of children's lives. For example, families in Italy do not tend to relocate as often as families in North America do (partly because as it is more difficult from an economic standpoint to do so), and Italian parents generally prefer to keep their children enrolled in the same schools with the same teachers for as long as possible. Children in Italy are therefore more likely to maintain contact with the same peers for extended periods that span several years than are children in North America. The maintenance of constant, unchanging, peer-like contacts with extended family members is also more typical in Italian families than it is

in North American ones. Thus, the contexts in which children's behaviour, social standing, attitudes toward school, and academic abilities develop are all remarkably stable in Italy, which might translate into the type of behavioural, sociometric, and academic constancy observed among children in this investigation.

The Significance of Peer Rejection

Despite the rather complex picture painted by the results of the present study and the necessary dose of caution with which one must interpret them, they do provide the basis for a number of clear, important observations about the relation among peer rejection, aggression, best friends' behaviour, and children's school adjustment. In a number of instances, children who were rejected by their peers in this sample liked school less, avoided it more, and performed worse in it over time than did children who were not rejected, particularly those who were rejected on a persistent basis over time. Improvement in their sociometric status did not necessarily imply improvement in their attitude toward school. In other cases, children who became rejected showed a decline in their academic performance over time. Finally, specific groups of boys who were rejected by their peers tended to become more aggressive as time went on.

All of this points toward what appears to be the pervasive influence of peer rejection on various aspects of children's school adjustment and aggression. In fact, the present results suggest that peer rejection might be a pivotal contributor to specific behaviours in and feelings toward school that may lead to children's academic decline over time. Current findings include independent but direct relations between peer rejection and academic decline, peer rejection and school avoidance, peer rejection and aggressive behaviour in boys, and peer rejection and dislike of school. The detection of a direct link between peer rejection and academic decline supports that notion that a positive, nurturing interpersonal environment is a necessary component of academic

development (e.g., Doise & Mugny, 1984; Doise et al., 1998; Hymel et al., 1996; Piaget, 1970; Vygotsky, 1978; Wentzel, 1996; Wentzel & Watkins, 2002), and the idea that an absence of such social stimulation might have a negative effect on the same.

The present results also suggest that other factors might act in tandem with or exacerbate the effect of peer rejection on the worsening of children's academic performance. For instance, peer rejection was also related to school dislike, to school avoidance, and to aggressive behaviour, all of which also predicted academic decline in several cases. Perhaps dislike of school, aggressive behaviour, and school avoidance are results of peer rejection that aggravate the negative effects of rejected children's social isolation on their academic performance over time. Any one of these results of peer rejection might then lead to academic decline. In addition, aggressive behaviour appears to contribute to children's avoidance of school. Thus, peer rejection might affect school avoidance directly, or it might do so first by fostering aggressive and antisocial behaviour in children, including school avoidance.

It is noteworthy that peer rejection, not aggressive behaviour, appears to be the driving force behind children's academic decline in the present study. Consider the findings that a group of boys who became rejected as the study progressed demonstrated an increase in their aggressive behaviour over time, that other groups of boys who became accepted by their peers behaved less aggressively as time went on, and that change in aggressive behaviour did not predict change in sociometric status. Stated differently, peer rejection predicted aggression but aggression did not predict peer rejection. At least among boys, peer rejection seems to predate aggression and contribute to the deterioration of academic performance over time. The results would most likely have been similar for girls had the study included measures of more covert types of aggression that involve the manipulation of relationships that are more typical of girls

(Bierman, 2004; Connor, 2002; Grotzinger & Crick, 1995). This contrasts somewhat with the view that aggression fosters peer rejection, which might then lead to further aggression, disillusionment from peers and from school in general, and academic problems (Bierman, 2004; Coie, 1990). Instead, the present findings highlight the possibility that some children who are rejected by their peers might not be initially aggressive but they may *develop* aggressive tendencies and school adjustment problems as a result of their rejection.

Although peer rejection and its implications for children's social, emotional, and academic development has received a great deal of attention from peer relations researchers (e.g., Asher & Coie, 1990; Bierman, 2004; Furrer & Skinner, 2003; Wentzel & Asher, 1995; Wentzel & Watkins 2002), the focus of research and theory has shifted somewhat in recent years toward an emphasis on the role of close friendship and popularity or peer acceptance (i.e., the extent to which a child is liked by his or her peers; Bukowski, Pizzamiglio, Newcomb, & Hoza, 1996; Schneider et al., 1994) in psychological development and school adjustment (e.g., Bishop & Inderbitzen, 1995; Furman, 2001; Kuroda, Aritoshi, & Sakurai, 2004). Researchers have found the presence or absence of reciprocal friendship, not sociometric status, to be significantly related to self-reported self-esteem among pre-adolescents (Bishop & Inderbitzen, 1995), peer acceptance (i.e., liking as opposed to active dislike and exclusion) to be more strongly associated with friendship (and all of its presumed social and academic benefits) than peer rejection among children in grade six (Bukowski et al., 1996), and emotional support from best friends to predict perceptions of the self and others in interpersonal relationships (Furman, 2001). On the other hand, other researchers have found both peer rejection and the unavailability of close friendship to predict suicidal behaviour in adolescents, and peer rejection (not close friendship) to relate to a host of other mental

health problems, such as depression (Prinstein, Boergers, Spirito, Little, & Grapentine, 2000). The results of the present study complement the results of Prinstein and associates (Prinstein et al., 2000) and others who have studied peer rejection and advocated for intervention on behalf of children who are actively disliked and rejected by their peers (Asher & Coie, 1990; Bierman, 2004; Deater-Deckard, 2001; Parker & Asher, 1987; Vandell & Hembree, 1994).

Despite findings of the importance of close friendship and peer acceptance, the construct of peer rejection warrants continued attention in the empirical literature, in clinical practice, and in schools, because it appears to play a unique part in the development of aggression and academic problems, in addition to the socio-emotional difficulties that have been the subject of much research already (e.g., Prinstein et al., 2000). Coie and colleagues (e.g., Coie, 1990; Coie & Cillessen, 1993) have for some time suggested that peer rejection might have “indirect causal effects on the long-term adjustment of the rejected child” (Coie, 1990, p. 367). They stipulate that even in cases where a child is both aggressive and rejected, peer rejection contributes to the development of emotional disorders and academic difficulties above and beyond the effects of aggression (Coie & Cillessen, 1993). Other researchers have noted that aggressive children and children who are rejected or victimized (but not aggressive) display different emotional and behavioural trajectories: Those who aggress tend to follow a path toward delinquency and criminal activity, whereas those who endure the rejection of their peers tend to develop internalizing disorders such as depression (Mishna, 2003; Olweus, 1993, 1995). In either case, aggression and peer rejection appear to be separate, though related constructs that make their own unique contributions to the genesis of emotional and behavioural problems. The present study takes this notion a bit

further in that its findings suggest that in some cases, aggression might actually be a consequence of peer rejection.

Conclusion

The findings of the present investigation highlight the problems and risks that children who have social or behavioural difficulties must face. These children appear to be at a distinct disadvantage over children who are fortunate enough to escape the pain of peer rejection or who learn to manage their aggressive tendencies in constructive ways. Peer rejection appears to exacerbate aggressive behaviour, which compounds the risk for children who are not socially successful. Interventions for children who are aggressive might therefore do well to address possible social problems more closely. Further research is necessary to solidify the findings of the present study and to establish interventions based on clear theoretical models that respond appropriately to children's needs. Teachers and school administrators might find that the cultivation of a positive social environment in which children feel supported and encouraged by peers has a positive effect on their students' attitudes toward and their performance in school.

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Table 1.

*Item-total Correlations for the School Liking and Avoidance Questionnaire (SLAQ):
Two-factor Solution*

<i>Factor</i>	<i>r</i>
School Liking ($\alpha = .89$)	
“Are you happy when you’re at school?”	.64
“Do you like being in school?”	-.58
“Do you like coming to school?”	.57
“Is it fun being in school?”	.54
“Is school fun?”	.48
“When you wake up in the morning, are you happy to come to school?”	.47
“Is school yucky?”	.46
“Do you ever want to cry when you’re at school?”	-.24
School Avoidance ($\alpha = .82$)	
“Would you be happy if mom and dad had you stay at home instead of coming to school?”	.65
“Would you want to be at home instead of coming to school?”	.61
“Would you like not to have to go to school?”	.53
“Are you happy when it’s time to go home?”	.47
“Do you ask mom and dad to stay home rather than coming to school?”	.43

Table 2.

Item-total Correlations for the Teacher Rating Scale of School Adjustment (TRSSA)

<i>Factor</i>	<i>r</i>
School Liking ($\alpha = .85$)	
“Doesn’t like school.”	-.64
“Has fun in school”	.50
“Enjoys being in school.”	.42
“Likes to come to school”	.30
School Avoidance ($\alpha = .82$)	
“Pretends to feel bad or sick in school.”	.66
“Thinks of reasons for having to go home.”	.64
“Often asks how much time is left before dismissal.”	.46
Cooperation ($\alpha = .87$)	
“Is an organized child who knows how to get on by himself or herself.”	.86
“Works independently.”	.84
“Needs a lot of help and guidance.”	.83
“Meets all the demands of school.”	.61

Table 3

Means and Standard Deviations

		Assessment Point							
		Time 1		Time 2		Time 3		Time 4	
Outcome Measure		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
SLAQ (Liking)		1.70	.33	1.68	.34	1.67	.36	1.63	.37
SLAQ (Avoidance)		.74	.53	.70	.52	.70	.52	.71	.51
TRSSA (Liking, Teacher A)		1.87	.31	1.88	.28	1.85	.31	1.91	.27
TRSSA (Liking, Teacher B)		1.89	.30	1.88	.29	1.87	.29	1.82	.31
TRSSA (Avoidance, Teacher A)		.11	.27	.09	.23	.07	.19	.07	.23
TRSSA Avoidance, Teacher B)		.08	.23	.09	.25	.04	.17	.07	.25

Table 3, continued

<i>Means and Standard Deviations</i>		Assessment Point							
Outcome Measure	Time 1		Time 2		Time 3		Time 4		
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Teacher A Academics	2.97	.94	3.03	.90	2.90	.91	3.04	.92	
Teacher B Academics	3.08	.83	3.01	.85	2.86	.88	3.02	.91	

Table 4

Cell Sizes by Rejected Status at Each Time Point

Group	Frequency	Assessment Point			
		T1	T2	T3	T4
Rej.: YYYY	20	Rejected	Rejected	Rejected	Rejected
Rej.: YYNN	4	Rejected	Rejected	Nonrejected	Nonrejected
Rej.: NNYY	7	Nonrejected	Nonrejected	Rejected	Rejected
Rej.: NNNN	319	Nonrejected	Nonrejected	Nonrejected	Nonrejected
Rej.: YYYN	3	Rejected	Rejected	Rejected	Nonrejected
Rej.: YNNN	28	Rejected	Nonrejected	Nonrejected	Nonrejected
Rej.: NYYY	9	Nonrejected	Rejected	Rejected	Rejected
Rej.: NNNY	11	Nonrejected	Nonrejected	Nonrejected	Rejected
Rej.: YNYY	9	Rejected	Nonrejected	Rejected	Rejected
Rej.: YYNY	1	Rejected	Rejected	Nonrejected	Rejected
Rej.: YNNY	4	Rejected	Nonrejected	Nonrejected	Rejected
Rej.: NYNN	15	Nonrejected	Rejected	Nonrejected	Nonrejected
Rej.: NNYN	10	Nonrejected	Nonrejected	Rejected	Nonrejected
Rej.: NYYN	6	Nonrejected	Rejected	Rejected	Nonrejected
Rej.: NYNY	7	Nonrejected	Rejected	Nonrejected	Rejected
Rej.: YNYN	3	Rejected	Nonrejected	Rejected	Nonrejected

Table 5

Cell Sizes by Aggressive Status at Each Time Point

Group	Frequency	Assessment Point			
		T1	T2	T3	T4
Agg.: YYYY	40	Aggressive	Aggressive	Aggressive	Aggressive
Agg.: YYNN	3	Aggressive	Aggressive	Nonaggressive	Nonaggressive
Agg.: NNY Y	7	Nonaggressive	Nonaggressive	Aggressive	Aggressive
Agg.: NNNN	361	Nonaggressive	Nonaggressive	Nonaggressive	Nonaggressive
Agg.: YYYN	6	Aggressive	Aggressive	Aggressive	Nonaggressive
Agg.: YNNN	6	Aggressive	Nonaggressive	Nonaggressive	Nonaggressive
Agg.: NYYY	6	Nonaggressive	Aggressive	Aggressive	Aggressive
Agg.: NNNY	13	Nonaggressive	Nonaggressive	Nonaggressive	Aggressive
Agg.: YNYY	0	Aggressive	Nonaggressive	Aggressive	Aggressive
Agg.: YYNY	1	Aggressive	Aggressive	Nonaggressive	Aggressive
Agg.: YNNY	1	Aggressive	Nonaggressive	Nonaggressive	Aggressive
Agg.: NYNN	3	Nonaggressive	Aggressive	Nonaggressive	Nonaggressive
Agg.: NNYN	3	Nonaggressive	Nonaggressive	Aggressive	Nonaggressive
Agg.: NYYN	2	Nonaggressive	Aggressive	Aggressive	Nonaggressive
Agg.: NYNY	2	Nonaggressive	Aggressive	Nonaggressive	Aggressive
Agg.: YNYN	1	Aggressive	Nonaggressive	Aggressive	Nonaggressive

Table 6

Cell Sizes by Aggressive-Rejected Status at Each Time Point

Group	Frequency	Aggressive-Rejected Status at Each Assessment Point			
		T1	T2	T3	T4
Agg.-Rej.:YYYY	8	Yes	Yes	Yes	Yes
Agg.-Rej.:YYNN	1	Yes	Yes	No	No
Agg.-Rej.:NNYY	4	No	No	Yes	Yes
Agg.-Rej.:NNNN	412	No	No	No	No
Agg.-Rej.:YYYN	2	Yes	Yes	Yes	No
Agg.-Rej.:YNNN	4	Yes	No	No	No
Agg.-Rej.:NYYY	5	No	Yes	Yes	Yes
Agg.-Rej.:NNNY	4	No	No	No	Yes
Agg.-Rej.:YNYY	2	Yes	No	Yes	Yes
Agg.-Rej.:YYNY	1	Yes	Yes	No	Yes
Agg.-Rej.:YNNY	0	Yes	No	No	Yes
Agg.-Rej.:NYNN	8	No	Yes	No	No
Agg.-Rej.:NNYN	2	No	No	Yes	No
Agg.-Rej.:NYYN	0	No	Yes	Yes	No
Agg.-Rej.:NYYN	0	No	Yes	No	Yes
Agg.-Rej.:YNYN	2	Yes	No	Yes	No

Table 7
Unconditional (Intercept-Only) Models

	School Liking, Teacher A				School Liking, Teacher B			
	Coefficient	SE	t-ratio		Coefficient	SE	t-ratio	
Fixed Effect								
Model for initial status, β_0								
Mean initial status, γ_{00}	1.88	.01	179.75*		1.86	.01	158.27*	
Random Effect								
	School Liking, Teacher A				School Liking, Teacher B			
	SD	Variance	df	χ^2	SD	Variance	df	χ^2
Initial status, u_{0i}	.19	.04	456	1636.74*	.22	.05	430	2465.33*
Level-1 error, r_{ii}	.22	.05			.19	.04		

* $p < .001$

Table 8

Unconditional (Intercept-Only) Models

	School Avoidance, Teacher A				School Avoidance, Teacher B			
	Coefficient	SE	t-ratio		Coefficient	SE	t-ratio	
Fixed Effect								
Model for initial status, β_0								
Mean initial status, γ_{00}	.08	.01	10.52*		.07	.01	8.08*	
	School Avoidance, Teacher A				School Avoidance, Teacher B			
Random Effect	SD	Variance	df	χ^2	SD	Variance	df	χ^2
Initial status, u_{0i}	.15	.02	456	1655.34*	.15	.03	456	2095.62*
Level-1 error, r_{ii}	.18	.03			.16	.03		

* $p < .001$

Table 9
Unconditional Models

Fixed Effect	SLAQ School Liking				SLAQ School Avoidance			
	Coefficient	SE	t-ratio		Coefficient	SE	t-ratio	
Model for initial status, β_0								
Mean initial status, γ_{00}	1.74	.02	112.45*		.71	.02	28.69*	
Model for linear change, β_1								
Mean change rate, β_{10}	-.008	.0003	-29.88		-.00001	.0004	-.03	
SLAQ School Liking					SLAQ School Avoidance			
Random Effect	SD	Variance	df	χ^2	SD	Variance	df	χ^2
Initial status, u_{0i}	.24	.06	456	1015.77*	.44	.19	456	1435.19*
Linear growth rate, u_{1i}	.002	.00001	456	574.40*	.004	.00002	456	699.58*

Table 9, continued
Unconditional Models

Random Effect	SLAQ School Liking				SLAQ School Avoidance			
	<i>SD</i>	Variance	<i>df</i>	χ^2	<i>SD</i>	Variance	<i>df</i>	χ^2
Level-1 error, r_u	.26	.07			.35	.12		

* $p < .001$

Table 10
Unconditional Models

Fixed Effect	Teacher A Academics				Teacher B Academics			
	Coefficient	SE	t-ratio		Coefficient	SE	t-ratio	
Model for initial status, β_0								
Mean initial status, γ_{00}	2.98	.04	72.66*		3.07	.04	83.97*	
Model for linear change, β_1								
Mean change rate, β_{10}	.0006	.0004	1.45		.0004	.0004	-3.96	
Random Effect	Teacher A Academics				Teacher B Academics			
	SD	Variance	df	χ^2	SD	Variance	df	χ^2
Initial status, u_{0i}	.80	.65	452	2854.38*	.70	.49	455	2354.66*
Linear growth rate, u_{1i}	.005	.00002	452	640.21*	.004	.00002	455	600.97*

Table 10, continued
Unconditional Models

	Teacher A Academics				Teacher B Academics			
	<i>SD</i>	Variance	<i>df</i>	χ^2	<i>SD</i>	Variance	<i>df</i>	χ^2
Random Effect								
Level-1 error, r_u	.41	.17			.40	.16		

* $p < .001$

Table 11

Unconditional Models

Aggression				
	Coefficient	SE	t-ratio	
Fixed Effect				
Model for initial status, β_0				
Mean initial status, γ_{00}	-.02	.05	-.46	
Model for linear change, β_1				
Mean change rate, β_{10}	.0004	.0004	.92	
Aggression				
	SD	Variance	df	χ^2
Random Effect				
Initial status, u_{0i}	.93	.86	330	4951.02*
Linear growth rate, u_{1i}	.006	.00004	330	734.81*

Table 11, continued
Unconditional Models

	Aggression			
	<i>SD</i>	Variance	<i>df</i>	χ^2
Random Effect				
Level-1 error, r_u	.28	.09		

* $p < .001$

Figure Captions

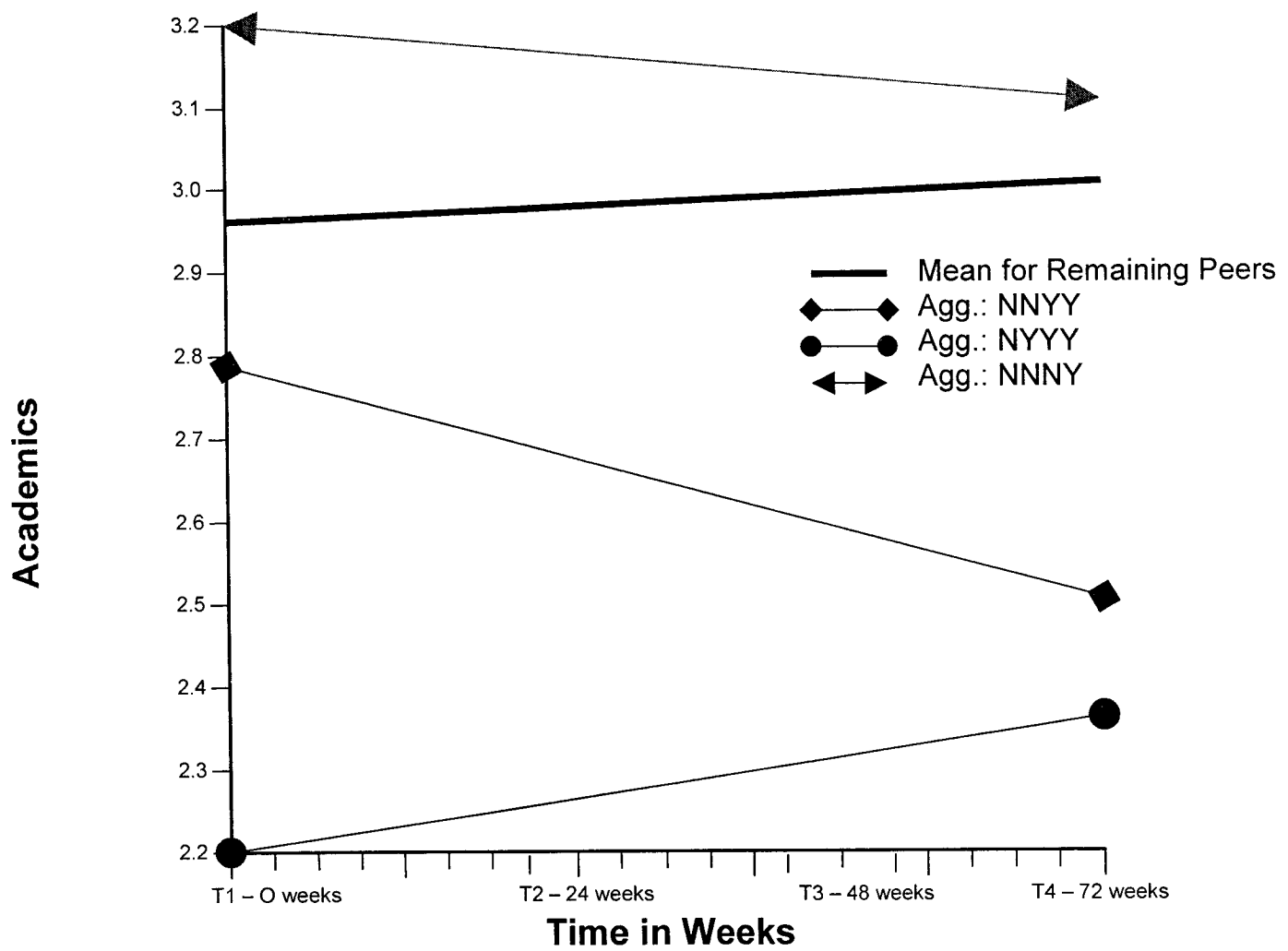
Figure 1. Onset of aggressive status and academic performance (Teacher A).

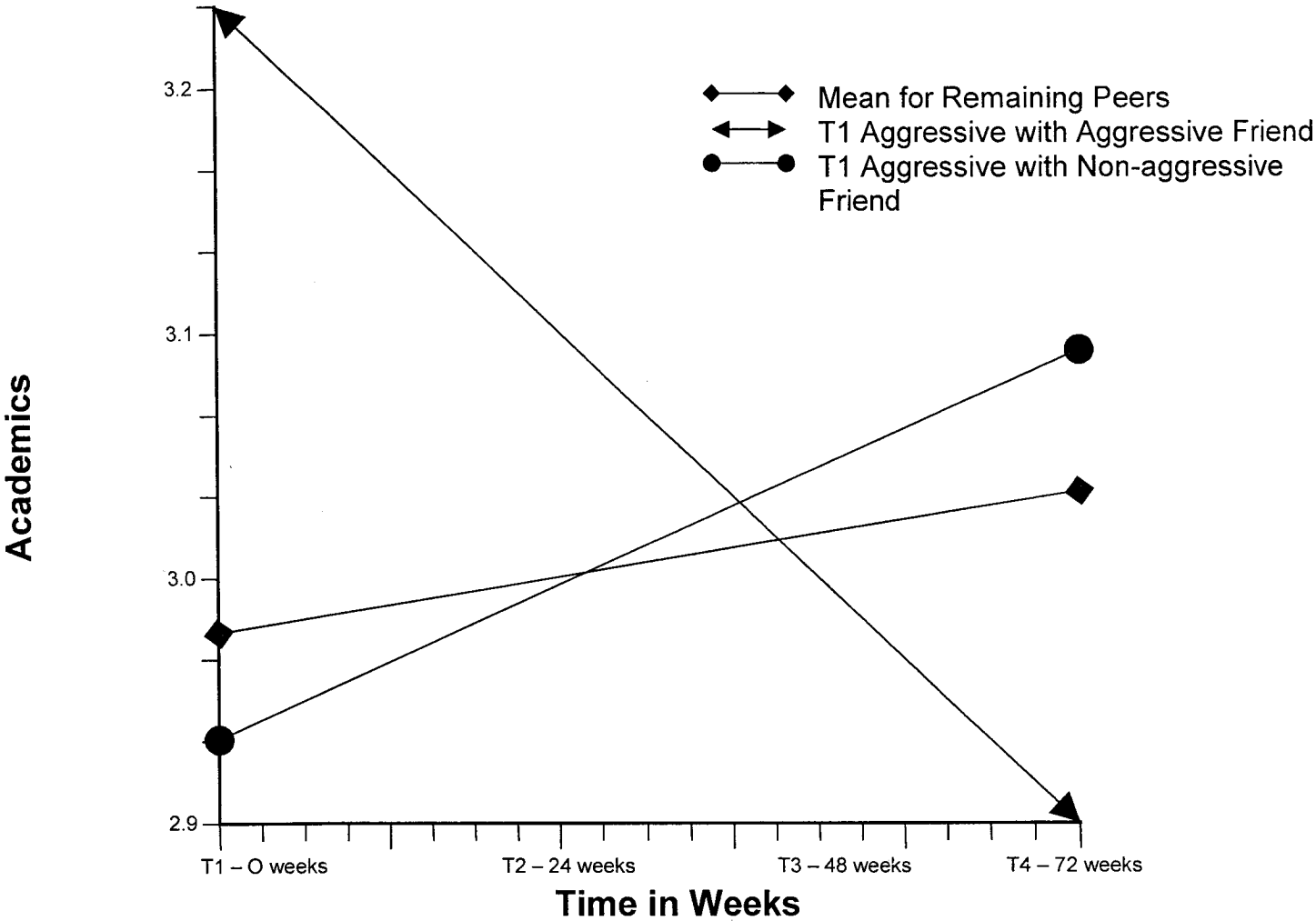
Figure 2. Aggressive status of aggressive children's friends and academic performance (Teacher A).

Figure 3. Desisting rejected status and academic performance (Teacher B).

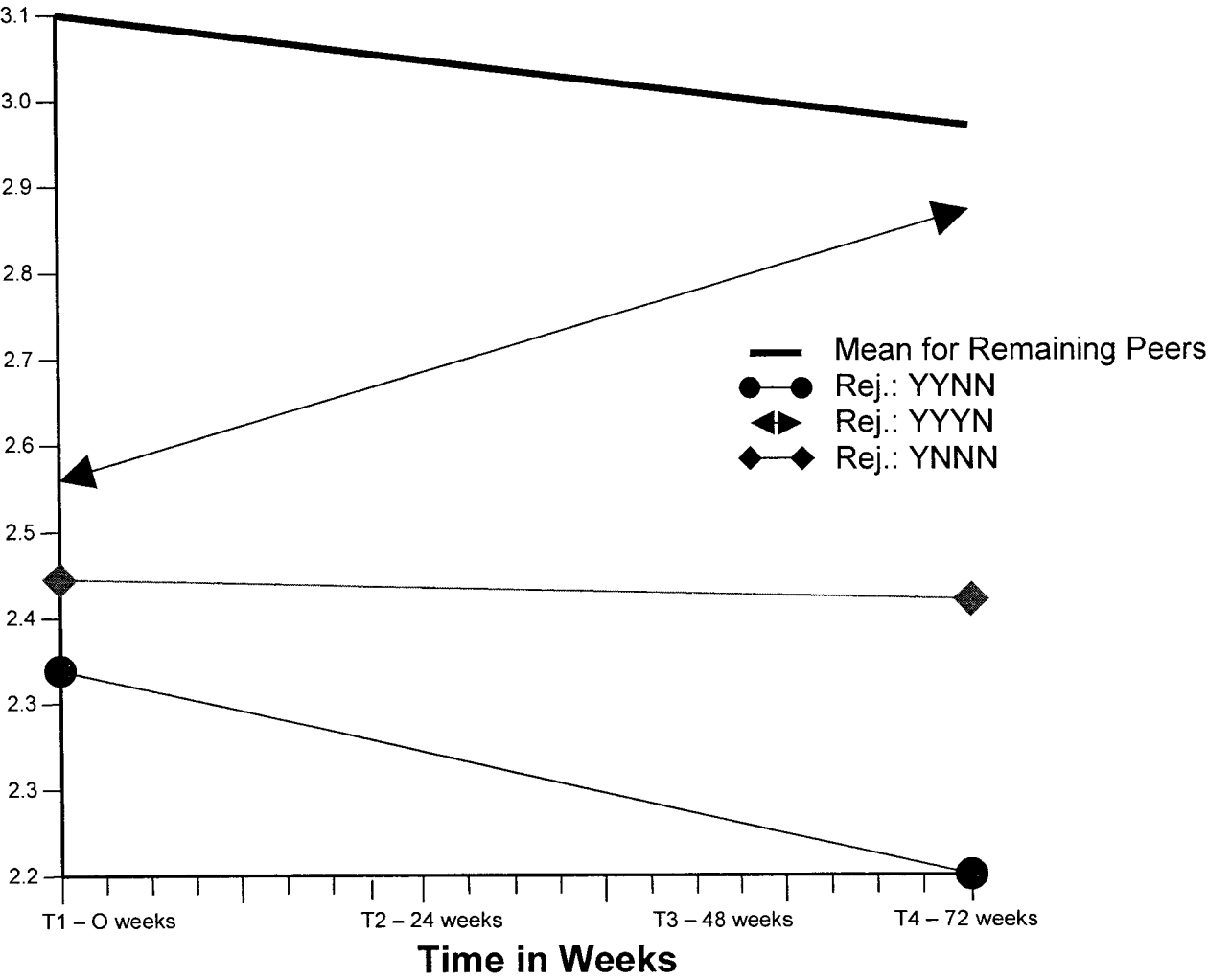
Figure 4. Onset of rejected status and academic performance (Teacher B).

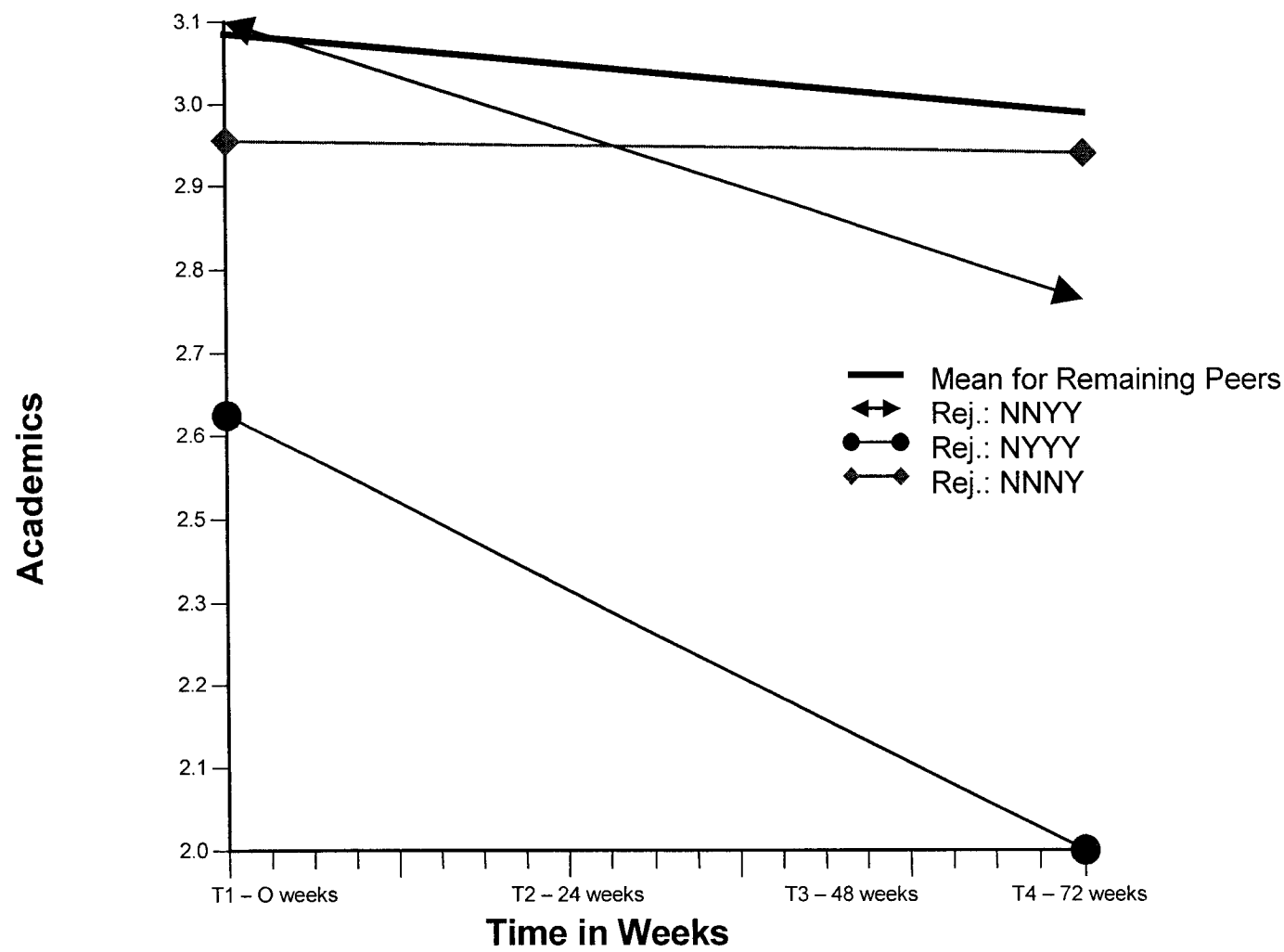
Figure 6. Onset of rejected status and boys' aggression.

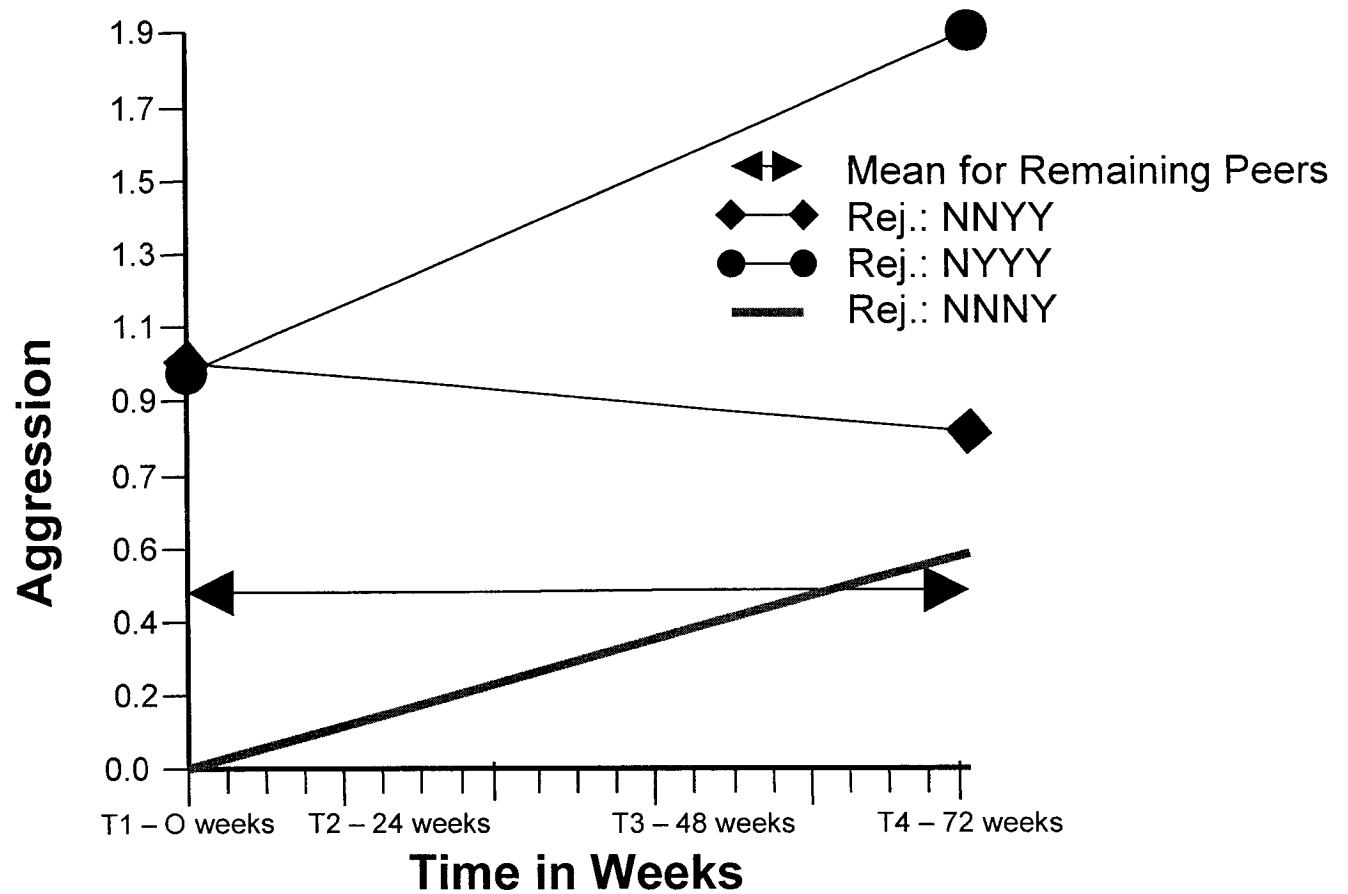




Academics







APPENDIX A
School Liking and Avoidance Questionnaire
(SLAQ; Ladd & Price, 1987)

Please answer the questions below using the following scale:

0 = no
1 = sometimes
2 = yes

1. Is school fun?
2. Do you ever want to cry when you're at school?
3. Would you like not to have to go to school?
4. Are you happy when you're at school?
5. Would you be happy if mom and dad had you stay at home instead of sending you to school?
6. Do you hate school?
7. Do you like being in school?
8. Do you like coming to school?
9. Would you want to be at home instead of coming to school?
10. Is it fun being in school?
11. When you wake up in the morning, are you happy to come to school?
12. Is school yucky?
13. Are you happy when it's time to go home?
14. Do you ask mom and dad to stay at home rather than coming to school?

APPENDIX B

Teacher Rating Scale of School Adjustment
(TRSSA; Ladd, Kochenderfer, & Coleman, 1996)

Please answer each question below in reference to (name of student) using the following scale:

- 0 = doesn't apply
- 1 = applies sometimes
- 2 = certainly applies

1. Likes to come to school.
2. Doesn't like school.
3. Has fun in school.
4. Enjoys being in school.
5. Thinks of reasons for having to go home.
6. Pretends to feel bad or sick in school.
7. Often asks how much time is left before dismissal.

APPENDIX C

Behavioural Nomination Questionnaire

Think of your classmates.

1) Who's very good in reading and writing?

1) _____

2) _____

3) _____

4) _____

5) _____

2) Who starts fights?

1) _____

2) _____

3) _____

4) _____

5) _____

3) Think of your classmates. Who's very shy?

1) _____

2) _____

3) _____

4) _____

5) _____

4) Who says nasty things about other kids?

1) _____

2) _____

3) _____

4) _____

5) _____

APPENDIX C, continued

5) Who's very helpful to other people?

1) _____

2) _____

3) _____

4) _____

5) _____

6) Who disrupts the class?

1) _____

2) _____

3) _____

4) _____

5) _____

7) Who's very good at playing ball?

1) _____

2) _____

3) _____

4) _____

5) _____

8) Who makes the nicest drawings or paintings?

1) _____

2) _____

3) _____

4) _____

5) _____