AN EXPLORATION OF SOCIAL CORRELATES OF ACADEMIC PERFORMANCE
IN RURAL STUDENTS WITH DISABILITIES

A Dissertation in
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by
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Abstract

While relationships among social and academic characteristics of students have long been recognized and explored in educational research, investigations within the special education population have been limited. The current study examined social correlates of academic performance in a sample of 124 rural students with mild disabilities. Survey data from students and teachers in 7 states across the United States supported correlations between several social adjustment indices and academic performance measures. Social preference, social prominence, bullying, and victimization were all correlated with academic performance. Regression analyses indicated that social preference, bullying, and victimization predicted more of the variance in academic performance than social preference. Measures of school perceptions and affiliates’ characteristics were not correlated with academic performance. Results are discussed with relation to sample and measurement characteristics.
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Chapter 1

Introduction

Problem Statement

Social adjustment in childhood has been studied as a possible predictor of adult maladjustment since the 1930s (Kupersmidt & Coie, 1990; Parker & Asher, 1987). Until the last two decades, social adjustment was primarily conceptualized as social preference, and studies of the social preference of children by their peers consistently bore out the theory that low peer acceptance was related to subsequent poor outcomes such as academic problems, school dropout, substance use, criminal activity, and mental health issues (Kupersmidt & Coie, 1990; Parker & Asher, 1987). More recently, researchers have begun to refine the construct of social adjustment, for example by distinguishing between social preference and social prominence (Farmer, Irvin, Sgambaro, Dadisman, Thompson, 2009; Parkhurst & Hopmeyer, 1998). Researchers have also begun to expand the exploration of social adjustment to include such factors as bullying involvement (Farmer, Estell, Bishop, O’Neal, and Cairns, 2003; Perren & Alsaker, 2006), peer group affiliations (Chen, Chang, He, & Liu, 2005; Kindermann, 2007), and perceptions of the social domain (Goodenow & Grady, 1993; Hagborg, 1998). Within the field of education, academic achievement is certainly one of the primary outcomes of interest, and research related to educational outcomes is beginning to shed light upon the relationships between various social adjustment indices and academic performance (Buhs & Ladd, 2001; Buhs, Ladd, & Herald, 2006).

However, while education research as a whole has been refining and clarifying the relationships among multiple facets of social adjustment and academic outcomes, research in the
special education population has failed to keep pace. In the relatively few studies that include special education students in explorations of the social correlates of academic adjustment, students in the special education population are generally compared with their typically developing peers. Not surprisingly, students with special needs are overwhelmingly found to have poorer social adjustment and poorer academic outcomes than students without special needs. What the research to date has not yet investigated is whether there are relationships between social adjustment and academic performance within the special education population.

The present study represents an initial exploration of the relationships between social adjustment indices and individual academic performance within the special education population. The social adjustment indices included are social preference, social prominence, bullying involvement, prosocial characteristics of affiliates, and perceptions of school. In this study, analyses focus on determining whether these indices of social adjustment are related to academic performance for students with special needs, and if so, which social adjustment variables are the best predictors of academic competence. Results may have implications for the selection of interventions and their expected outcomes within special education.

The remainder of this chapter focuses on brief descriptions of the constructs of interest for this study, as well as similarly brief summaries of why each construct is included. Details regarding the measurement of the constructs and the current research base of each social adjustment variable with relation to academic performance are given in Chapter 2. Chapter 3 describes the method, including descriptions of the participants, measures, data reduction, and analyses. Chapter 4 details the results, and Chapter 5 provides discussion of the findings.
Construct Overview

Social Preference. Social preference is a broad index of the prevailing sentiments (i.e. like or dislike) within a social network towards a specific individual (Buhs et al., 2006). Social preference has been positively linked to academic outcomes in the general education population. Studies have also demonstrated that both social preference and academic performance tend to be lower in the special education population than in the general education population. However, very little research has investigated whether social preference and academic performance are related within the special education population.

Social Prominence. Another measure of social status is social prominence, also known as perceived popularity. Social prominence is a measure of how prestigious and influential an individual is within a social system (Farmer et al., 2009; Parkhurst & Hopmeyer, 1998). Students may be socially preferred and socially prominent, but are sometimes identified as one or the other, rather than both. Compared to socially preferred students, students who are socially prominent are more likely to have poor academic outcomes in the general education setting (de Bruyn & Cillessen, 2006a; Rodkin, Farmer, Pearl, & Van Acker, 2000). No studies were identified that specifically investigated the relationship between social prominence and academic performance in special education samples.

Bullying Involvement. Bullying is commonly defined as repeated acts of aggression (verbal, relational, or physical) intentionally directed towards an individual with less power than the aggressor(s) (Leff, Power, & Goldstein, 2004; Olweus, 2003; Sutton, Smith, & Swettenham, 1999). In the current study, bullying involvement refers to bullying others, being bullied by others, or both. Bullying involvement has been linked with poor academic outcomes. In addition, students with special education needs have been identified as having greater involvement in
bullying than typically developing students.

*Prosocial affiliates.* Prosocial affiliates is a measure of peer rated prosocial behavior for a student’s associates. Research suggests that peer affiliations are related to student outcomes. Research investigating the relationship between affiliates’ prosocial behavior and student academic performance is not extensive, but does support a positive relationship between the two (Altermatt & Pomerantz, 2005; Hamm, 2000). No studies were identified that examined affiliates’ prosocial behavior and student academic performance in the special education population.

*Perceptions of School.* Perceptions of school have been conceptualized in a number of ways; for the purposes of this study, sense of belonging, school valuing, and perceived peer norms for academic effort and achievement will be examined. School belonging is an index of the extent to which students feel accepted and included in their schools (Goodenow & Grady, 1993). School valuing is an index of the extent to which students believe that school and school related outcomes are important. Peer norms for academic effort and achievement refers to the extent to which students believe their friends think it is acceptable and/or desirable to try hard and do well at academic tasks at school. Each of these constructs has been associated with academic outcomes (Goodenow & Grady, 1993; Hagborg, 1994; LeCroy & Krysik, 2008). However, there is currently little research investigating perceptions of school in special education as related to academic performance.

*Research Aims*

The current study seeks to extend the research base related to the social correlates of academic performance. To do so, the linkages between social adjustment variables and academic performance were examined in a sample of rural 5th grade students with special education needs.
The first aim of the study was to explore the relationship between social preference and academic performance. The second aim was to investigate the linkages between social prominence and academic performance. The third aim was to examine the relationship between bullying involvement and academic performance. The fourth and fifth aims were to explore the linkages between prosocial affiliates and academic performance and between perceptions of school and academic performance.
Chapter 2

Literature Review

Studies spanning the last 80 years have supported the idea that low social preference is linked to a multitude of poor outcomes, including academic performance (Kupersmidt & Coie, 1990; Parker & Asher, 1987). However, there is little evidence to suggest how social preference, which is a private, unobservable phenomenon, relates to outcomes (Boivin & Hymel, 1997; Buhs & Ladd, 2001; Buhs et al., 2006). The lack of theoretical explanations for the link between preference and outcomes led several researchers to develop conceptual models to guide research in this area (Buhs & Ladd, 2001), and contributed to the current trend to consider social adjustment variables beyond social preference in the quest to understand the connections between social processes and academic outcomes. For instance, Buhs and Ladd (2001) theorized that social preference would lead to relatively more positive or negative treatment by peers, which would then impact classroom participation, ultimately resulting in relatively more positive or negative academic outcomes. Buhs and colleagues (2006) elaborated on this model by distinguishing between peer exclusion and peer abuse, hypothesizing that different forms of peer maltreatment would differentially affect engagement and avoidance, and ultimately academic performance.

Others have suggested that social skills deficits and academic deficits are both markers of underlying developmental deficits (e.g. Coie & Krehbiel, 1984). Still others have hypothesized that associations with peers who do not value school may negatively impact academics (e.g. Chen, Chang, & He, 2003; Chen, Chang, Liu, & He, 2008). Researchers have also suggested that school belonging, school valuing, and peer norms for academic effort and achievement may
impact academic performance by increasing or decreasing motivation and engagement in school (Finn, 1989; Fordham & Ogbu, 1986; Goodenow, 1993; Osterman, 2000). Another theory suggests that personal characteristics that lead to low social preference with peers also affect student-teacher relationships negatively, which in turn reduces academic motivation and performance (e.g. Wentzel & Asher, 1995). Each of these theories has good face value, and each contributed to the selection of additional social correlates of academic performance that were examined in the current study.

The logic model guiding the present investigation offers both the traditional view of the direct link between social preference and academic performance, as well as an expanded path leading through more fine-grained social preference indices and perceptions of school (see Figure 1). This model describes the theoretical division of social preference into three distinct facets including social prominence, bullying involvement, and prosocial affiliates. The model further illustrates the theory that the links between these indices and academic performance are impacted by students’ perceptions of school. There is also a direct link indicated between prosocial affiliates and academic performance reflecting the theory that associating with positive peers may directly impact academics. It should also be noted that all of the arrows within this model are bi-directional, indicating that these processes are thought to be mutually influential.

These issues are of particular significance to the field of special education because students with disabilities tend to have both poorer social adjustment and poorer academic outcomes than their typically developing peers. However, while the relationship between low social preference and academic outcomes has been well-established in the general education population, the research in the special education population is far more limited. In addition, there is a paucity of research exploring other social correlates of academic performance in any
population, but particularly within the special education population. The following pages will provide a synopsis of the research relating social preference, social prominence, bullying, prosocial affiliates, and perceptions of school to academic outcomes both within the general education and the special education population.

Figure 1
Logic Model

Social Preference

The construct of social preference has been researched since the 1930’s when J. L. Moreno began his investigations of sociometry. Moreno advanced the proposition that human societies are atomic in nature, with individuals drawn together or pushed apart by forces of attraction and rejection (Moreno, 1953). To represent these attractions and repulsions, Moreno developed the sociogram, in which individuals are represented by circles, and attractions and repulsions are represented by lines and arrows connecting the individuals. While sociometric
representations have evolved since Moreno’s time, this idea of developing a representation of social networks by asking individuals who they would like to spend time with in one way or another remains at the heart of determining social preference. Typically, social preference is measured by asking individuals within a given social unit to name the 3 individuals whom they like most and the 3 whom they like least from free-recall (e.g. Buhs & Ladd, 2001; Coie, Dodge, & Coppotelli, 1982, Kupersmidt & Coie, 1990).

Correlates of social preference. The extant research overwhelmingly supports the idea that low social preference is correlated with poor outcomes. Studies have identified a correlation between low social preference and school dropout (e.g. Coie & Kupersmidt, 1983; Ollendick, Weist, Borden, & Greene, 1992), absenteeism (e.g. DeRosier, Kupersmidt, & Patterson, 1994), delinquency and criminality (e.g. Kupersmidt & Coie, 1990), poor mental health (Roff & Wirt, 1984), and substance use (Andrews, Tildesley, Hops, & Li, 2002; Wills & Cleary, 1999). The relationship between social preference and distal outcomes has been established primarily through correlational research, and therefore does not suggest that low social preference causes poor outcomes. However, a few studies have looked longitudinally at the relationships between social preference and outcomes, and while these studies do not establish a causal relationship either, they are consistent with the idea that low social preference contributes to poor outcomes (Kupersmidt & Coie, 1990, Parker & Asher, 1987).

The link between low social preference and academic performance is also well-supported by empirical studies. Studies have shown positive correlations between social preference and academic performance across multiple countries, with students from kindergarten through high school, and with varying indices of academic performance (see Appendix A). Studies in elementary schools have shown a positive correlation between social preference and
standardized test scores (e.g. Austin & Draper, 1984; Green, Forehand, Beck, & Vosk, 1980; Ladd, Kochenderfer, & Coleman, 1997). Other elementary school studies have positively correlated social preference with curriculum based measures of performance (e.g. Guay, Boivin, & Hodges, 1999; Lopes, Cruz, & Rutherford, 2002; Welsh, Parke, Widaman, & O’Neil, 2001). Social preference has also been correlated positively with both standardized test results and curriculum based outcome measures in middle school students (e.g. Chen, Rubin, & Li, 1995; Chen, Rubin, Li, & Li, 1999; Jonkman, Trautwein, & Lüdtke, 2009), and high school students (Chen et al., 2003).

Correlates of social preference with students with disabilities. Few studies have investigated whether the relationship between low social preference and academic performance holds for students with disabilities. Of those that have, the majority have examined social preference with students with learning disabilities (LD; see Appendix A). Studies including students with LD have found a positive correlation between social preference and academic performance in elementary (e.g. Diehl, Lemerise, Caverly, Ramsay, & Roberts, 1998; Gadeyne, Ghesquière, & Onhena, 2004) middle (e.g. Conderman, 1995), and high school (e.g. Perlmutter, Crocker, Cordray, & Garstecki, 1983). Other studies have also shown positive correlations between social preference and academic performance in samples including elementary students with a wide range of disabilities, though in each study the preponderance of students with disabilities had LD (Cook & Semmel, 1999; Sale & Carey, 1995).

As opposed to the studies of social preference within the general education population in which preference and performance were most frequently examined as continuous variables, the majority of studies including students in special education grouped students by ability level, performance level, and/or special education status, then reported whether the groups were
different from one another in terms of social preference. By using special education status as a gross measure of performance, researchers have shown that social preference is lower among students with disabilities than their typically developing peers, and thus consistent with the literature in the general education population. However, the question of whether social preference and academic performance covary within the population of students with special education diagnoses has not been adequately addressed.

The few studies that have investigated whether social preference and academic performance covary among students with special education diagnoses have produced results that suggest the need for further investigation in this area. For example, Kistner and Gatlin (1989) found that although students with LD were, as a group, less preferred than their typically developing peers, the correlation between social preference and academic performance did not hold within the group of students with LD. Bakker and Bosman (2003) distinguished between students with noticeable disabilities, those with less obvious disabilities, and low achieving students without disabilities and found that when students have disabilities that are readily apparent, they tend to have higher social preference than students with subtle disabilities or no disabilities and low performance.

Cook and Semmel (1999) investigated the interaction between classroom composition, severity of disability, and social preference. Findings indicated a main effect supporting positive correlation between social preference and performance; however, there was a significant interaction between classroom composition and preference ratings of students with disabilities. In classrooms with a highly heterogeneous population (i.e. relatively more students with poor reading ability and with disabilities), students with disabilities received lower social preference ratings than did students in classrooms with a more homogenous composition (i.e. relatively few
poor readers and students with disabilities). This finding is interpreted as consistent with the hypothesis that when disabilities are salient, peers adjust expectations and are more accepting of atypical behaviors, leading to greater acceptance of students with disabilities. Conversely, when the range of abilities is more continuous, disabilities are less salient and peers are less likely to adjust expectations. It should be noted that although students with disabilities in relatively homogenous classrooms received higher preference ratings than those in relatively heterogeneous classrooms, behavioral observations revealed that the rates of actual interactions did not differ.

Perlmutter and colleagues (1983) observed that of the 55 students with LD in their study, 6 received social preference scores equal to highly socially preferred non-LD students. While subsequent analyses did not reach the level of significance, possibly due to the small number of subjects involved, it is interesting to note that these 6 highly preferred students differed from their less preferred LD peers only in degree to which they were withdrawn and accuracy of their predictions about how other students would rate them, not on academic performance or levels of aggression. The authors suggested that the ability to perceive how well-liked or disliked they were by their peers may have been the key to the difference in social preference for these students versus their less socially aware peers. These findings from studies investigating the relationship between social preference and academic performance within special education populations suggest that there are additional factors to consider when investigating social preference in students with disabilities as opposed to typically developing students.

**Social Prominence**

Social prominence is another facet of social status, but unlike social preference, social prominence is a measure of social salience, not likability. Social prominence is estimated by
frequency of nominations for peer-valued characteristics such as cool, athletic, leader, and popular. Recent research has distinguished behavioral characteristics that are associated with social preference and social prominence, establishing the constructs as overlapping but distinct dimensions of the social networks (de Bruyn & Cillessen, 2006b; Farmer, Estell, Bishop, et al., 2003; Farmer & Rodkin, 1996; Parkhurst & Hopmeyer, 1998; Rodkin et al., 2000). As a whole, students who are socially prominent tend to be attractive, stylish, and athletic. Students who are socially prominent and socially preferred also tend to be viewed as kind, friendly, trustworthy, and academically engaged, whereas students who are socially prominent but not socially preferred tend to be viewed as aggressive, stuck-up, arrogant, and academically disengaged.

Very little research has gone beyond establishing these behavioral trends to investigate the relationship between social prominence and academic performance. Farmer and his colleagues have shown that students who are both socially prominent and prosocial tend to have more positive academic outcomes than students who are socially prominent and antisocial (Farmer, Estell, Bishop, et al., 2003; Farmer et al., in press; Farmer et al., 2009; Rodkin et al., 2000). Several other studies have found results that support the differential academic competence of prosocial and antisocial prominent students (Becker & Luthar, 2007; de Bruyn & Cillessen, 2006a, 2006b). No studies were identified that examined the link between social prominence and academic performance in special education populations.

**Bullying**

Bullying is repeated, intentional acts of aggression towards individuals with less power than the aggressor(s). There are three distinct categories of individuals who are involved in bullying: bullies, victims, and bully-victims (Golberg, Olweus, & Endresen, 2007; Veenstra et al., 2005). Bullies are individuals who are aggressive towards others, but are not victimized
themselves. Victims are individuals who are the targets of aggression, but do not aggress against others. Bully-victims are individuals who are both the perpetrators and targets of aggression. These three categories have been found to occur across multiple ages and stages of development, from pre-school to secondary school (Farmer, Petrin, et al., 2010). Bullying involvement may be measured using self-reports, peer reports, teacher reports or direct observation (Espelage & Swearer, 2003). Peer reports of bullying involvement are generally aggregates of peer nominations for items such as bullies others and picked on (e.g. Berger & Rodkin, 2009; Estell et al., 2009). Teacher reports typically consist of ratings on a Likert-type rating scale for items such as bullies peers and picked on by peers (Estell, Farmer, & Cairns, 2007; Estell et al., 2009).

Bullying research has been an international priority for approximately 30 years, following the landmark research by Olweus in which he described “mobbing” as one or more individuals harassing or teasing an individual (Espelage & Swearer, 2003). This research has identified many undesirable correlates of bullying, such as depression (e.g. Callagen & Joseph, 1995; Kumpulainen, Räsänen, & Puura, 2001), anxiety (e.g. Craig, 1998; Swearer, Grills, Haye, & Cary, 2004), decreased motivation and engagement (Hazemba, Siziya, Muula, & Rudatsikira, 2008), and school avoidance (e.g. Olweus, 1993).

Individuals within the different categories of bullying involvement have been shown to have different patterns of social relations (Farmer, Estell, Bishop, et al., 2003; Perren & Alsaker, 2006). In very broad strokes, bullies tend to be aggressive, have leadership skills, display limited prosocial behavior, and have large social networks. Again, broadly speaking, victims tend to be timid and/or withdrawn, have limited prosocial skills, limited leadership skills, and few or no friends. Bully-victims tend to be aggressive, have limited prosocial skills, and few or no friends. Furthermore, recent research suggests that students with disabilities are more likely than either
gifted students or typically developing students to be affected by bullying behavior, either as a bully, a bully-victim, or a victim (Estell et al., 2009).

Relatively few studies have addressed whether bullying involvement is directly correlated with poor academic performance (see Appendix B), but findings from these studies consistently suggest that there is a relationship. A number of these studies looked only at the relationship between being bullied by others (i.e. victimization) and performance, though others examined correlates of bullying others, as well. In studies of bullying in elementary schools, being bullied by others was reported to be negatively correlated with academic performance (e.g. Beran, Hughes, & Lupart, 2008; Kochenderfer & Ladd, 1996; Schwartz, Gorman, Nakamoto, & Toblin, 2005). One elementary school study found that both being bullied by others and bullying others was a significant negative correlate of academic performance (Schwartz, 2000). Another elementary school study found group differences in performance for students grouped into bully, victim, bully-victim, and non-involved, with bully-victims being the lowest achievers and non-involved students being the highest (Toblin, Schwartz, Gorman, & Abou-ezzeddine, 2005).

Two studies examined bullying across the transition from elementary to middle school. In one of these studies, being bullied by others was found to be significantly negatively correlated with academic performance (Tom, Schwartz, Chang, Farver, & Xu, 2010). The other study found no significant correlation between being bullied and performance when the prior year’s performance was controlled for, but did find a significant correlation between bullying others and poor academic performance (Ma, Phelps, Lerner, & Lerner, 2009). Another study found that being bullied and bullying others was negatively correlated with academic adjustment in middle school (Nansel, Haynie, & Simons-Morton, 2003). In a study examining bullying across the transition from middle to high school, being bullied was linked to poor performance only if the
student also displayed poor behavior management and peer interactions (Beran & Lupart, 2009).

As with the studies of social preference, studies of bullying and performance in special education populations tend to compare differences between groups of students with and without special education diagnoses, or groups with special education diagnoses by placement, rather than examining the correlations within the special education population. In one study of elementary school students, researchers found that students with mild disabilities were more likely than typically developing or gifted peers to be identified as bullies by peers and teachers, and more likely to be identified as victims by teachers (Estell et al., 2009). Another study found that elementary students with LD were more likely than students without LD to be identified as bullies, but not as victims or bully-victims (Kaukiainen et al., 2002); while a third study found students with LD were more likely than students without LD to be nominated as victims, but not as bullies (Nabuzoka & Smith, 1993).

A study of middle school students with specific language impairments showed that these students were more likely to be identified as victims than were typically developing students, though the significance of this finding was not reported (Knox & Conti-Ramsden, 2003). Carran and Kellner (2009) found that students with emotional and behavioral disorders (EBD) in specialized middle and high schools were less likely to report bullying others than students in public schools, but equally likely to report being bullied by others (significance not reported). Another study with middle and high school students found that students with special education needs in a self-contained classroom were more likely than mainstreamed students with special education needs to report both bullying and being bullied by others (Rose, Espelage, & Monda-Amaya, 2009). Mainstreamed students were, in turn, more likely to report bullying and being bullied by others than were typically developing students. Saylor & Leach (2009) found that
middle and high school students in self-contained classrooms reported higher levels of being bullied by others than typically developing students, but found no differences in prevalence of bullying others.

**Prosocial Affiliates**

The majority of studies of the relationship between characteristics of students’ affiliates and individual student academic performance have been conducted with students from late elementary age through high school, likely due to the commonly held belief that peers become more influential in the adolescent years (see Appendix C; Estell, Farmer, Cairns, & Cairns, 2002). However, a few researchers have investigated the relationship between affiliates’ characteristics and individual academic performance in early elementary school and have found that even in this young group, students’ academic performance is positively correlated with the characteristics of their affiliates. For example, in a study that followed students from 1st through 2nd grade, students’ grades and teacher rated academic competence were significantly positively correlated with those of their affiliates (Estell et al., 2002). Another study showed that teacher reported academic competence and standardized test scores of 1st through 5th grade students were significantly positively correlated to the academic competence of their affiliates (Kurdek & Sinclair, 2000). Engagement and motivation of students has also been shown to be related to the engagement and motivation of their affiliates in elementary school (Kindermann, 1993). Several studies that included late elementary and middle school students have also supported the correlation between affiliates’ characteristics and student academic performance (e.g. Altermatt & Pomerantz, 2005; Chen et al., 2003; Chen et al., 2005; Kindermann, 2007; Ryan, 2001). Results from studies including high school students offer further support for the link between affiliates’ characteristics and student academic performance (e.g. Hamm, 2000; Mounts &
Steinberg, 1995; Ryabov, 2009). Notably, while several studies identified mediating and
moderating variables that impacted the relationship between affiliates’ characteristics and student
academic performance (e.g. Chen et al., 2003; Mounts & Steinberg, 1995), no studies were
identified that contradicted the theory that affiliates’ characteristics and student academic
performance are correlated. Results from a study within the special education population showed
that students with LD who affiliated with more prosocial students had greater gains in reading
than those who affiliated with more antisocial students (Fleming, Cook, & Stone, 2002). No
other studies with students with disabilities were identified.

**Perceptions of School**

School belonging has also been referred to as identification, sense of community,
relatedness, support, acceptance, and membership, among other labels, and is a measure of the
degree to which students feel that they are accepted, supported, respected, and included as
members of their school (Goodenow & Grady, 1993). School belonging is typically measured
using questionnaires such as the Psychological Sense of School Membership (PSSM; Goodenow
& Grady, 1993). School valuing is also typically measured using questionnaires, such as the
Identification with School Questionnaire (Voelkl, 1996). Peer norms for academic effort and
achievement is an index of students’ perceptions of the value their friends place on academic
effort and academic success. This construct is also typically measured using a questionnaire,
such as The Peer Norms for Academic Effort and Achievement (Hamm et al., 2010).

None of the perceptions of school constructs included in this study (school belonging,
school valuing, perceived peer norms for academic effort and achievement) has an extensive
literature base exploring the construct as related to academic performance, and as is common, the
literature including students with disabilities is even more sparse. Of the three, school belonging
as related to academic performance has been studied the most, while school valuing and peer norms for academic effort and achievement have received little attention, especially in regard to academics. In addition, the literature regarding these constructs does not provide a consistent or clear picture of their relationship to academic performance.

*School belonging.* A sense of school belonging is thought to improve academic motivation, engagement, and participation, while reducing the likelihood of school drop-out (Finn, 1989; Goodenow & Grady, 1993; Hagborg, 1998; Osterman, 2000). In elementary school studies investigating possible links between students’ sense of school belonging and academic performance, two studies identified significant positive correlations between school belonging and both standardized test scores and grades (see Appendix D; Battistich, Solomon, Kim, Watson, & Schaps, 1995; Furrer & Skinner, 2003). Another study found no correlation between belonging and standardized test scores in elementary school (Strambler & Weinstein, 2010). Studies of belonging in middle schools have found significant positive correlations with engagement and motivation (Finn & Voelkl, 1993; Goodenow, 1993; Goodenow & Grady, 1993), as well as standardized test scores (Hagborg, 1994), and grades (Goodenow, 1993; Hagborg, 1994; LeCroy & Krysik, 2008; Roeser, Midgley, & Urdan, 1996). Interestingly, Hagborg (1994) found that belonging correlated with self-reported grades, but not grades retrieved from school records. One middle school study did not find any significant group differences in sense of belonging between LD and typically developing students, or a correlation between belonging and change in reading performance level (Fleming et al., 2002). In a study including high school students, Hagborg (1994) found that belonging and self-reported grades were positively correlated; however, in another study, no group differences in sense of belonging were found between students with and without LD (Hagborg, 1998).
**School valuing.** The research base on the relationship between academic valuing and student performance is particularly sparse. In 2010, Strambler and Weinstein analyzed academic valuing (i.e. *I care how well I do*) and academic devaluing (i.e. *learning is not important*) separately with respect to academic performance in elementary school. They found that academic devaluing correlated with lower academic performance, but academic valuing did not correlate with higher academic performance. In a study of valuing in middle school, group differences were found between LD and typically developing students such that students with LD reported lower school valuing than those with no special education needs (Fleming et al., 2002). Ethnographic data collected in a high school suggested that school valuing was related to both standardized test scores and grades (Fordham & Ogbu, 1986).

**Peer norms for academic effort and achievement.** The results from research on the relationship between perceived peer norms for academic effort and achievement and student performance are mixed. One study found that perceived peer norms were weakly correlated to academic motivation and engagement in middle school (Goodenow & Grady, 1993). Another found that the perceived class level academic norms of 4th grade students did not correlate with their own academic performance, while there was a correlation in 6th and 8th grades (Masten, Juvonen, & Spatzier, 2009). It should be noted that in this study, students were reporting their perception of peer norms for their entire class (4th grade) or their entire grade (6th and 8th grade), not those of their own affiliates. Other studies in middle schools found support for the connection between perceived peer group norms and student academic performance (e.g. Giordano, Phelps, Manning, & Longmore, 2008; LeCroy & Krysik, 2008; Woolley, Kol, & Bowen, 2009). In high school students, ethnographic data is consistent with a positive relationship between peer norms for academic effort and achievement and academic performance (Fordham & Ogbu, 1986).
respect to students with disabilities, no studies investigating the possible link between peer and individual performance were identified.

**Summary and Implications for Current Study**

The extant research of social correlates of academic performance suggests that social processes have important implications for academics. Social preference has the most extensive literature of any of the social correlates of academic adjustment examined within this study, and results from this research consistently indicate that social preference is positively correlated to academic performance in the general education population. Though research examining social prominence, bullying, characteristics of affiliates, and school perceptions is less extensive, there is evidence to support the link between each of these constructs and academic performance. The research investigating the links between these social variables and academic performance in special education populations is both less extensive and less consistent. The majority of the studies have compared students with special needs as a group to students in general education, finding that special education students fare less well socially and academically than their typically developing peers. The few studies that have examined the correlations between social variables and academic performance within the special education population have identified inconsistencies between the findings in general education and special education.

Despite the shortage of evidence linking social adjustment to academic performance in special education, there is ample evidence to suggest that social skills interventions are being implemented with special education students with the expectation that these interventions may have a positive impact on both social adjustment and academic competence. In one respect, this assumption is quite reasonable, and backed by substantial research (Brophy & Good, 1986; DiPerna, 2006; Ellis, Worthington, & Larkin, 1994). When the social interventions in question
are aimed at remediating behaviors that compete directly with academic engagement, such as fighting or wandering out of the classroom, these interventions may be expected to improve both social and academic outcomes. On the other hand, when social skills interventions are aimed at remediating behaviors that do not directly compete with academic engagement, such as not joining in with peers during freetime or recess, research establishing the positive link between academic engagement and academic performance can no longer be used to support the expectation that improved social skills may lead to improved academic performance. However, many researchers in special education imply or even state directly that social skills interventions may positively impact academic performance (e.g. Cheney et al., 2009; Gooding, 2009; Gresham, Sugai, & Horner, 2001; Marchant & Womack, 2010; Royer, Desbiens, Bitaudeau, Maltais, & Gagnon, 1999). Given that social interventions are being used with the expectation of improving both social and academic outcomes in special education, inconsistencies and the overall shortage of research with regard to social correlates of academic performance within special education suggest that these issues should be investigated more thoroughly.

Greater understanding of the interplay between the social and academic realms of students with special education needs could help inform the choice of interventions and the expectations for those interventions. If certain social variables are found to be strongly correlated with academic performance, intervention with respect to those social variables might be expected to have an impact on both social and academic functioning. If, however, social variables are not correlated with academic performance within special education, social interventions would not be expected to impact academic functioning. That is not to say that social interventions would not continue to be valuable in terms of improving the social interactions of students with disabilities, but simply that this knowledge could change the expectations for certain
interventions. However, before questions of implications for intervention choices and expectations can be addressed, it must be determined whether social variables are correlated with academic performance within special education. Therefore, the current study investigated the social correlates of academic performance in special education by addressing the following research questions:

1. Does social preference correlate with academic performance in a sample of students with special needs?
2. Does social prominence correlate with academic performance in a sample of students with special needs?
3. Does bullying involvement correlate with academic performance in a sample of students with special needs?
4. Does affiliates’ academic competence correlate with academic performance in a sample of students with special needs?
5. Do perceptions of school correlate with academic performance in a sample of students with special needs?
6. Which social adjustment variable(s) explain the largest portion of the variance in academic performance in a sample of students with special needs?
Chapter 3
Method

The current study is a secondary analysis of existing data from an ongoing research program (The Rural Early Adolescent Learning program or Project REAL) that is aimed at promoting positive adaptation of rural adolescents as they transition from elementary to middle school (see Farmer, Hamm, et al., 2010). Students and teachers from 30 schools in seven states across all geographic regions of the United States participated. Project REAL is a cluster randomized control trial that includes schools located in rural settings with high levels of poverty. The current study uses survey data from multiple sources in conjunction with school records to explore the social correlates of academic performance in rural students with disabilities. Data for the current analyses come from baseline data collected in the spring of the year preceding intervention.

Procedures

Recruitment was conducted by sending consent letters to parents of all students in participating schools. All protocols for consent procedures, measures, and data collection were approved by a university internal review board, the administrations of participating school districts, and the ethics review panels of the participating schools.

Student data was collected following group administration procedures that have been used for two decades (e.g. Estell et al., 2009; Farmer, Hamm, et al., 2010). Students with consent to participate in the study were gathered in the school cafeteria, seated at alternate seats so that no one was directly across from or next to another student. Students were informed that they were not required to participate and could withdraw from the study at any time. Instructions and
individual survey items were read aloud by trained administrators, and additional research staff circulated to provide assistance as needed. Teachers completed assessments of participating students at the same time. Teachers were given financial compensation for their participation, and students received special pencils.

Participants

The total sample for this study consisted of 1,063 students. From this sample, 685 (64.4%) of the students provided consent to participate in the surveys. The sample of students with special education identifications included 124 students with mild disabilities (51 females, 73 males). Students with disabilities who provided consent and had end of year academic performance data were included in this study. Students with disabilities included 11 fourth graders, 90 fifth graders, 21 sixth graders, and 2 seventh graders (see Table 1). The ethnic and racial composition of the sample of students with disabilities was 71.0% White, 20.2% Black, 4.0% Hispanic, 1.6% Native American, 2.4% multiple ethnicities, and 0.8% unknown. Student disabilities included learning disabilities (LD; 57.3%), other health impairments (OHI; 12.9%), speech impairments (12.1%), mental retardation (MR; 8.9%), emotional and behavioral disorders (EBD; 4.0%), autism spectrum disorders (0.8%), visual impairments (0.8%), traumatic brain injury (TBI; 0.8%), and students identified as receiving special education services without a disability specified (2.4%). Of the 30 schools, 10 were K-8 or K-12 schools and 20 were elementary schools. The schools served between 49 and 514 students, and class size ranged from 9 to 33 students per class with an average of 20 students per class.
Table 1

Sample Characteristics ($N = 124$)

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>73</td>
<td>58.9%</td>
</tr>
<tr>
<td>Female</td>
<td>51</td>
<td>41.1%</td>
</tr>
<tr>
<td><strong>Ethnicity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>88</td>
<td>71.0%</td>
</tr>
<tr>
<td>Black</td>
<td>25</td>
<td>20.2%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>5</td>
<td>4.0%</td>
</tr>
<tr>
<td>Native American</td>
<td>2</td>
<td>1.6%</td>
</tr>
<tr>
<td>Multiple ethnicities</td>
<td>3</td>
<td>2.4%</td>
</tr>
<tr>
<td>Unknown</td>
<td>1</td>
<td>0.8%</td>
</tr>
<tr>
<td><strong>Grade</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4th</td>
<td>11</td>
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</tr>
<tr>
<td>5th</td>
<td>90</td>
<td>72.6%</td>
</tr>
<tr>
<td>6th</td>
<td>21</td>
<td>16.9%</td>
</tr>
<tr>
<td>7th</td>
<td>2</td>
<td>1.6%</td>
</tr>
<tr>
<td><strong>State</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kansas</td>
<td>23</td>
<td>18.5%</td>
</tr>
<tr>
<td>New Mexico</td>
<td>6</td>
<td>4.8%</td>
</tr>
<tr>
<td>Ohio</td>
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</tr>
<tr>
<td>Mississippi</td>
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<td>5.6%</td>
</tr>
<tr>
<td>South Carolina</td>
<td>29</td>
<td>23.4%</td>
</tr>
<tr>
<td>Oregon</td>
<td>19</td>
<td>15.3%</td>
</tr>
<tr>
<td>Wyoming</td>
<td>13</td>
<td>10.5%</td>
</tr>
</tbody>
</table>

Although data were collected regarding the special education labels of specific students, for the purposes of analysis, students were categorized as either having mild disabilities or not. The decision to dichotomize the data, rather than performing separate analyses for each distinct special education category, was based on a number of considerations. First, classification into diagnostic categories varies from state to state and even from one locale to another. It has been documented that the prevalence of specific disability categories varies across states (Hallahan et al., 2007; Truscott, Catanese, & Abrams, 2005), and even within states (Truscott et al., 2005), suggesting that diagnostic criteria for special education categories are interpreted in different ways in different places. The differences in interpretation may lead to variation in the characteristics of children in specific categories across states and locales.
In addition, variation in the diagnostic criteria at the local level was established anecdotally during data collection for Project REAL. For example, several teachers reported that their school no longer used EBD as an identification label, opting instead for the labels of LD or OHI, as these were perceived as more palatable and less stigmatizing. Therefore, while diagnostic labels were identified for the students receiving special education services, this does not guarantee that the students within specific categories have similar behavioral, social, or physical characteristics. Also, even in a large national sample such as this one, there are still insufficient numbers of students with each specific disability to provide adequate power to examine effects for individual categories. Furthermore, the number of students in each of the categories varies widely. While this variation may merely reflect the actual differences in the occurrence of different disabilities, it may also reflect the increased palatability of certain diagnostic labels and in either case would contribute further to making analysis based on diagnostic labels inappropriate and misleading.

In sum, making inferences about specific categories of disabilities from this data may be misleading due to the lack of specificity regarding categorization decisions and differences in numbers of students in each category. However, behavioral data within the data set do support the premise that the students with mild disabilities are categorically different than those who were not identified. Therefore, the data may be able to tell a meaningful story about the social correlates of academic adjustment of students with disabilities, though it is not suited to differentiate among disabilities.

**Measures**

*Social preference.* Following procedures described by Coie, Dodge, and Coppotelli (1982) and used extensively in subsequent research (e.g. Berger & Rodkin, 2009; DeRosier &
Mercer, 2009; Farmer et al., 2009), students were asked to name the three peers they liked most and the three peers they liked least. The schools in this study varied widely in terms of enrollment. Therefore, a judgment was made at each school whether students would be asked to name peers from their own classroom, from their own grade, or from the entire school. These judgments were based on information from the school personnel about how students were grouped and spent their time. If students spent the majority of their day with the other students in their own class, and had little interaction with students from other classes and grades, then they were asked to name peers from their own class. On the other hand, if students interacted with all of the students across all grades of a school, as is the case in many small, rural schools, they were asked to name any peer in the school. An index of social preference was determined for each student based on these nominations. Test-retest reliability over a 12-week period has been reported as $r = 0.65$ (Coie et al., 1982).

*Peer behavioral assessments.* The peer behavioral assessment provides a measure of students’ perceptions of their classmates’ behavioral and social characteristics. Students are asked to nominate up to 3 peers for each of 18 items that represent various behavioral and social characteristics. Each item is accompanied by a brief description, such as *Leader.* “This person gets chosen by others as the leader. Other people like to have this person in charge,” and *Cool.* “This person is really cool. Just about everybody in school knows this person.” Students are instructed that they may name up to 3 peers for each item, but if they don’t know 3 peers who fit each description they may leave blanks. They are also told that they may nominate the same individual(s) for more than one item, and they may nominate themselves. As with the social preference nominations, judgments were made for each school about the appropriate pool of peers to include in the nominations (classmates, grademates, or schoolmates). These items and
procedures are highly similar or identical to those used in a number of other studies (see Coie et al., 1982; Farmer, Estell, Leung, et al., 2003; Farmer et al., 2002; Farmer, Rodkin, Pearl, & Van Acker, 1999).

Short-term (3 week) test-retest reliability has been identified as ranging from $r = 0.72$ to $r = 0.93$ (Farmer et al., 2002; Farmer et al., 1999). Factor analyses in previous studies (Estell et al., 2007; Farmer et al., in press; Farmer, Leung, Hall, & Brooks, under review) have identified a four-factor solution that includes a social prominence factor and a prosocial factor. The social prominence factor consists of four items: athletic, leader, cool, popular, and has been found to have Cronbach’s $\alpha$ ranging from .83 to .85. In the current study, social prominence internal consistency is $\alpha = .91$. The prosocial factor consists of three items: cooperative, good student, and friendly. In previous studies, internal consistency has been found to range from $\alpha = .79$ to $\alpha = .85$ (Estell et al., 2007; Estell et al., 2009). In the current study, internal consistency of the prosocial factor is $\alpha = .85$.

**Social Cognitive Maps (SCM).** Affiliations are typically measured using a form of sociometric mapping, such as social cognitive mapping (SCM; Cairns, Leung, Buchanan, & Cairns, 1995), student report of their own friendship groups, or direct observation. Of these methods, SCM is preferable because self-report is likely to be biased by socially desirable responses, and the resources necessary to collect comprehensive direct observations are prohibitive (Cairns & Cairns, 1994).

In order to create a “map” of the social affiliations within a school, students are asked to identify groups of students who spend time together. Using established procedures (Cairns et al., 1995), individuals are asked “Are there some kids in your school who hang around together a lot? Who are they?” Students are asked to list as many groups as they can think of from free
recall. These individual lists of groups are then aggregated into a composite social map for the school.

The SCM procedures have been used extensively in studies of peer networks (e.g. Cairns and Cairns, 1994; Estell, Farmer, Pearl, Van Acker, & Rodkin, 2008; Farmer & Hollowell, 1994). Validity of the peer groups identified by the SCM procedures has been supported by observational and survey data, as well as analyses of students’ interactional patterns within the classroom (Cairns & Cairns, 1994; Gest, Farmer, Cairns, & Xie, 2003; Rodkin et al., 2000). Short-term test-retest reliability indicates high stability, with 90% of groups retaining a majority of their members over a 3-week interval (Cairns et al., 1995).

School belonging. Students’ sense of school belonging was assessed using the Psychological Sense of School Membership-Brief (PSSM-B; Hagborg, 1998) scale. This measure is a brief version of the widely used PSSM (Goodenow, 1993) that consists of 11 questions presented in a 5-point Likert-type questionnaire, where 1 represents completely false and 5 represents completely true. Items were designed to measure general sense of community within the school (e.g. “I feel a real part of my school”), as well as specific feelings of support and connectedness with teachers (e.g. “Most teachers at my school are interested in me”) and peers (e.g. “Other students like the way I am”).

Internal consistency ranged from $\alpha = 0.79$ to $\alpha = 0.94$ for the PSSM-B when used with students from 5th grade through high school (Hagborg, 1994; 1998). Test-retest reliability over a 4-week span was $r = 0.69$. Strong construct validity has been shown using contrast-groups and correlations to illustrate the relationship between the PSSM and PSSM-B and student motivation, grades, homework time, socio-emotional adjustment, and self-concept (see Goodenow, 1993; Hagborg, 1994). In the current study, internal consistency of the PSSM-B is $\alpha = .80$. 

30
School valuing. The school valuing assessment is a brief version of the Identification with School Questionnaire (Voelkl, 1996) that was developed to assess investment in school and school-related outcomes. This adapted measure includes 7 of the original 16 items from the Identification with School Questionnaire, such as Dropping out of school would be a huge mistake for me and School is often a waste of time. Students rate items on a 5-point Likert-type scale, with choices labeled Strongly Disagree, Disagree, Uncertain, Agree, and Strongly Agree. The original Identification with School Questionnaire has reliability above $\alpha = 0.80$ and good construct validity established through high correlations with class participation and academic performance (Finn & Frone, 2004; Voelkl, 1996). In the current study, internal consistency of the school valuing measure is $\alpha = .68$.

Peer norms for effort and achievement. This 11-item scale measures student perceptions of their peers’ acceptance of effort and achievement in school. The questionnaire begins with the prompt The kids I hang around with in school think it’s good to… followed by items such as Offer to help other students if you know the answer or how to solve a problem or Fool around in class. Students rate items on a 6-point, Likert-type scale, with the range identified as Strongly Disagree to Strongly Agree. In previous studies, Cronbach’s alpha for the peer norms for effort and achievement have been shown to range from 0.77 to 0.84 (Hamm et al., 2010; Hamm, Schmid, Farmer, & Locke, under review). In the current study, internal consistency is $\alpha = .76$.

Teacher Assessments (TASS). The TASS is a two part survey in which teachers rate students on social and academic behavior on a Likert-type scale. Two of the questions on the TASS are combined to form the TASS academic performance measure. The two items are How well does this child perform on curriculum based tests? and How well does this child perform on standardized tests? In this study, the TASS academic performance measure has internal
consistency of $r = .92$. Scores on standardized tests from Kansas and Ohio were used to test construct validity because these states had large samples and both used a well-known standardized test. Construct validity is supported by strong correlations with scores on the Iowa Test of Basic Skills taken by students in Ohio ($r = .78$, $p < .001$) and Kansas ($r = .84$, $p < .001$).

*Grades.* Students’ curriculum based grades for academic subjects were obtained at the end of the school year. Because grades were reported differently in different schools (i.e. letter grades, percent scores, numerical scale), all grades were converted to a percent score based on information from individual schools about their grading system. Grades for language arts, math, science, and social studies were averaged to create a composite score on a scale of 0 to 100.

**Data Reduction**

All statistical procedures and analyses were conducted using SPSS 18. Initially, all data were examined for values outside the possible range, none of which were found. Then, any variables that were composites of items were computed (details are provided below for each variable). Next, the descriptive statistics of all of the variables were assessed. Several of the variables were highly skewed. Therefore, these variables were collapsed into ordinal scales (details provided below). While the resultant scale is still skewed, this procedure reduces the impact of the outliers without removing them from the analysis (see Eron, Huesmann, Dubow, Romanoff, & Yarmel, 1987; Farmer, Van Acker, Pearl, & Rodkin, 1999). Descriptive statistics of the continuous variables are provided in Table 2. The frequencies of the nominal and ordinal variables are provided in Table 3.

The descriptive statistics revealed that the school belonging, school valuing, and peer norms for academic effort and achievement variables had 12.9% ($N = 16$), 12.1% ($N = 15$), and 13.7% ($N = 17$) missing data, respectively. A comparison of the mean scores on social preference,
social prominence, bullying, victimization, prosocial affiliations, TASS academic performance, and grades of students with and without data for each of the school perception variables was conducted using Mann-Whitney U Tests. This test is a non-parametric alternative to the independent t-test. Values of the dependent variables are assigned rank order so that normal distribution of data is not required.

The Mann-Whitney U Tests showed that there were significant group differences between those who had data and those who were missing data for belonging in terms of social prominence, victimization, and prosocial affiliations. Students for whom there were missing data for the belonging measure had significantly ($p < .05$) lower social prominence scores, lower victimization scores, and lower prosocial affiliates scores than those students with data for belonging. Mann-Whitney U Tests also showed that there were significant group differences between those who had data and those who were missing data for valuing in terms of social prominence, victimization, and prosocial affiliations. Students for whom there were missing data for the valuing measure had significantly ($p < .05$) lower social prominence scores, lower victimization scores, and lower prosocial affiliates scores than those students with data for valuing. In terms of peer norms for academic effort and achievement, tests showed that there were significant group differences between those who had data and those who were missing data in terms of social prominence and prosocial affiliations. Students for whom there were missing data for the peer norms for academic effort and achievement measure had significantly ($p < .05$) lower social prominence scores and lower prosocial affiliates scores than those students with data.

The descriptive statistics also showed that the prosocial affiliates variable had 25.0% ($N = 31$) missing data. Of the students for whom there were missing data, 15 students were identified
as isolates, and therefore did not have identified affiliates. Means were compared among students with prosocial affiliate scores, those with missing prosocial affiliate scores, and isolates. Mean scores on social preference, social prominence, bullying, victimization, belonging, valuing, peer norms for academic effort and achievement, TASS academic performance, and grades were conducted using Kruskal-Wallis Tests. This test is a non-parametric alternative to one-way between groups ANOVA. Values of the dependent variables are assigned rank order so that normal distribution of data is not required. The Kruskal-Wallis Tests showed group differences in social prominence, bullying, and TASS academic performance. As would be expected, students with prosocial affiliate scores had significantly higher social prominence scores than isolates ($p < .01$). Students with prosocial affiliate scores also had significantly higher bullying scores than those with missing data ($p < .01$). Students with missing prosocial affiliate data had significantly higher TASS academic scores than students with prosocial affiliate data ($p < .05$).

Table 2

*Descriptive Statistics*

<table>
<thead>
<tr>
<th>Construct</th>
<th>Variable</th>
<th>Valid N</th>
<th>Mean</th>
<th>5% Trimmed mean</th>
<th>SD</th>
<th>Min</th>
<th>Max</th>
<th>Skewness Statistic</th>
<th>Std. error</th>
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<tbody>
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<td>Social Adjustment</td>
<td>Social preference*</td>
<td>124</td>
<td>-.55</td>
<td>-.48</td>
<td>1.50</td>
<td>-6.42</td>
<td>3.31</td>
<td>- .91</td>
<td>.22</td>
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<td></td>
<td>Belonging</td>
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<td>1.91</td>
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<td>-.20</td>
<td>.23</td>
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<td></td>
<td>Valuing</td>
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<td>1.57</td>
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<td>.23</td>
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<tr>
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<td>5.82</td>
<td>-.34</td>
<td>.23</td>
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<tr>
<td>Academic performance</td>
<td>TASS academic factor</td>
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<td>2.40</td>
<td>2.36</td>
<td>1.04</td>
<td>1</td>
<td>5</td>
<td>.31</td>
<td>.22</td>
</tr>
<tr>
<td></td>
<td>Grades</td>
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<td>79.75</td>
<td>79.67</td>
<td>6.50</td>
<td>61.47</td>
<td>95.38</td>
<td>.17</td>
<td>.22</td>
</tr>
</tbody>
</table>

*Note. Social preference scores are expressed as $z$-scores.
Table 3

Frequencies of Ordinal Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
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<tr>
<td>Social prominence (N = 124)</td>
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<td></td>
</tr>
<tr>
<td>Not</td>
<td>37</td>
<td>29.8%</td>
</tr>
<tr>
<td>Low</td>
<td>64</td>
<td>51.6%</td>
</tr>
<tr>
<td>Moderate</td>
<td>16</td>
<td>12.9%</td>
</tr>
<tr>
<td>High</td>
<td>7</td>
<td>5.6%</td>
</tr>
<tr>
<td>Bullying (N = 124)</td>
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<td></td>
</tr>
<tr>
<td>None</td>
<td>84</td>
<td>67.7%</td>
</tr>
<tr>
<td>Low</td>
<td>23</td>
<td>18.5%</td>
</tr>
<tr>
<td>Moderate</td>
<td>9</td>
<td>7.3%</td>
</tr>
<tr>
<td>High</td>
<td>8</td>
<td>6.5%</td>
</tr>
<tr>
<td>Victimization (N = 124)</td>
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</tr>
<tr>
<td>None</td>
<td>59</td>
<td>47.6%</td>
</tr>
<tr>
<td>Low</td>
<td>27</td>
<td>21.8%</td>
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<tr>
<td>Moderate</td>
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<td>16.9%</td>
</tr>
<tr>
<td>High</td>
<td>17</td>
<td>13.7%</td>
</tr>
<tr>
<td>Prosocial affiliates (N = 93)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>41</td>
<td>44.1%</td>
</tr>
<tr>
<td>Moderate</td>
<td>20</td>
<td>21.5%</td>
</tr>
<tr>
<td>High</td>
<td>20</td>
<td>21.5%</td>
</tr>
<tr>
<td>Very high</td>
<td>12</td>
<td>12.9%</td>
</tr>
</tbody>
</table>

Demographic variables. Gender was coded dichotomously such that 0 = female and 1 = male. Ethnicity was also coded dichotomously such that 1 = white and 2 = non-white. Although greater detail about ethnicity was available, the numbers of students in several ethnic groups were not sufficient to support separate groupings (see Table 1).

Social preference. Student nominations for liked most and liked least were divided by the total number of nominations possible for their class, grade, or school in order to standardize the scores across classrooms (Coie et al., 1982). Z-scores were then calculated, and a social preference score was derived for each student by subtracting the standardized score for liked least nominations from the standardized score for liked most nominations. This procedure produces a continuous variable for social preference for each student in which higher scores
equate to higher social preference.

**Social prominence.** Social prominence was identified using the peer behavioral assessments. Nominations for each student were divided by the total nominations possible in order to standardize the scores. The 4 standardized scores for the items that comprise the social prominence factor (*athletic, leader, cool, popular*) were averaged to yield an individual social prominence factor score. The resultant scores were highly positively skewed (skew = 4.84) because many students received few or no nominations. To reduce the skewness of the data, the social prominence scores were collapsed into a 4-point ordinal scale with fewer students in the moderate and high levels. Cut-off points were determined by visually examining both the histogram (see Appendix E) and the raw data to identify logical groupings. The levels were coded as 0 = *not prominent*, 1 = *low prominence*, 2 = *moderate prominence*, and 3 = *high prominence*. The not prominent level was comprised of 37 students with no nominations for any of the items from the social prominence factor. The low prominence level included 64 students, moderate prominence included 16 students, and high prominence included 7 students.

**Bullying involvement.** Peer behavioral assessment items *bully* and *picked on* were used to measure bullying involvement. Endorsements for the items were standardized by dividing the number of nominations by the total possible nominations, resulting in separate scores for bullying and victimization. As with social prominence, the resultant scores were highly positively skewed (bullying skew = 3.64, victimization skew = 2.05) because most students did not receive any nominations. To reduce the skewness of the data, the bullying and victimization scores were each collapsed into a 4-point ordinal scale and recoded. Levels were again defined by visual inspection of the histograms (see Appendix E) and raw data.

For bullying, the levels were coded as follows: 0 = *no bullying*, 1 = *low bullying*, 2 =
moderate bullying, and 3 = high bullying. The no bullying level was comprised of the 84 students who received no nominations for bullying. The low level included 23 students, the moderate level included 9 students, and the high bullying level included 8 students. Similarly, for victimization, the levels were coded as 0 = no victimization, 1 = low victimization, 2 = moderate victimization, and 3 = high victimization. These levels contained 59, 27, 21, and 17 students, respectively.

Prosocial affiliates. The characteristics of students’ affiliates were estimated using SCM grouping and the peer behavioral assessment prosocial factor scores. Initially, the composition of each student’s peer group was identified using the SCM 4.0 program (Leung, 1998) following procedures described by Cairns and Cairns (1994). Then, an index of the group’s prosocial orientation was estimated by averaging the scores on the peer behavioral assessment prosocial factor for each group member (the student participant’s own score was not included). If a student was identified as a member of two groups, factor scores for members of each group were used to identify the prosocial affiliates score. These scores were also highly positively skewed (skew = 4.34) and were collapsed into a 4-point ordinal scale and recoded following inspection of the histogram (see Appendix E) and the raw data. The levels of prosocial affiliates were coded as 0 = low, 1 = moderate, 2 = high, and 3 = very high. These levels had 41, 20, 20, and 12 students, respectively.

Perceptions of school. Student perceptions of school were measured using the PSSM-B (Hagborg, 1998), the school valuing scales, and the peer norms for effort and achievement. Sense of school belonging was calculated by averaging the scores for the 11 items on the PSSM-B. A school valuing score was calculated by averaging the scores for each of the 7 items on the school valuing questionnaire. Scores for perceived peer norms for effort and achievement were
calculated by averaging the responses to the 11 items on the peer norms for effort and achievement scale. These procedures produce 3 continuous indices of perceptions of school, with higher scores indicating a greater sense of belonging, valuing school, and/or perception that peers are accepting of effort and achievement in school.

*Academic performance.* Grades and scores on TASS performance items were used to measure academic outcomes. Grades for core academic subjects were averaged to produce a single grade score for each student. Individual scores for the TASS items *performs on curriculum based test* and *performs on standardized tests* were averaged to produce an academic performance score for each student. For both of these indices, higher scores indicate higher academic performance.
Chapter 4

Results

Analytic Strategy

In order to address whether the social adjustment variables were related to academic performance in the current study, correlations among the variables were examined. Because several of the social adjustment variables were not normally distributed, the exploration of the relationships between the social adjustment variables and academic performance was conducted using Spearman’s rho (see Table 4). Spearman’s rho is a non-parametric alternative to Pearson’s correlation coefficient. This test does not require normally distributed data because each score is assigned a rank order, and is also suitable for use with data that is not continuous or on an interval scale.

The question of which social adjustment variables were the best predictors of academic performance was addressed using multiple regression. Although the magnitude of the correlation between variables gives an estimate of the strongest predictor variables, it does not account for possible confounds among variables. However, multiple regression provides information about how much of the unique variance in a relationship is accounted for by each predictor variable. Because the prosocial affiliates, school belonging, school valuing, and peer norms for academic effort and achievement variables were not significantly correlated with either measure of academic performance in this sample, these variables were not included in the regression models.

Preliminary analyses were conducted to ensure that no assumptions were violated. Examination of the histograms and normal P-P plots for the outcome variables indicated that the assumption of normality was met (see Appendix G). The scatterplots suggested no violation of
linearity or homoscedasticity (see Appendix G). Examination of the correlations among the predictor variables showed no multicollinearity (see Table 4), which was confirmed by variance inflation factor (VIF) values that were well below 10 (1.00 < VIF < 1.70; Field, 2009). The Durbin-Watson test indicated that the assumption of independent errors was also met; values were 1.58 for the TASS and 1.69 for grades.

**Correlations between Social Adjustment and Academic Performance**

Correlation analysis showed that social preference was significantly positively correlated with TASS academic performance \( (r_s = .19, p < .05) \) and grades \( (r_s = .24, p < .01) \). Therefore, higher social preference was related to higher TASS scores and grades in this sample. Social prominence was significantly positively correlated with TASS academic performance \( (r_s = .24, p < .01) \), indicating that greater social prominence was related to higher TASS scores. Bullying was significantly negatively correlated with grades \( (r_s = -.20, p < .05) \), indicating that higher levels of bullying were associated with lower grades. Victimization was significantly negatively correlated with grades \( (r_s = -.24, p < .01) \), indicating that higher rates of victimization were related to lower grades. Prosocial affiliates, school belonging, school valuing, and peer norms for academic effort and achievement were not significantly correlated with either measure of academic performance, although the correlation between school belonging and the TASS was approaching significance \( (r_s = .19, p = .054) \).
Table 4

**Bivariate Correlations among Variables Using Spearman’s Rho**

<table>
<thead>
<tr>
<th></th>
<th>Gender</th>
<th>Ethnicity</th>
<th>Social preference</th>
<th>Social prominence</th>
<th>Bully</th>
<th>Victim</th>
<th>Prosocial affiliates</th>
<th>Belonging</th>
<th>Valuing</th>
<th>Peer norms</th>
<th>TASS academic performance</th>
<th>Grades</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ethnicity</td>
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<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social Preference</td>
<td>-.19*</td>
<td>.10</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social Prominence</td>
<td>-.17</td>
<td>.07</td>
<td>.27**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Bully</td>
<td>.25**</td>
<td>.12</td>
<td>-.16</td>
<td>.23**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Victim</td>
<td>-.05</td>
<td>-.11</td>
<td>-.40**</td>
<td>-.03</td>
<td>.04</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Prosocial affiliates</td>
<td>.38**</td>
<td>-.19</td>
<td>.23*</td>
<td>.36**</td>
<td>-.16</td>
<td>.04</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Belonging</td>
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<td>.18</td>
<td>.18</td>
<td>.24*</td>
<td>-.04</td>
<td>-.06</td>
<td>.21</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Valuing</td>
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<td>.08</td>
<td>.06</td>
<td>-.01</td>
<td>-.05</td>
<td>-.10</td>
<td>-.07</td>
<td>.20*</td>
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<td>Peer norms</td>
<td>.09</td>
<td>.00</td>
<td>-.08</td>
<td>-.05</td>
<td>-.09</td>
<td>.11</td>
<td>.20</td>
<td>.31**</td>
<td>.21*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TASS academic performance</td>
<td>-.08</td>
<td>-.08</td>
<td>.19*</td>
<td>.24**</td>
<td>-.17</td>
<td>-.15</td>
<td>.06</td>
<td>.19</td>
<td>.16</td>
<td>.08</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grades</td>
<td>-.10</td>
<td>.13</td>
<td>.24**</td>
<td>-.20*</td>
<td>-.24**</td>
<td>.09</td>
<td>.10</td>
<td>.12</td>
<td>-.01</td>
<td>.31**</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note. *p < .05, **p < .01.*
**Relationship of Social Adjustment to Academic Performance**

Gender and ethnicity were entered into the regression model at Step 1 so that subsequent variables entered into the model would predict academic performance accounting for gender and ethnicity. As the most established correlate of academic performance in the education literature, social preference was entered into the regression model at Step 2 (Field, 2009). For Step 3, the social prominence, bullying, and victimization variables were entered. The regression model was tested twice, once using the TASS academic factor as the outcome variable and once with grades as the outcome variable.

The total $R^2$ was examined for each model first (see Table 5). The $R^2$s for Step 1 indicated that neither gender nor ethnicity was a significant predictor of academic competence as measured by the TASS or grades. The $R^2$s for Step 2 were significant and indicated that when social preference was added to the model, the model predicted 7% of the variance in TASS academic performance and 8% of the variance in grades. The $R^2$s for Step 3 were also significant and indicated that with the addition of social prominence, bullying, and victimization, the model predicted 17% and 14% of the variance in TASS and grades, respectively. The change in $R^2$ was examined next, revealing that the $\Delta R^2$s were significant for Steps 2 and 3 for both the TASS and grades.

The betas for the models showed that neither gender nor ethnicity provided a significant unique contribution at any step of either model (see Table 5). Social preference was a significant predictor of both TASS academic performance ($\beta = .24, p < .01$) and grades ($\beta = .23, p < .05$) at Step 2. These positive betas indicate that higher social preference predicts higher TASS academic performance and grades. However, when social prominence, bullying, and victimization were added to the models in Step 3, social preference no longer offered any unique
prediction of the variance for either the TASS or grades. Social prominence was a significant predictor of both TASS academic performance ($\beta = .36, p < .01$) and grades ($\beta = .21, p < .05$) in Step 3. Again, the positive betas show that higher social prominence was associated with higher TASS academic performance and grades. Bullying was also a significant predictor of TASS academic performance ($\beta = -.20, p < .05$) and grades ($\beta = -.22, p < .05$) in Step 3. The negative betas show that greater bullying scores predicted lower TASS scores and grades. Victimization was a significant predictor of grades ($\beta = -.20, p < .05$), but not TASS scores. The negative betas show that higher victimization scores were associated with lower grades.

Table 5

Summary of Regression Analysis for Predictors of Academic Competence ($N = 124$)

<table>
<thead>
<tr>
<th>Predictor variables</th>
<th>Step 1</th>
<th>Step 2</th>
<th>Step 3</th>
<th>Step 1</th>
<th>Step 2</th>
<th>Step 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>-.10</td>
<td>-.06</td>
<td>.02</td>
<td>-.14</td>
<td>-.11</td>
<td>-.06</td>
</tr>
<tr>
<td>Ethnicity</td>
<td>-.07</td>
<td>-.10</td>
<td>-.11</td>
<td>.10</td>
<td>.08</td>
<td>.06</td>
</tr>
<tr>
<td>Social preference</td>
<td></td>
<td></td>
<td></td>
<td>.23*</td>
<td>.02</td>
<td></td>
</tr>
<tr>
<td>Social prominence</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bullying</td>
<td>-.20*</td>
<td></td>
<td></td>
<td>-.22*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Victimization</td>
<td>-.09</td>
<td></td>
<td></td>
<td>-.20*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$\Delta R^2$</td>
<td>.06**</td>
<td>.09***</td>
<td></td>
<td>.05*</td>
<td>.07*</td>
<td></td>
</tr>
<tr>
<td>Total $R^2$</td>
<td>.02</td>
<td>.07*</td>
<td>.17**</td>
<td>.03</td>
<td>.08*</td>
<td>.14**</td>
</tr>
</tbody>
</table>

Note. $\beta =$ standardized beta. *$p < .05$, **$p < .01$.

Summary

The purpose of this study was to examine the relationships among social adjustment indices and academic performance indices as guided by a logic model describing an expanded
view of social preference. This model portrayed the direct link between social preference and academic performance, along with a pathway linking social preference to academic performance through social prominence, bullying involvement, prosocial affiliates, and perceptions of school. Following this logic model, a multi-step analysis was conducted beginning with simple correlations and progressing through multiple regression analyses. In the preliminary analysis, social preference, social prominence, bullying, and victimization were found to correlate significantly with one or both measures of academic performance. The measures of prosocial affiliates and perceptions of school were not significantly correlated with either academic performance measure, and were therefore dropped from the subsequent analyses.

The multiple regression analysis further clarified the relationships among the social adjustment and academic performance variables. These analyses showed that social preference was significantly related to academic performance when gender and ethnicity were accounted for, as were social prominence, bullying, and victimization. However, when all of these social adjustment indices were entered into the regression model together, social prominence, bullying, and victimization continued to offer significant unique predictive value, while social preference did not. The finding that social preference did not uniquely predict academic performance once social prominence, bullying, and victimization were accounted for may have important implications for understanding the relationship between social adjustment and academic performance within special education.
Chapter 5

Discussion

Overview

The aim of this study was to explore the relationships between social adjustment and academic performance in a sample of students with special education needs. Although a rich literature base supports the connection between social preference and academic performance in general education, this linkage has not been established in special education. In addition, there are a number of ways of thinking about and measuring social adjustment, and while the most common of these is social preference, recent research has begun highlighting the limitations of restricting the study of social adjustment by using social preference as the sole index of adjustment (Boivin & Hymel, 1997; Buhs et al., 2006; Chen et al., 2008; Wentzel & Asher, 1995). However, as researchers have begun to explore the relationships among a variety of social adjustment indices and academic performance in typically developing students, similar connections have not yet been investigated with students with special education needs.

In keeping with the theory that social preference might relate to academic performance due to differences in treatment by peers (e.g. Buhs & Ladd, 2001; Buhs et al., 2006), this study investigated several social adjustment indices that may differentiate among students who are treated more or less favorably by peers: social prominence, bullying, and victimization. Several theories suggest that peer affiliation may relate to academic competence due to selective affiliation (e.g. Hamm, 2000), by influencing motivation (e.g. Ford & Ogbu, 1986), and/or by providing differential levels of academic support and stimulation (e.g. Altermatt & Pomerantz, 2005; Chen et al., 2003). Therefore a measure of prosocial affiliates was included in this study.
Because perceptions of school have also been theorized to impact students’ academic performance by increasing or decreasing engagement and motivation (e.g. Finn & Voelkl, 1993; Goodenow & Grady, 1993; Hagborg, 1994), school belonging, school valuing, and peer norms for academic effort and achievement were also included in this investigation.

In general, the results of this study support the connection between social adjustment and academic performance in special education. Social preference, social prominence, bullying, and victimization were all significantly correlated with measures of academic performance. By following the correlational analyses with regression analyses, these relationships were further illuminated. Social preference, the most widely researched social adjustment index, offered a significant prediction of academic performance in a special education sample. However, the combination of social prominence, bullying, and victimization predicted more of the variance in academic performance than social preference alone, and social preference did not add significantly to the predictive value of these indices. This suggests that social preference may index aspects of social prominence, bullying, and victimization; a theory that is consistent with other recent investigations of social prominence (e.g. deBruyn & Cillessen, 2006b; Farmer et al., 2009; Farmer et al., under review).

**Significance for Special Education**

The finding that social adjustment is related to academic performance in a sample of special education students is an important contribution to the special education literature. Although it will be important to replicate these findings, they are the first step in the process of identifying how social characteristics are tied to academic outcomes in students with disabilities. The finding that social prominence, bullying, and victimization predict more of the variance in academic performance than social preference does is of particular importance. Rather than
contradicting the years of research linking social preference to academic performance, this finding is a sort of “missing link” that helps explain how the private, unobservable phenomenon of social preference may translate into concrete outcomes such as academic performance. As such, it offers preliminary evidence that peer treatment may be an important component in the link between social and academic processes, as has been suggested by several researchers in recent years (e.g. Beran & Lupart, 2009; Buhs, Ladd, & Herald, 2006; Kochenderfer & Ladd, 1996).

In addition, it is noteworthy that these findings were obtained from a sample of students from rural schools with high concentrations of poverty. The range of academic performance in these schools was likely more limited than in schools in which students come from a range of backgrounds and income levels. And because the sample in this study was comprised of students with special education identification, the range of academic performance was already limited. This suggests that the links between social adjustment and academic performance are robust and would possibly be more apparent and well-delineated in a sample with greater variation.

**Implications**

The findings from the current study are consistent with the theory that low social preference is related to poor peer interactions, which are related to poor academic performance (Buhs & Ladd, 2001; Buhs et al., 2006). Following this line of reasoning, when students are not well-liked, they may be more prone to bully and be bullied by others. These negative interactions may influence academic performance in several ways. One possibility is that students are preoccupied with these negative interactions and are distracted from schoolwork. Another possibility is that negative social interactions contribute to decreased motivation and engagement as students attempt to limit both direct interactions with peers and vulnerability related to taking
academic risks. In terms of direct interactions, students may avoid cooperative work in order to limit potentially negative interpersonal interactions. In terms of academic risks, students may be reluctant to participate in teacher led activities if they believe that incorrect answers or appearing too smart or eager may lead to later ridicule.

Although social prominence does not measure behavior, this aspect of social adjustment is likely to be a critical determinant of peer treatment (Adler & Adler, 1998; Farmer & Xie, 2007; Mayeux & Cillessen, 2008). Students who are not well-liked, but who are high in socially desirable characteristics, such as being cool or popular, have high social prominence. This status affords these students some power; therefore, though they are not well-liked, others are not likely to mistreat them. Students who are not well-liked and are low in social prominence have no such buffer and are more likely to suffer mistreatment by their peers. Therefore, while social prominence does not offer a behavioral explanation for poor academic performance, it may hold the key to explaining why some disliked students are treated badly by peers while others are not.

If poor peer interactions such as bullying and victimization are actually the mechanism through which social preference and academic performance are linked, then interventions should be aimed at decreasing negative interactions. Possible interventions would include, but not be limited to, increasing student tolerance of differences, increased supervision, and/or bullying prevention programs. Regardless of the intervention route chosen, the goal of intervention would be to limit negative interactions, not to attempt to increase social preference.

However, these results must be interpreted cautiously in relation to intervention within the special education population. It is important to note that while low social prominence and high bullying involvement may be related to poor academic performance; it still cannot be assumed that improved social relations will lead to improved academic performance, especially
with students with disabilities. First, the regression analyses in this study show simply that social adjustment and academic performance are related, they do not imply causation. Second, and perhaps more importantly, it is possible that limitations in academic ability may lead to a ceiling effect in the special education population. That is to say, while positive social adjustment may be necessary for positive academic performance, it may not be sufficient if academic skills are lacking.

Another possible explanation for the findings in the current study is that students with disabilities who perform relatively well academically may be more confident and more likely to engage in academic and social interactions. Alternatively, students who perform relatively more poorly may avoid engaging academically and socially. Therefore, students with higher academic performance might be more involved in the social aspects of school and might be more socially prominent. In this case, it is possible that intervening directly with academics could benefit students both academically and socially (e.g. Farmer et al., 2006; Sutherland & Singh, 2004).

Following this line of reasoning, uncertainty or fear of revealing poor academic skills, rather than poor peer interactions, may lead to decreased motivation and engagement. In other words, if students do not have, or feel they do not have, sufficient academic skills, they may avoid interacting during cooperative work with peers and/or during teacher led activities in order to avoid making public errors and any ensuing embarrassment. By avoiding academic interaction, students may also inadvertently limit their social interactions, or they may intentionally limit social interactions due to similar fears of inadequacy. In either case, this scenario is likely to lead to a continuing cycle wherein students limit interactions due to actual or perceived skill deficits, which in turn acts to limit the acquisition of new academic and social skills, as well as the opportunities to practice and refine existing skills (e.g. Altermatt &
To interrupt and change the course of this negative cycle, intervention should focus on improving academic skills and providing opportunities for students to interact successfully (Farmer et al., 2006; Sutherland & Singh, 2004). Remediation of academic skills would be the first step towards helping students find a more positive trajectory. However, for students who are reluctant to interact, it may be necessary to create situations in which they can have successful experiences before they begin to interact spontaneously.

Despite the intuitive appeal of these theories, it is important to keep in mind that the data represented in this study is from surveys, not observations. While it seems likely that each of the proposed behaviors may contribute to poor academic performance in some cases, it is also possible that they are not contributing factors, or that there are other contributing factors that have not yet been considered. In any case, observational data would contribute greatly to our understanding of how social adjustment and academic performance are related. In particular, the use of functional behavior assessments, possibly in conjunction with interviews, would provide greater insight into these connections. Direct observations of student interactions would provide evidence to confirm or refute the theory that negative peer interactions contribute to poor academic performance, while functional behavior assessments could help clarify how these interactions might affect academic performance. Interviews with students and teachers would also be likely to help clarify the relationships, as social interactions among older students are often subtle, and the purpose of certain actions may not be clear from observation alone (Farmer et al, under review).

Caveats

The results of this study did not support a relationship between the prosocial affiliates,
school belonging, valuing school and school related outcomes, and perceived peer norms for academic effort and achievement variables and academic performance. Although the prosocial affiliates and the perceptions of school variables did not correlate with academic performance factors in this sample, it cannot be concluded that they are not related to the academic outcomes of students with disabilities. It is possible that the limited sample size for these variables may have compromised these analyses, or that the measures used in this study did not allow adequate discrimination among student levels of these variables.

In terms of school belonging, the mean of the composite scores on this measure was relatively high and the standard deviation was relatively low (mean = 3.64 on a 5-point scale, standard deviation = .75). This indicates that overall, students had a high sense of school belonging. This finding is similar to Hagborg’s (1998) findings in which students with LD had high levels of belonging that were comparable to those of their typically developing peers. Hagborg concluded that the small size of the school and/or the supportive nature of the special education program may have accounted for the comparable levels of belonging between students with and without disabilities. Similarly in the present study, the small size of some of the schools may have contributed to the generally high sense of belonging, as might supportive special education programs. Also, because these are rural schools, many of the students’ families may have lived in the same area for generations, leading to high levels of familiarity and comfort among students. Regardless of the reasons, the relatively high levels and small range of scores on the school belonging measure may have obscured the impact that sense of belonging could have on student outcomes. It is also important to note that despite the issues of dispersion, correlations between belonging and the TASS came close to being significant.

Like belonging, school valuing had a relatively high mean and small range of scores
(mean = 4.08 on a 5-point scale, standard deviation = .78). It is possible that most students place a very high value on school, which is accurately reflected in these scores. It is also possible that students with disabilities are acutely aware of the value of school. However, it seems likely that there may be an issue of socially desirable responding with this measure. It is also quite possible that students may value school on a theoretical level, but not behave in ways that are consistent with that belief. In addition, some of the questions for this measure are worded in such a way that a student could agree with the statement, despite placing a low value on school at a personal level (i.e. School is important to getting a good job). Whether any of these conjectures reflect reality or not, it would seem advisable to investigate school valuing further, incorporating behavioral observations and/or teacher assessments into the investigation.

The peer norms for academic effort and achievement measure did not have as high a mean score as belonging and valuing or quite as small a range (mean = 3.75 on a 6-point scale, standard deviation = .96); however, the problems of socially desirable responding and behavior that does not reflect beliefs apply to this measure as well. Again, further investigation, possibly incorporating behavioral assessments and teacher ratings may be warranted. Finally, for all of the perceptions of school, it seems likely that they may be necessary for academic success, but not sufficient to ensure it. In other words, negative perceptions of school may decrease motivation, engagement, and ultimately performance, but positive perceptions may not lead to corresponding increases in academic performance if academic skills are limited.

In terms of the prosocial affiliates measure, it is certainly possible that affiliating with peers who are high on prosocial and academic measures is not related to academic performance in students with disabilities. However, it is also possible that the prosocial factor of the peer behavioral assessments did not capture the peer characteristics that are relevant to student
academic performance. This measure was chosen because it had more complete data than several other measures that might have been used to assess affiliate characteristics, but other measures, perhaps including behavioral observations and teacher ratings, might reveal relationships that were not apparent in the present study. Specifically, peer ratings of affiliates as good students may reflect academic performance, but could also reflect positive attitudes toward school or good performance relative to the student with disabilities. Also, the cooperative and friendly items may reflect prosocial characteristics, but could reflect the amount of that characteristic relative to the students’ affiliates, rather than the entire school population. And as with the perceptions of school, affiliating with prosocial peers may not afford sufficient benefits to overcome deficits in academic skills. In this case, affiliating with antisocial peers may correlate to poor academic performance, while affiliating with prosocial peers may not overcome academic skills deficits. Despite the current findings, the strong theoretical underpinnings of the relationship between affiliate characteristics, perceptions of school, and academic performance suggest that these relationships should be explored further.

Limitations

The current study has several limitations that should be acknowledged. First, this study is cross-sectional. Because data in this study represent a single point in time, no analyses could be conducted to suggest directionality of influence between social adjustment and academic competence. Second, while the current sample is relatively large for a study of students with special education needs, a larger sample would provide greater evidence to support these findings, especially for low incidence variables such as bullying involvement. Third, missing data due to absences during data collection reduced the available evidence for the perceptions of school variables and the prosocial affiliates measure. It is possible that these variables would
have been significant predictors of academic performance if this data had been available.

**Future Directions**

The current study offers interesting findings that suggest avenues for future inquiries related to social adjustment and academic performance in students with disabilities. First, replication studies should be conducted in order to confirm or refute the findings presented from this study. In addition, studies in urban and suburban schools of differing sizes would help provide greater generalizability. Studies with larger samples of students with disabilities would be beneficial in order to add power to the analyses. In addition, studies with larger samples of students with specific disabilities would allow for analyses based on disability category, possibly contributing valuable information about differences within the special education population. Longitudinal research is also needed to investigate pathways between social adjustment and academic performance.

Over time such research may contribute to understanding the relationships among social and academic characteristics in special education populations, ultimately clarifying expectations for outcomes of interventions for students with disabilities. Currently, social skills interventions are often conducted with the expectation that improved social skills will lead to improved academic performance, and future studies may support this model. However, future studies may offer findings that suggest social skills interventions should be conducted solely to improve social skills and academic interventions should be conducted to improve academic performance. Alternatively, findings could support the use of academic interventions to improve both academic and social adjustment. Regardless of whether the findings of future research support or refute those reported here, it is crucial that high quality research is used to guide the practices used with students with disabilities. As Joshua Lederberg (Sprott & Bass, 2005, inside front
cover) pointed out, “The most important things that happen in research are not predictable. Or else why would you need the research?”

In conclusion, social and academic adjustment are key issues for students with disabilities. However, research into potential connections between these realms in the special education population is quite limited. Presumably because of this, interventions with students with disabilities are sometimes guided by findings from general education populations. Unfortunately, this practice may lead to false expectations for intervention outcomes. Currently, research in both general and special education is beginning to explore a greater range of social correlates of academic adjustment. Results from the current study support a relationship between social and academic adjustment in special education students and provide evidence that an expanded view of social preference that includes indices of social prominence, bullying, and victimization may help define the path that connects social and academic adjustment. However, these results do not allow for interpretation of causality. Further exploration of these relationships may lead to greater understanding of how social and academic processes influence one another, ultimately providing insight that may help educators improve the social and academic trajectories of students with disabilities.
## Appendix A

### Studies of Social Preference Relation to Academic Performance

<table>
<thead>
<tr>
<th>Study</th>
<th>Country</th>
<th>Sample age/grade range (sample size)</th>
<th>Social preference variables</th>
<th>Academic achievement variables</th>
<th>Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austin &amp; Draper, 1984</td>
<td>U.S.</td>
<td>$3^{rd}$ – $6^{th}$ grades (145)</td>
<td>Whom do/don’t like to play with, sit with, spend freetime with (only same-sex peers in same classroom)</td>
<td>Scores on Iowa Test of Basic Skills</td>
<td>Social preference positively correlated with academic achievement</td>
</tr>
<tr>
<td>Buhs &amp; Ladd, 2001</td>
<td>U.S.</td>
<td>K (399)</td>
<td>Sort pictures by whom do/don’t like to play with at school Victimization Refusal of peer group entry bids exclusion</td>
<td>Metropolitan Readiness Test verbal &amp; quantitative scores</td>
<td>Social preference positively correlated with academic achievement</td>
</tr>
<tr>
<td>Buhs, Ladd, &amp; Herald, 2006</td>
<td>U.S.</td>
<td>Initially K, followed through $5^{th}$ grade (380)</td>
<td>Sort pictures by whom do/don’t like to play with at school Chronic exclusion Classroom participation</td>
<td>Change in scores on WRAT across grades</td>
<td>Social preference in K positively correlated with academic achievement in $3^{rd}$ – $5^{th}$ Partially mediated by exclusion and participation</td>
</tr>
<tr>
<td>Chen, Chang, &amp; He, 2003</td>
<td>China</td>
<td>$3^{rd}$, $6^{th}$, &amp; $10^{th}$ grades (730)</td>
<td>Free-recall nominations for 3 most/least liked classmates SCM peer groups</td>
<td>Course exams in Chinese, math, &amp; English; Group leadership involvement (proxy for academic achievement)</td>
<td>Social preference positively correlated with academic achievement Moderated by group level academics</td>
</tr>
<tr>
<td>Chen, Chang, Liu, &amp; He, 2008</td>
<td>China</td>
<td>Initially $3^{rd}$ &amp; $6^{th}$, follow up in $5^{th}$ &amp; $8^{th}$ (469)</td>
<td>Free-recall nominations for 3 most/least liked classmates SCM peer groups</td>
<td>Course exams in Chinese, math, &amp; English; Group academic performance</td>
<td>Social preference positively correlated with academic achievement Individual academics and social preference were partially moderated by group level academics</td>
</tr>
<tr>
<td>Study</td>
<td>Country</td>
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<tr>
<td>Chen, Rubin, &amp; Li, 1995</td>
<td>China</td>
<td>Initially 2nd &amp; 4th, follow up In 4th &amp; 6th (482)</td>
<td>Free-recall nominations for 3 most/least liked classmates Best friend nominations Teacher and student ratings of social adjustment</td>
<td>Chinese &amp; math scores</td>
<td>Direct correlation between social preference and academic achievement was not examined. Social preference was positively correlated with ratings of social adjustment which were positively correlated with academic achievement</td>
</tr>
<tr>
<td>Chen, Rubin, Li, &amp; Li, 1999</td>
<td>China</td>
<td>Initially 2nd &amp; 4th, follow up In 6th &amp; 10th (162)</td>
<td>Free-recall nominations for 3 most/least liked classmates Best friend nominations</td>
<td>Chinese &amp; math scores</td>
<td>Social preference positively correlated with academic achievement</td>
</tr>
<tr>
<td>Coie &amp; Krehbiel, 1984</td>
<td>U.S.</td>
<td>4th grade (40)</td>
<td>Free-recall nominations for 3 most/least liked classmates &amp; teacher nominations for disruptive behavior</td>
<td>California Achievement Test scores</td>
<td>Social preference positively correlated with academic achievement</td>
</tr>
<tr>
<td>Green, Forehand, Beck, &amp; Vosk, 1980</td>
<td>U.S.</td>
<td>3rd grade (116)</td>
<td>On class list, circle 3 best friends, on another circle 3 not especially liked</td>
<td>Metropolitan Achievement Test</td>
<td>Social preference positively correlated with academic achievement</td>
</tr>
<tr>
<td>Guay, Boivin, &amp; Hodges, 1999</td>
<td>Canada</td>
<td>2nd – 4th (397)</td>
<td>Picture nominations for 3 most/least liked for: playing, inviting to a birthday party, and sitting by on bus</td>
<td>Teacher ratings of performance in reading, writing, &amp; math</td>
<td>Social preference positively correlated with academic achievement</td>
</tr>
<tr>
<td>Jonkman, Trautwein, &amp; Lüdtke, 2009</td>
<td>Germany</td>
<td>7th grade (5,468)</td>
<td>3 classmates liked most 3 classmates you cannot imagine being friends with</td>
<td>GPA &amp; standardized math and analogies tests</td>
<td>Social preference positively correlated with academic achievement</td>
</tr>
<tr>
<td>Study</td>
<td>Country</td>
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<tr>
<td>Ladd, Kochenderfer, &amp; Coleman, 1997</td>
<td>U.S.</td>
<td>K (200)</td>
<td>Photos of classmates rated by how much liked to play with (a lot, kind of, not much)</td>
<td>Metropolitan Readiness Test</td>
<td>Social preference positively correlated with academic achievement</td>
</tr>
<tr>
<td>Lopes, Cruz, &amp; Rutherford, 2002</td>
<td>Portugal</td>
<td>5th grade (173)</td>
<td>Free-recall nominations for 3 most/least liked classmates</td>
<td>Curriculum based tests in Portuguese, math, &amp; English or French</td>
<td>Social preference positively correlated with academic achievement</td>
</tr>
<tr>
<td>Ollendick, Weist, Borden, &amp; Greene, 1992</td>
<td>U.S.</td>
<td>4th grade for social preference, 5 years later for outcomes (296)</td>
<td>On class list of consented students, circle 3 most liked &amp; rate all classmates 1 – 5 (corresponding to I don’t like to – I like to a lot) for several academic and social items</td>
<td>GPA, standardized test scores, grade failures, &amp; dropouts</td>
<td>Social preference positively correlated with academic achievement</td>
</tr>
<tr>
<td>Welsh, Parke, Widaman, &amp; O’Neil, 2001</td>
<td>U.S.</td>
<td>1st – 3rd grades (163)</td>
<td>1st &amp; 2nd, sort pictures by whom do/don’t like to play with at school; 3rd, rate all classmates by do/kind of/don’t like to play with using class list</td>
<td>Report card grades; teacher rated work skills</td>
<td>Reciprocal influence between social acceptance &amp; academic achievement</td>
</tr>
</tbody>
</table>

### Studies including Special Education sample

<table>
<thead>
<tr>
<th>Study</th>
<th>Country</th>
<th>Sample age/grade range (sample size)</th>
<th>Disability categories included</th>
<th>Social preference variables</th>
<th>Academic variables</th>
<th>Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bakker &amp; Bosman, 2003</td>
<td>Netherlands</td>
<td>7 – 15 years (568)</td>
<td>Not specified</td>
<td>Ratings of all classmates on questions related to preference for social &amp; academic activities (I’d like it, okay, I wouldn’t like it)</td>
<td>Grouping: high achieving, low achieving, low achieving with remedial help, special education</td>
<td>No difference in social preference between low- and low+remedial, special education group slightly higher preference</td>
</tr>
<tr>
<td>Study</td>
<td>Country</td>
<td>Sample age/grade range (sample size)</td>
<td>Disability categories included</td>
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</tr>
<tr>
<td>Bear, Juvonen, &amp; McInerney, 1993</td>
<td>U.S.</td>
<td>3rd - 5th grade boys (46)</td>
<td>LD</td>
<td>Free-recall nominations of 3 most/least liked to play with (3rd) or have in group on class trip (5th)</td>
<td>LD/no LD</td>
<td>Non-significant trends towards lower social preference for LD</td>
</tr>
<tr>
<td>Conderman, 1995</td>
<td>U.S.</td>
<td>6th - 7th grades (1053)</td>
<td>LD</td>
<td>Free-recall nominations for 3 most/least liked classmates</td>
<td>LD/no LD</td>
<td>Higher least liked &amp; lower most liked scores for boys and girls with LD</td>
</tr>
<tr>
<td>Cook &amp; Semmel, 1999</td>
<td>U.S.</td>
<td>2nd - 6th grades (285)</td>
<td>LD, MR, EBD, multiple handicaps, OI, &amp; autism</td>
<td>Using class list, 3 liked most to work &amp; play with, then next 3 most liked</td>
<td>Mild/severe/no disability &amp; classroom homogeneity or heterogeneity of reading ability &amp; disability status</td>
<td>Social preference of students with disabilities interacted with classroom composition</td>
</tr>
<tr>
<td>Diehl, Lemerise, Caverly, Ramsay, &amp; Roberts, 1998</td>
<td>U.S.</td>
<td>1st - 3rd grades (315)</td>
<td>LD</td>
<td>Rate all classmates by how much like to play with (not much to most of all) using class list</td>
<td>Reading, math, &amp; science composite score on CTBS</td>
<td>Social preference positively correlated with academic achievement</td>
</tr>
<tr>
<td>Estell et al., 2009</td>
<td>U.S.</td>
<td>5th grade (484)</td>
<td>Mild, high incidence disabilities, not otherwise specified</td>
<td>Using list of consented classmates, nominate up to 3 most/least liked</td>
<td>Mildly disabled, typically developing, or gifted</td>
<td>Significantly lower social preference for students with disabilities than gifted students, non-significantly lower preference than typically developing students</td>
</tr>
<tr>
<td>Gadeyne, Ghesquière, &amp; Onhena, 2004</td>
<td>Belgium</td>
<td>6 – 7 years (276)</td>
<td>LD</td>
<td>Photos of classmates to nominate 3 most/least liked for: to play with &amp; to do work with</td>
<td>IQ &amp; scores on standardized reading, spelling, &amp; math tests used to identify 4 groups: learning disabled, low-, average-, and high-achieving</td>
<td>Low social preference most characteristic of LD students</td>
</tr>
<tr>
<td>Study</td>
<td>Country</td>
<td>Sample age/ grade range (sample size)</td>
<td>Disability categories included</td>
<td>Social preference variables</td>
<td>Academic variables</td>
<td>Outcomes</td>
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<tr>
<td>Kistner &amp; Gatlin, 1989</td>
<td>U.S.</td>
<td>3rd – 5th (713)</td>
<td>LD</td>
<td>Free-recall nominations of 3 most/least liked to play with (same-sex)</td>
<td>IQ &amp; CAP Achievement Series</td>
<td>Social preference NOT positively correlated with academic achievement in LD students.</td>
</tr>
<tr>
<td>Landau, Milich, &amp; McFarland, 1987</td>
<td>U.S.</td>
<td>3rd – 6th grades (317 total, 65 LD)</td>
<td>LD</td>
<td>Free-recall nominations of 3 most/least liked</td>
<td>LD or non-LD &amp; subgroupings of LD based on comparative strength of verbal and performance scores on IQ test</td>
<td>LD students significantly less preferred than non-LD students; differences within LD groupings showed students with relatively higher verbal IQ were more preferred than those with equal verbal and performance IQ or relatively higher performance IQ scores</td>
</tr>
<tr>
<td>Perlmutter, Crocker, Cordray, &amp; Garstecki, 1983</td>
<td>U.S.</td>
<td>10th grade (162 total, 55 LD)</td>
<td>LD</td>
<td>On class list, rate all classmates 1 – 5 (corresponding to strong dislike – especially liked) or 99 for unknown to rater</td>
<td>LD or non-LD</td>
<td>LD students significantly less preferred than non-LD students, but 6 LD students were as preferred as non-LD students</td>
</tr>
<tr>
<td>Sale &amp; Carey, 1995</td>
<td>U.S.</td>
<td>K – 5th grades (587)</td>
<td>LD, EBD, physical, visual &amp; hearing disabilities</td>
<td>Free-recall nominations for 3 most/least liked classmates &amp; interview questions about reasons for each nomination</td>
<td>Currently receiving special education services, likely eligible for special education services, typically developing</td>
<td>Social preference positively correlated with academic achievement</td>
</tr>
</tbody>
</table>
### Appendix B

#### Studies of Bullying Relation to Academic Performance

<table>
<thead>
<tr>
<th>Study</th>
<th>Country</th>
<th>Sample age/grade range (sample size)</th>
<th>Bullying variables</th>
<th>Academic performance variables</th>
<th>Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beran, Hughes, &amp; Lupart, 2008</td>
<td>Canada</td>
<td>10 – 11 years (2,084)</td>
<td>Self-reports of being bullied</td>
<td>Teacher ratings of reading, writing, and math performance</td>
<td>Being bullied negatively correlated with academic performance</td>
</tr>
<tr>
<td>Beran &amp; Lupart, 2009</td>
<td>Canada</td>
<td>12 – 15 years (4,111)</td>
<td>Self-reports of being bullied</td>
<td>Teacher and self-reports of performance in language and math and overall school performance</td>
<td>Being bullied was linked to poor performance only if student also displayed poor peer interactions and poor behavior management</td>
</tr>
<tr>
<td>Kochenderfer &amp; Ladd, 1996</td>
<td>U.S.</td>
<td>Kindergarten (200)</td>
<td>The Perceptions of Peer Support Scale</td>
<td>Metropolitan Readiness Test</td>
<td>Being bullied negatively correlated with academic performance at end-of-year measurement (tests of direction of influence between being bullied and academic performance were inconclusive)</td>
</tr>
<tr>
<td>Ma, Phelps, Lerner, &amp; Lerner, 2009</td>
<td>U.S.</td>
<td>5th - 6th grade (620)</td>
<td>Self-reports of bullying involvement</td>
<td>Self-reported grades</td>
<td>Bullying others negatively correlated with academic performance, no significant correlations found for victim status and performance</td>
</tr>
<tr>
<td>Nansel, Haynie, &amp; Simons-Morton, 2003</td>
<td>U.S.</td>
<td>Initially 6th grade, followed through 7th grade (939)</td>
<td>Self-reports of bullying involvement</td>
<td>Self-reports of school adjustment including socio-emotional and academic items</td>
<td>Bullying others and being bullied by others both significantly negatively correlated to academic adjustment</td>
</tr>
<tr>
<td>Schwartz, 2000</td>
<td>U.S.</td>
<td>4th – 6th grades (354)</td>
<td>Peer nominations for bullying involvement</td>
<td>Teacher ratings of global academic functioning</td>
<td>Bullying others and being bullied by others both significantly negatively correlated to academic performance</td>
</tr>
<tr>
<td>Schwartz, Gorman, Nakamoto, &amp; Toblin, 2005</td>
<td>U.S.</td>
<td>3rd – 4th grades (199)</td>
<td>Teacher and peer reports of victimization</td>
<td>Stanford Achievement Test scores &amp; GPA</td>
<td>Victimization significantly negatively correlated with academic performance</td>
</tr>
</tbody>
</table>
### Studies in General Education

<table>
<thead>
<tr>
<th>Study</th>
<th>Country</th>
<th>Sample age/grade range (sample size)</th>
<th>Bullying variables</th>
<th>Academic performance variables</th>
<th>Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toblin, Schwartz, Gorman, &amp; Abou-ezzeddine, 2005</td>
<td>U.S.</td>
<td>$4^{th} - 5^{th}$ grades (240)</td>
<td>Peer reports of bullying involvement used to create groupings: bully, victim, bully-victim, non-involved</td>
<td>Stanford Achievement Test scores &amp; GPA</td>
<td>Group differences found for performance among groups; bully-victims lowest performance, non-involved highest performance ratings</td>
</tr>
<tr>
<td>Tom, Schwartz, Chang, Farver, &amp; Xu, 2010</td>
<td>China</td>
<td>$2^{nd} - 8^{th}$ grades (1,361)</td>
<td>Peer reports</td>
<td>Teacher ratings</td>
<td>Victimization significantly negatively correlated with academic performance</td>
</tr>
<tr>
<td>Thijs &amp; Verkuyten, 2008</td>
<td>Netherlands</td>
<td>$6^{th}$ grade (1,895)</td>
<td>Self-reported victimization</td>
<td>Self-reported academic standing relative to classmates, teacher reported academic performance</td>
<td>Victimization significantly negatively correlated with student and teacher rated academic performance</td>
</tr>
</tbody>
</table>

### Studies including Special Education sample

<table>
<thead>
<tr>
<th>Study</th>
<th>Country</th>
<th>Sample age/grade range (sample size)</th>
<th>Disability categories included</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Carran &amp; Kellner, 2009</td>
<td>U.S.</td>
<td>$6^{th} - 10^{th}$ grades (407)</td>
<td>EBD</td>
<td>Self-report on Bullying Questionnaire (Olweus, 1996)</td>
<td>Student with EBD in private special education school or student in U.S. public school</td>
<td>Students with EBD reported less bullying behavior than public school peers (significance not reported); students with EBD victimized at similar rates as students in public schools, though higher rates of bullied once a week or more were endorsed</td>
</tr>
<tr>
<td>Estell et al., 2009</td>
<td>U.S.</td>
<td>$5^{th}$ grade (484)</td>
<td>Mild, high incidence disabilities, not otherwise specified</td>
<td>Teacher and peer nominations for bullying involvement</td>
<td>Mildly disabled, typically developing, or gifted</td>
<td>Students with disabilities were more likely than typically developing or gifted students to be identified as bullies by teachers and peers; students with disabilities were more likely than typically developing or gifted students to be identified as victims by teachers</td>
</tr>
</tbody>
</table>
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<th>Study</th>
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<tbody>
<tr>
<td>Knox &amp; Conti-Ramsden, 2003</td>
<td>England</td>
<td>11 years (150)</td>
<td>Specific language impairment</td>
<td>My Life in School Checklist (measures victimization, not bullying)</td>
<td>Presence or absence of specific language impairment</td>
<td>Students with specific language impairment were more likely to be victims than typically developing students (significance not reported)</td>
</tr>
<tr>
<td>Kaukiainen et al., 2002</td>
<td>Finland</td>
<td>5th grade/11 – 12 years (141)</td>
<td>LD</td>
<td>Peer-report of bullying involvement</td>
<td>LD or non-LD</td>
<td>Significantly more LD students were identified as bullies than would be expected by chance. No significant differences between LD and non-LD victims or bully-victims</td>
</tr>
<tr>
<td>Nabuzoka &amp; Smith, 1993</td>
<td>England</td>
<td>8 – 12 years (179)</td>
<td>LD</td>
<td>Peer-report of bullying involvement</td>
<td>LD or non-LD</td>
<td>Significantly more students with LD than students without LD were nominated as victims, no significant differences for bully nominations</td>
</tr>
<tr>
<td>Rose, Espelage, &amp; Monda-Amaya, 2009</td>
<td>U.S.</td>
<td>Middle &amp; High school (7,331 &amp; 14,315)</td>
<td>Special education, not otherwise specified</td>
<td>Self-report of bullying involvement</td>
<td>Self-contained special education, mainstreamed special education, general education</td>
<td>Students in self-contained classrooms reported higher levels of bullying and victimization than students in mainstreamed classes, who reported higher levels of bullying and victimization than students in general education</td>
</tr>
<tr>
<td>Saylor &amp; Leach, 2009</td>
<td>U.S.</td>
<td>Middle &amp; High school (48)</td>
<td>Severe DD; autism; MR; CP; Down syndrome; OHI; ADHD; EBD; hearing, visual, and speech impairment</td>
<td>Self-report of bullying involvement</td>
<td>Self-contained special education or no known disabilities</td>
<td>Students in self-contained special education classrooms reported higher levels of victimization than their peers with no known disabilities; no group differences found for bullying</td>
</tr>
</tbody>
</table>


## Appendix C

### Studies of Affiliates Relation to Individual Academic Performance

<table>
<thead>
<tr>
<th>Study</th>
<th>Country</th>
<th>Sample age/grade range (sample size)</th>
<th>Affiliates variables</th>
<th>Academic performance variables</th>
<th>Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Altermatt &amp; Pomerantz, 2005</td>
<td>U.S.</td>
<td>5th – 7th grades (929)</td>
<td>Grades of reciprocated friendship dyads</td>
<td>Grades in academic subjects</td>
<td>Significant positive correlation between friends’ grades. Low achievers with high achieving friends received better grades than low achievers with low achieving friends</td>
</tr>
<tr>
<td>Chen, Chang, &amp; He, 2003</td>
<td>China</td>
<td>3rd, 6th, &amp; 10th grades (730)</td>
<td>SCM group mean performance on course exams in Chinese, math, &amp; English</td>
<td>Course exams in Chinese, math, &amp; English</td>
<td>Results suggested that high group academic performance strengthened the positive relationship between individual academics and social adjustment, and low group academic performance strengthened the negative relationship between academic performance and behavioral problems</td>
</tr>
<tr>
<td>Chen, Chang, He, &amp; Liu, 2005</td>
<td>China</td>
<td>Initially 3rd &amp; 6th grades, followed for 2 years (535)</td>
<td>SCM group prosocial and antisocial characteristics (includes academic &amp; behavioral measures)</td>
<td>Course exams in Chinese, math, &amp; English; Teacher rated learning problems</td>
<td>Peer group membership mediated the relationship between supportive parenting and academic performance</td>
</tr>
<tr>
<td>Estell, Farmer, Cairns, &amp; Cairns, 2002</td>
<td>U.S.</td>
<td>Initially 1st grade, followed through 2nd grade (92)</td>
<td>SCM group performance level based on grades &amp; teacher rated competence</td>
<td>Grades in reading, spelling, &amp; math; Teacher rated academic competence</td>
<td>Student academic performance significantly positively correlated to performance level of peer group</td>
</tr>
<tr>
<td>Hamm, 2000</td>
<td>U.S.</td>
<td>9th – 12th grades (2,494)</td>
<td>Self-reported GPA of best friend nomination (reciprocation not required)</td>
<td>Self-reported GPA</td>
<td>Student GPA significantly positively correlated to best friend’s GPA</td>
</tr>
<tr>
<td>Kindermann, 1993</td>
<td>U.S.</td>
<td>4th &amp; 5th grades (109)</td>
<td>SCM group means of teacher rated engagement and of self-reported motivation</td>
<td>Teacher rated engagement and self-reported motivation</td>
<td>Engagement and motivation significantly positively correlated with SCM group engagement and motivation; larger between group differences that within group differences</td>
</tr>
<tr>
<td>Kindermann, 2007</td>
<td>U.S.</td>
<td>6th grade (340)</td>
<td>SCM group means of teacher rated engagement</td>
<td>Teacher rated engagement and math grades</td>
<td>Engagement and math grades significantly positively correlated with SCM group engagement</td>
</tr>
</tbody>
</table>
### Studies in General Education

<table>
<thead>
<tr>
<th>Study</th>
<th>Country</th>
<th>Sample age/grade range (sample size)</th>
<th>Affiliate variables</th>
<th>Academic performance variables</th>
<th>Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kurdek &amp; Sinclair, 2000</td>
<td>U.S.</td>
<td>1&lt;sup&gt;st&lt;/sup&gt; – 5&lt;sup&gt;th&lt;/sup&gt; grades (160)</td>
<td>Mean teacher rated academic skills of all peers named as friends</td>
<td>Teacher report of verbal &amp; math skills; standardized test scores</td>
<td>Student academic performance significantly positively correlated to performance level of peer group</td>
</tr>
<tr>
<td>Mounts &amp; Steinberg, 1995</td>
<td>U.S.</td>
<td>9&lt;sup&gt;th&lt;/sup&gt; – 11&lt;sup&gt;th&lt;/sup&gt; grades (1,000)</td>
<td>Self-reported GPA of best friend nomination (reciprocal nominations not required)</td>
<td>Self-reported GPA</td>
<td>Student GPA significantly positively correlated to best friend’s GPA, relationship moderated by authoritative parenting</td>
</tr>
<tr>
<td>Ryabov, 2009</td>
<td>U.S.</td>
<td>12 – 21 years (14,322)</td>
<td>Average of self-reported GPAs of student reported friends</td>
<td>Self-reported GPA</td>
<td>Student academic performance significantly positively correlated to performance level of peer group</td>
</tr>
<tr>
<td>Ryan, 2001</td>
<td>U.S.</td>
<td>7&lt;sup&gt;th&lt;/sup&gt; grade (331)</td>
<td>Average of peer group reported motivation and performance scores</td>
<td>GPA</td>
<td>Student academic performance significantly positively correlated to performance level of peer group</td>
</tr>
</tbody>
</table>

### Studies in Special Education

<table>
<thead>
<tr>
<th>Study</th>
<th>Country</th>
<th>Sample age/grade range (sample size)</th>
<th>Disability categories included</th>
<th>Affiliate variables</th>
<th>Academic performance variables</th>
<th>Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fleming, Cook, &amp; Stone, 2002</td>
<td>U.S.</td>
<td>5&lt;sup&gt;th&lt;/sup&gt; – 8&lt;sup&gt;th&lt;/sup&gt; grades (10,306)</td>
<td>LD</td>
<td>Student reported involvement in negative activities</td>
<td>Initial reading scores and changes over time on Normal Curve Equivalents of the Iowa Test of Basic Skills</td>
<td>Students with more prosocial affiliates had greater improvements in reading over time than those with more antisocial affiliates</td>
</tr>
</tbody>
</table>
## Appendix D

### Studies of School Perceptions Relation to Academic Performance

<table>
<thead>
<tr>
<th>Study</th>
<th>Country</th>
<th>Sample age/grade range (sample size)</th>
<th>School perception variables</th>
<th>Academic performance variables</th>
<th>Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Battistich, Solomon, Kim, Watson, &amp; Schaps, 1995</td>
<td>U.S.</td>
<td>3rd – 6th grades (4,515)</td>
<td>38-item author developed school belonging questionnaire</td>
<td>Iowa Test of Basic Skills scores in reading &amp; math for all grades; inductive reasoning, reading comprehension, &amp; writing assessments for grades 5 &amp; 6</td>
<td>Within school measures of belonging significantly correlated only with math test scores; between school measures of belonging significantly correlated only with basic reading comprehension</td>
</tr>
<tr>
<td>Finn &amp; Voelkl, 1993</td>
<td>U.S.</td>
<td>8th grade (6,488)</td>
<td>Questionnaire assessment of students feelings of acceptance by teachers &amp; belonging to school</td>
<td>Teacher and student reports of tardy, absent, and/or disengaged behavior. No direct measure of performance</td>
<td>Measures of belonging positively correlated to engagement variables</td>
</tr>
<tr>
<td>Fordham &amp; Ogbu, 1986</td>
<td>U.S.</td>
<td>11th grade (33)</td>
<td>Ethnographic data about school valuing and student perceptions of peer norms for academic effort and performance collected through extensive interviews</td>
<td>Standardized test scores &amp; grades</td>
<td>School valuing and peer norms for effort and performance both found to relate to academic performance</td>
</tr>
<tr>
<td>Furrer &amp; Skinner, 2003</td>
<td>U.S.</td>
<td>3rd – 6th grades (251)</td>
<td>Questionnaire assessment of school belonging</td>
<td>Grades in English and math</td>
<td>Relatedness positively correlated with academic performance</td>
</tr>
<tr>
<td>Giordano, Phelps, Manning, &amp; Longmore, 2008</td>
<td>U.S.</td>
<td>7th, 9th, &amp; 11th grades (1,316)</td>
<td>Student report of romantic partner’s grades; student report of friends’ academic values</td>
<td>Self-reported grades</td>
<td>Student’s and partner’s academic performance significantly positively correlated; friends’ academic values not correlated with student performance when own values and parent factors controlled</td>
</tr>
<tr>
<td>Study</td>
<td>Country</td>
<td>Sample age/grade range (sample size)</td>
<td>School perception variables</td>
<td>Academic performance variables</td>
<td>Outcomes</td>
</tr>
<tr>
<td>------------------------------</td>
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<td>------------------------------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Goodenow &amp; Grady, 1993</td>
<td>U.S.</td>
<td>7&lt;sup&gt;th&lt;/sup&gt; – 9&lt;sup&gt;th&lt;/sup&gt; grades (301)</td>
<td>Psychological Sense of School Motivation Scale, school valuing questionnaire, &amp; ratings of statement <em>My friends think it is important to do well in school</em></td>
<td>Questions evaluating motivation and engagement, no direct measure of academic performance</td>
<td>Sense of belonging positively correlated to motivation and engagement; school valuing not correlated with motivation or engagement; perception of friends’ values weakly correlated with motivation</td>
</tr>
<tr>
<td>Hagborg, 1994</td>
<td>U.S.</td>
<td>Study 1: 8&lt;sup&gt;th&lt;/sup&gt; grade (50)</td>
<td>Psychological Sense of School Motivation Scale</td>
<td>Grades, Cognitive Abilities Test scores, &amp; New York State Tests scores; student reported GPA</td>
<td>No significant group differences when belonging dichotomized into high/low groups; belonging significantly correlated with standardized test scores &amp; self-reported (but not actual) grades</td>
</tr>
<tr>
<td></td>
<td>U.S.</td>
<td>Study 2: 5&lt;sup&gt;th&lt;/sup&gt; – 12&lt;sup&gt;th&lt;/sup&gt; grades (30)</td>
<td>Psychological Sense of School Motivation Scale</td>
<td>Self-reported grades</td>
<td>Belonging significantly correlated with self-reported grades in both middle and high school</td>
</tr>
<tr>
<td>LeCroy &amp; Krysik, 2008</td>
<td>U.S.</td>
<td>7&lt;sup&gt;th&lt;/sup&gt; – 8&lt;sup&gt;th&lt;/sup&gt; grades (170)</td>
<td>9-item survey of school belonging</td>
<td>Self-reported GPA</td>
<td>Student academic performance significantly positively correlated to school belonging</td>
</tr>
</tbody>
</table>
| LeCroy & Krysik, 2008        | U.S.    | 7<sup>th</sup> – 8<sup>th</sup> grades (170) | Student endorsement of friends as *good students* on questionnaire  
  (circled = yes, not circled = no)                                         | Self-reported GPA                                                                           | Student academic performance significantly positively correlated to performance level of peer group |
<p>| Masten, Juvonen, &amp; Spatzier, 2009 | U.S.    | 4&lt;sup&gt;th&lt;/sup&gt;, 6&lt;sup&gt;th&lt;/sup&gt;, &amp; 8&lt;sup&gt;th&lt;/sup&gt; grades (364) | Student ratings of academic norms in their class (4&lt;sup&gt;th&lt;/sup&gt; grade) or grade (6&lt;sup&gt;th&lt;/sup&gt; &amp; 8&lt;sup&gt;th&lt;/sup&gt; grades) | Self-report of academic behaviors                                                             | Perceived academic norms predicted student academic behavior in 6&lt;sup&gt;th&lt;/sup&gt; &amp; 8&lt;sup&gt;th&lt;/sup&gt;, but not 4&lt;sup&gt;th&lt;/sup&gt;, grades |
| Roessner, Midgley, &amp; Urdan, 1996 | U.S.    | 8&lt;sup&gt;th&lt;/sup&gt; grade (296)            | Patterns of Adaptive Learning Survey school belonging scale                                      | Final semester academic grades                                                               | School belonging positively correlated with academic performance                                                                          |</p>
<table>
<thead>
<tr>
<th>Study</th>
<th>Country</th>
<th>Sample age/grade range (sample size)</th>
<th>School perception variables</th>
<th>Academic performance variables</th>
<th>Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strambler &amp; Weinstein, 2010</td>
<td>U.S.</td>
<td>1&lt;sup&gt;st&lt;/sup&gt; – 5&lt;sup&gt;th&lt;/sup&gt; grades (111)</td>
<td>Author designed 8 items questionnaire including items related to valuing of academics, the Sense of School as Community Scale &amp; measures of student perceptions of teacher caring and negative feedback</td>
<td>Standardized test scores in math, reading, &amp; writing</td>
<td>Academic devaluing correlated with lower academic performance; perceptions of teacher caring positively correlated and negative feedback negatively correlated with academic valuing; school belonging not significantly correlated with performance</td>
</tr>
<tr>
<td>Woolley, Kol, &amp; Bowen, 2009</td>
<td>U.S.</td>
<td>6&lt;sup&gt;th&lt;/sup&gt; – 8&lt;sup&gt;th&lt;/sup&gt; grades (848)</td>
<td>Student report of friends’ school behavior &amp; grades</td>
<td>Self-reported grades</td>
<td>Student academic performance indirectly linked to friends’ behavior &amp; grades through students’ school behavior</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Studies including Special Education sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study</td>
</tr>
<tr>
<td>------------------------------------------</td>
</tr>
<tr>
<td>Fleming, Cook, &amp; Stone, 2002</td>
</tr>
<tr>
<td>Hagborg, 1998</td>
</tr>
</tbody>
</table>
Appendix E

Histograms of Social Adjustment Variables
Appendix F

Histograms of Academic Performance Variables

TASS Academic Performance

Grades
Appendix G

Histograms, P-P Plots, and Scatterplots of Outcome Variables

TASS

Grades

TASS

Grades
Activity Booklet

Name:____________________________________
Homeroom Teacher:_________________________
School:___________________________________
Date:____________________________________
Friends and Groups  Social Cognitive Map

Are there any kids in your grade who hang around together a lot?  Yes / No

Please write their names on the lines below. Include each person’s last name. Name all the groups that you can think of.

Group 1: ______________________________________________________
______________________________________________________________
______________________________________________________________

Group 2: ______________________________________________________
______________________________________________________________
______________________________________________________________

Group 3: ______________________________________________________
______________________________________________________________
______________________________________________________________

Group 4: ______________________________________________________
______________________________________________________________
______________________________________________________________

Group 5: ______________________________________________________
______________________________________________________________
______________________________________________________________

Are there some kids who don't seem to have a particular group, who tend to stay by themselves a lot?
______________________________________________________________
______________________________________________________________
______________________________________________________________

IF YOU NEED MORE SPACE, TURN THE PAPER OVER. REMEMBER, YOU DON’T HAVE TO FILL IN ALL THE LINES.
Peer Behavioral Assessments

For the following, name the three kids in your grade who best fit the description.

1) **Cooperative.** “Here is someone who is really good to have as part of your group, because this person is agreeable and cooperative – pitches in, shares, and gives everyone a turn.”
   
   ____________________           ____________________           ____________________

2) **Disruptive.** “This person has a way of upsetting everything when he or she gets into a group – doesn’t share and tries to get everyone to do things their way.”
   
   ____________________           ____________________           ____________________

3) **Acts Shy.** “This person acts very shy with other kids. It’s hard to get to know this person.”
   
   ____________________           ____________________           ____________________

4) **Starts Fights.** “This person starts fights. This person says mean things to other kids or pushes them, or hits them.”
   
   ____________________           ____________________           ____________________

5) **Seeks Help.** “This person is always looking for help, asks for help even before trying very hard.”
   
   ____________________           ____________________           ____________________

6) **Leader.** “This person gets chosen by others as the leader. Other people like to have this person in charge.”
   
   ____________________           ____________________           ____________________

7) **Athletic.** “This person is very good at many outdoor games and sports.”
   
   ____________________           ____________________           ____________________

8) **Gets in trouble.** “This person doesn’t follow the rules, doesn’t pay attention, and talks back to the teacher.”
   
   ____________________           ____________________           ____________________

9) **Good student.** “This person makes good grades, usually knows the right answer, and works hard in class.”
   
   ____________________           ____________________           ____________________

**Do not name more than three persons for each question.**
**Remember, you do not have to fill in all the lines.**
10) **Cool.** “This person is really cool. Just about everybody in school knows this person.”

11) **Sad.** “This person often seems sad.”

12) **Starts rumors.** “This person gossips and says things about others. This person is good at causing people to get mad at each other.”

13) **Popular.** “Some kids are very popular with their peers. That is, many classmates like to play with them or do things with them.”

14) **Trend setter.** “This person sets the styles. Other people copy or imitate the way this person looks, dresses or acts.”

15) **Picked on.** “This person is picked on by others.”

16) **Friendly.** “This person is usually friendly to others.”

17) **Bully.** “This person bullies others. This person is always hurting or picking on others.”

18) **Gets their way.** “Other kids do what this person wants. This person always gets their way.”

19) **Name the three classmates you like the most.**

20) **Name the three classmates you like least.**

21) **If you could be one of your classmates who would you like to be?**
### My School

**The kids I hang around with at school think that it is good to:**

<table>
<thead>
<tr>
<th>Number</th>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Volunteer to answer questions or work problems on the board.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>2.</td>
<td>Do as little school work as possible.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>3.</td>
<td>Have a reputation as being really smart.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>4.</td>
<td>Offer to help other students if you know the answer or how to solve a problem.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>5.</td>
<td>Spend extra time talking to the teacher because you like what you are learning.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>6.</td>
<td>Really like learning.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>7.</td>
<td>Raise your hand to ask for help.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>8.</td>
<td>Hate school.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>9.</td>
<td>Talk about things you learn in class outside of class.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>10.</td>
<td>Fool around in class.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>11.</td>
<td>Study for class together.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>
My School

1. I feel a real part of my school.

2. People notice when I’m good at something.

3. Other students in this school take my opinions seriously.

4. Most teachers at my school are interested in me.

5. There’s at least one teacher or adult in this school I can talk to if I have a problem.

6. People at this school are friendly to me.

7. I am included in lots of activities at my school.

8. I am treated with as much respect as other students.

9. The teachers here respect me.

10. People know I can do good work.

11. Other students like the way I am.

--- Please make sure to only mark one box per item ---
<table>
<thead>
<tr>
<th></th>
<th>School Valuing</th>
<th>Strongly Agree</th>
<th>Disagree</th>
<th>Uncertain</th>
<th>Agree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>School is one of the most important things in my life.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>2</td>
<td>Many of the things we learn in class are useless.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>3</td>
<td>Most of what I learn in school will be useful when I get a job.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>4</td>
<td>School is often a waste of time.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>5</td>
<td>Dropping out of school would be a huge mistake for me.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>6</td>
<td>School is more important than most people think.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>7</td>
<td>School is important to getting a good job.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
</tbody>
</table>
## Appendix I

### Teacher Assessment

<table>
<thead>
<tr>
<th>Question</th>
<th>Rating Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. How well does child complete his/her homework?</td>
<td>[ ] Very Well</td>
</tr>
<tr>
<td></td>
<td>[ ] Well</td>
</tr>
<tr>
<td></td>
<td>[ ] So-So</td>
</tr>
<tr>
<td></td>
<td>[ ] Not Well</td>
</tr>
<tr>
<td></td>
<td>[ ] Not at All</td>
</tr>
<tr>
<td>2. How well do parents/guardians monitor child’s homework?</td>
<td>[ ] Very Well</td>
</tr>
<tr>
<td></td>
<td>[ ] Well</td>
</tr>
<tr>
<td></td>
<td>[ ] So-So</td>
</tr>
<tr>
<td></td>
<td>[ ] Not Well</td>
</tr>
<tr>
<td></td>
<td>[ ] Not at All</td>
</tr>
<tr>
<td>3. How well does his/her parent/guardian communicate with you about child’s school work?</td>
<td>[ ] Very Well</td>
</tr>
<tr>
<td></td>
<td>[ ] Well</td>
</tr>
<tr>
<td></td>
<td>[ ] So-So</td>
</tr>
<tr>
<td></td>
<td>[ ] Not Well</td>
</tr>
<tr>
<td></td>
<td>[ ] Not at All</td>
</tr>
<tr>
<td>4. How well does this child perform on curriculum based tests?</td>
<td>[ ] Very Well</td>
</tr>
<tr>
<td></td>
<td>[ ] Well</td>
</tr>
<tr>
<td></td>
<td>[ ] So-So</td>
</tr>
<tr>
<td></td>
<td>[ ] Not Well</td>
</tr>
<tr>
<td></td>
<td>[ ] Not at All</td>
</tr>
<tr>
<td>5. How well does this child perform on standardized tests?</td>
<td>[ ] Very Well</td>
</tr>
<tr>
<td></td>
<td>[ ] Well</td>
</tr>
<tr>
<td></td>
<td>[ ] So-So</td>
</tr>
<tr>
<td></td>
<td>[ ] Not Well</td>
</tr>
<tr>
<td></td>
<td>[ ] Not at All</td>
</tr>
<tr>
<td>6. Does this student have significant attendance issues that affect his/her achievement?</td>
<td>Circle One: Yes No</td>
</tr>
</tbody>
</table>

Circle One: Yes No
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Conference Presentations

Publications