Low Academic Performance and Specific Learning Disabilities: Determining the Better Predictor of Aggressive Behavior at School

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Low Academic Performance and Specific Learning Disabilities: Determining the Better Predictor of Aggressive Behavior at School

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Abstract

The researcher sought to determine whether an overall low average or a specific learning disability is a better predictor of a student displaying aggression at school. Further, she investigated for any interaction between an overall low average and a specific learning disability. The subjects were students in grades six through eight who attended a traditional middle school in a somewhat rural school district. The subjects had been punished by an out-of-school suspension at least once for an act of aggression during the 2006-2007 school year. Using a multiple regression analysis, the researcher found a negative correlation between overall average and suspensions for the number of aggressive acts displayed at school. As overall average decreased, the number of suspensions for acts of aggression increased. The presence of a specific learning disability label did not significantly correlate with aggression. Neither did the presence of both a low overall average and a specific learning disability label prove to be significant. When both factors were present for a subject, the low overall average was shown to be the more important correlate with aggression. The researcher concluded that an overall low average was a better predictor for the likelihood of a student displaying aggression at school than was a specific learning disability label.

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CONTENTS

TABLES

CHAPTER ONE

Introduction

Over the last fifteen years, 424 individuals have lost their lives in secondary school-related violent incidents in the United States (The National School Safety Center, 2008). The number is even higher if one accounts for those lives lost to similar events on American college campuses. Approximately three fourths of these tragedies are shootings, and they are overwhelmingly more likely to have been perpetrated by students than by other community members such as adults or youth not attending school (The National School Safety Center, 2008). Further, school violence is particularly troubling for the American educator. More school shootings have occurred in the United States in recent years than in all other nations combined (Fox News, 2007; Recent worldwide school shootings, 2008; A timeline of recent worldwide school shootings, 2008).

Most incidents serious enough to cause deaths at school are culminations of aggressive patterns. Specifically, while most youth offenders appear at their first court date when they are around 14, their behavior problems begin much earlier. The problems are often so serious that the offenders are committing crimes by age 12. Because the pattern begins early in life for certain individuals, some researchers have noted the importance of identifying risk factors for young offenders in an effort to help adults avert the onset of youth aggression (Loeber & Farrington, 1998). Analysis of threats to the educational environment shows that school homicides are “rarely impulsive,” yet “only infrequently can [. . .] school officials identify in advance a student [. . .] who might launch a violent attack” (Esposito, 2007, p. 1).

Background

Although some research indicates that the number of incidents of school violence has decreased (Savoye, 2000), other materials point to an increase in the intensity of those acts which are committed (Hoffman, 1996). The nation and its educators were not prepared for the killings at Columbine High School, the site where two students ended their own lives and those of twelve schoolmates and one teacher. In the wake of the seemingly quick succession of events at Pearl, Mississippi; Padukah, Kentucky; and Littleton, Colorado, society developed a new focus on aggressive behaviors in schools. For those conducting educational research, this led to an increase in investigations into factors that might lead to aggressive behavior. The 2006-2007 academic year was also memorable for a spike in the number of school-related deaths, a rash that reminded the nation of "the late 1990s' spate of school killings" (Thomas, 2006, p.2). The renewed focus on campus violence led President George W. Bush to comment that "schools should be places of safety and sanctuary and learning" (White House Press Office, 2007, p.1). Not only was the number of attacks of great concern, but the young age of some perpetrators was also cause for alarm. Modglin (2006) has said, "Many of our most dangerous problems [including] shootings [and] threats have moved down to an even younger age group. It is true that even our middle schoolers have the potential to do things good or bad that will have a ripple effect around the country or even the world" (p.1).

In response to the growing concern about school violence, some have compiled lists of risk factors that might lead students to commit aggressive acts. The United States Department of Justice's Office of Juvenile Justice and Delinquency Prevention devoted

two years to researching violence perpetrated by young people. Agency representatives reviewed what was already known about contributing circumstances and protective factors from other studies on youth violence. Using meta-analysis, the researchers selected a sample of offenders that met certain criteria from the previous studies. They synthesized the information to compile the categorized list of predictors of youth violence which they reported on the Justice Department's behalf (Hawkins, Herrenkohl, Farrington, Brewer, Catalano, Harachi, & Cothern, 2000). Likewise, the Surgeon General's Office (2007) devoted a lengthy chapter to risk factors in its book on youth violence. This chapter identified potential risk factors for aggression as part of a broad public health concern. As previously referenced, Loeber and Farrington (1998) noted the importance of identifying risk factors for youth offenders because so many youth offenders actually begin committing crimes well before they enter the legal system. They named as many traits that might predict violence as they found.

Each of these documents identified poor academic performance as one possible predictor of youth violence. Other researchers dealt more specifically with the potential links between academic performance and both community and school aggression. Maguin and Loeber (1996) conducted a meta-analysis of naturalistic studies to identify an academic performance-delinquency relationship. They concluded that students who perform poorly in their schoolwork offend more frequently, more violently, and over longer periods of time. Further, academic performance predicted violence and crime regardless of socioeconomic status, another risk factor. However, according to Pettit (1996), children whose socioeconomic status improved over time showed increases in academic performance and decreases in aggression. One might also notice that low

socioeconomic status increased the likelihood of mothers rejecting children. Perhaps rejection, not finances, accounts for the apparently contradictory findings. More important to this research is that Pettit's finding confirmed some correlation between academic performance and aggression. Similarly, community ecology and the witnessing of community violence were shown to negatively impact the academic performance of middle school students (Henrich, Schwab-Stone, Fanti, Jones, & Ruchkin, 2004). The researchers suggested an ecological approach to academic intervention.

Directly associating academic failure and aggression, Cairns, Cairns, and Neckerman (1989) noticed in a longitudinal study that those students most likely to drop out of school before receiving diplomas showed a history of poor academic performance while in school and demonstrated aggressiveness. Low grades and aggressive behavior early in the school career and high school dropout were also found to be related in another longitudinal study (Ensminger & Slusarcick, 1992). Further, students who had exhibited aggression but had good school performance were found to be more resilient than those who had exhibited aggression and had poor school performance (Morrison, Robertson, & Harding, 1998).

Further studies provided evidence of associations between low academic performance and aggression. For example, one such investigation posed the inverse of the question raised in this project (Fleming, Haggerty, Catalano, Harachi, Mazza, & Gruman, 2005). It attempted to predict low academic behavior from risk factors including violence. Researchers learned that students who had better social skills and decision-making abilities earned better grades, while those who exhibited negative and aggressive behavior made lower grades. Another study took similar findings even further. Noting

reciprocity, the authors reported that academic performance predicted social skills and behavior and that the level of social functioning and presence or absence of aggression also predicted grades (Chen, Li, & Ruben, 1997).

While some researchers were most interested in academic performance as it related to aggression, others focused on the possible relationships between learning disabilities and poor behavior. For some the subject was an area of interest; for others it was a matter of legal importance under special education laws (Katsiyannis & Murry, 2000). The Office of Juvenile Justice strongly suspected a relationship between learning disabilities and juvenile delinquency, funding a major project to examine the possible links even before school violence became a topic of national urgency (Keilitz, Zaremba, & Broder, 1979).

Furthering the study into learning and risk for bad behavior, Cole, Usher, and Cargo (1993) investigated the relationship between intellectual functioning and the potential for disruptive behavior. The authors noticed that verbal and visuospatial difficulties were associated with above average behavioral problems. They concluded that a relationship exists between the risk for disruptive behavior issues, troubles in socioemotional functioning, and specific cognitive skills. Not only have researchers pointed to cognitive function as being related to aggression, but some have also been able to differentiate specific aspects of cognitive challenges from one another. Robins (1992), for instance, found differences in manifestations of aggressive behaviors and self-regulation between groups who were labeled as having attention deficit hyperactivity disorder (ADHD), a learning disability (LD), or both. He noted that ADHD and LD are distinct diagnostic entities. With similar differentiation Romano and Bellack (1983) found that a group of students labeled LD and a group tagged as having behavior problems, both in seventh

through ninth grades, scored lower on sociometric ratings than did the control group. Further, the labeled groups produced lower quality alternative solutions to aggression. The findings suggested, therefore, that some relationship exists between learning disabilities and aggressive behaviors. However, the researchers went on to acknowledge that such behavior may have been situation-specific and not simply a function of verbal intelligence. Another study compared adolescents who had learning disabilities to those who did not in a number of areas. Researchers found that the students with learning disabilities displayed lower self-perceptions reflective of distress, even when their academic performance was the same as that of their peers who are not learning disabled (Lackaye, Margalit, Ziv, & Ziman, 2006). Reported self-efficacy was lower in both the academic and social realms for the learning disabled group despite their academic equality with their peers, suggesting that some of their social problems could conceivably have been related to their learning disabilities.

Given the findings of various researchers, one might cease to question whether a learning disability might be a predictor of aggression and ask instead to what extent such cognitive difficulty impacts behavior. One group of researchers attempted to address this issue (Tyrer, McGrother, Thorp, Donaldson, Bhaumik, Watson, & Hollin, 2006). They found that men, younger people, people with severe learning disabilities, and those who lived in institutional settings tended to display more physical aggression than did others who were also learning disabled. Further, people with certain cognitive disabilities, such as Down's Syndrome, tended to display lower levels of aggression than did those afflicted by other cognitive disorders. Similarly, another study of fourth and fifth grade students sought to examine the extent to which learning disabilities and social behavior

are related (Kravetz, Faust, Lipshitz, & Shalhav, 1999). The authors attempted to determine whether interpersonal understanding mediated the apparent social adaptation difficulties in the classroom of children who are learning disabled. Their work appeared to confirm a relationship between learning disabilities and undesirable behavior. The authors thought the behaviors were the result of a lack of interpersonal understanding. However, they found that social adaptation in the classroom differed greatly between students who are learning disabled and those who are not, even after they controlled their statistical procedures for the interpersonal understanding factor. Even so, according to the researchers the misconduct and the lack of interpersonal understanding could be correlates of other consequences of learning disabilities. Cornwall and Bawden (1992) tempered the discussion with their critical review. Addressing the number of studies pointing to the associations between learning disabilities and aggression and delinquency, they noted that discussions assigning causality to the relationship were common in the popular press. The reviewers dealt most specifically with reading disability, the learning disability identified most frequently. They contended that the evidence was not sufficient to say that a learning disability in reading caused aggressive and delinquent behavior. Rather, the limited data supported the idea that a reading disability may have worsened bad behavior that already existed. Further, they pointed out the lack of specificity in much of the research they reviewed in defining a learning disability.

Smith and Griffin (2002) found that improving the conversation skills of adolescents who are learning disabled and aggressive might improve behavior. One surmises from their research that a link exists between performance, learning disability, and aggression. Similarly, Hinshaw (1992) noted that externalizing behavior disorders often exist in

conjunction with low academic achievement. The behavior disorders exist simultaneously with specific learning disabilities less frequently than once thought, but they indeed sometimes exist together. Other researchers reported a relationship between learning problems—particularly reading disabilities—low academic achievement, and psychosocial functioning (Gadeyne, Ghesquiere, & Onghena, 2004). Therefore, to extend the body of knowledge that might help address these educational concerns for middle school students, the current study examined the correlations between a specific learning disability (SLD), low academic performance, and aggressive behavior at school.

While many possible explanations for youth violence and school aggression have been proposed, several existing theories related closely to the current study. As documented in the Review of the Related Literature, low academic performance has been shown to correlate with aggression. Researchers also theorized that a reciprocal relationship existed between academics and behavior. It appeared to some that low academic performance often led to aggression at school. The behaviors, in turn, circumvented the learning process, hindered academic performance, and decreased academic self-concept, perpetuating the cycle (Taylor, Davis-Kean, & Malanchuk, 2007). Other authors proposed three dominant theories that might explain why specific learning disabilities increased the likelihood of students displaying aggression at school. Larson (1988) and Brier (1989) provided an overview of the school failure, differential treatment, and susceptibility hypotheses. These theories are tangents to the current study since it examined the reliability of predicting aggression based on the existence of a specific learning disability.

Given the existing theories about academic performance and learning disabilities as they relate to aggression, the current study sought to determine which risk factor might be a better predictor of a student becoming aggressive at school. Existing research and literature provided a framework upon which the hypotheses and null hypotheses were constructed. After considering the findings detailed by other authors, the researcher formulated the following question.

Problem Statement

Is a specific learning disability or general low academic performance a stronger predictor for the likelihood of a student displaying aggression at school?

Null Hypotheses

1. No correlation exists between grades and aggression at school. As overall average decreases, suspensions for acts of aggression will not increase.
2. No correlation exists between specific learning disabilities and aggression at school. If a student has a specific learning disability, he or she is no more likely to have been aggressive at school than a student who does not have a specific learning disability.
3. The combination of a student having a specific learning disability and performing poorly academically will make him or her no more likely to display aggression at school than students who fall into only one of these variable categories.

Professional Significance

Several sources pointed to the need to further what is currently known about aggression, specific learning disabilities, and low academic performance. Ochoa (2002) attempted to guide teachers in training regarding disciplining special education students,

stating the importance of "[striking] a balance between the right of students with disabilities to a free and appropriate public education (FAPE) and the need of school administrators to create a safe learning environment for all learners" (p.1). Delving deeper into the issue, Skiba and Peterson (2000) noted that "school discipline [is] at a crossroads" (p.1). They appeared to acknowledge some relationship between aggression and special education as they discussed discipline. Examining the predictive capabilities of low academic performance and specific learning disabilities on aggressive behavior at school will add another component to the collection of literature.

First, it will specify in detail exactly what is meant by a *specific learning disability* and *aggression* for purposes of the study. Regardless of whether or not a reader agrees with the definitions, the terminology will be clear. The reader will be able to understand what is being presented, making any findings more usable in the education field. Second, the study will assist educators in determining what may or may not be of predictive value in preventing aggression at school. Further, the research may provide insight into whether or not the combined effect of a specific learning disability and low academic performance is important as a predictor of aggression.

Additionally, everyone in the field of education has an interest in predicting such behavioral outbursts. More accurate prediction can pave the way for further research into intervention (i.e., more intensive guidance counseling for identified groups or students). Since the research investigated students from one district, the author must be careful with generalizability to all middle school students. However, the study may still be useful to educators in other regions. The district under study has become more diverse than ever before in the last decade. Although the numbers of students are small in comparison to

many districts in the country, the area is growing and does have some diversity in terms of ethnicity, socioeconomic status, and parent involvement.

Methodology Overview

The subjects for the current research were middle school students in the district under study who had been suspended at least once for an aggressive act committed at school during the 2006-2007 school year. School discipline records provided data regarding suspensions, including code numbers that differentiated aggressive offenses from other conduct violations. Exceptional children's records provided details on which students were identified as having a specific learning disability. Student Information Management System (SIMS) data generated grades for each student.

Using the collected data, the overall average for each subject was noted. Raw scores (actual average of final subject grades) were paired with the respective subjects. The researcher noted the letter grade categories into which the averages fell (i.e., this allowed the researcher to grasp how many aggressive students had "A" averages, how many had "B" averages, and so on). Also, the researcher noted whether or not each subject was identified by a specific learning disability label.

Data were organized by subject. Also, subjects were identified by assigned numbers, not names. Subjects had their grade averages, their numbers of suspensions for the academic year for aggressive acts, and their identifications of SLD or lack thereof displayed with their identifying numbers. Further, the author displayed statistical models that helped her confirm or reject the hypotheses and null hypotheses.

Correlational research was utilized for prediction of aggression. This methodology enabled the researcher to look for the strength and direction of the independent variables

(specific learning disability and/or low academic performance) as predictors of the dependent variable (aggression at school). A multiple regression was performed with the data the researcher collected. Using this method the researcher looked at the relationship between a specific learning disability and aggression, the relationship between academic performance and aggression, and any interaction between the two independent variables as they related to aggression. Examining the results for statistical significance, the author determined if the correlations found were strong or if they could easily have occurred by chance. She used the sample size, the r values, and significance levels to determine this.

Definitions of Key Terms

Aggressive Behavior/Aggression—behavior of a nature that causes intentional harm, implies that harm is imminent, or leads one to reasonably perceive that harm could occur that happens at school or in the context of a school-related activity or function. Such behavior is serious enough to be punishable by one or more days' out-of-school suspension (Appendix A). Incidents identifiable as aggressive can be differentiated from non-aggressive misbehaviors by code and description in the Discipline Incident Directory for the school district under study (Appendix B).

Middle School—a public (not private or independent) school that includes students in grades six through eight.

Specific Learning Disability (SLD)—According to the Individuals with Disabilities in Education Act (2008), "a disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, which disorder may manifest itself in the imperfect ability to listen, think, speak, read, write, spell, or do mathematical computations. Such term includes such conditions as perceptual

disabilities, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia. Such term does not include a learning problem that is primarily the result of visual, hearing, or motor disabilities, of mental retardation, of emotional disturbance, or of environmental, cultural, or economic disadvantage" (p.5).

CHAPTER TWO

Review of the Related Literature

Educators acknowledge various reasons that more effectively predicting school aggression might be important. In addition to possibly escalating into casualty-causing violence in schools, aggression infringes upon instructional time, poses a particular problem for teenagers, and may lead to a criminal adulthood. Freiberg, Stein, and Parker (1995) analyzed a middle school's discipline referral data. They noted how learning suffers when time and resources have to be devoted to discipline, leading the faculty and administration of the school to create a new plan for dealing with discipline. Predicting and intervening in aggressive situations are particularly important for middle schools. According to one study on undesirable adolescent activity, "violent and aggressive behavior surges to its apex during the teenage years" (Valois, McDonald, Bretous, Fischer, & Drane, 2002, p.454). Moskowitz and Crawley (1989) found a continued pattern of such behavior to be a useful predictor of crime in early adulthood. Thus, researchers suggest that a pattern of aggression exhibited during the middle school years can diminish learning and increase the likelihood of adult criminal activity, making the issue more than just a classroom nuisance.

Therefore, this chapter includes the following seven sections that review relevant elements of what has already been discovered about the relationships between specific learning disability, low academic performance, and aggression: Defining Aggression; Specific Learning Disability as a Predictor of Aggression; Aggression as a Predictor of Cognitive Problems; Low Academic Performance as a Predictor of Aggression;

Aggression as a Predictor of Low Academic Performance; Problems of Researching the Relationships between Academics and Behavior; and Interaction of Learning Disabilities, Aggression, and Low Academic Performance. These sections contain commonly accepted assumptions and definitions, findings of studies that investigated salient relationships, and difficulties of some research that carry important implications for the current study.

Defining Aggression

Administrators are more likely to suspend students for aggression than for any other offense. Even so, principals have difficulty agreeing on exactly what constitutes aggression. The lack of consensus fosters inequality in discipline strategies and enables bias based upon socioeconomic status, race, gender, and handicapping condition (Skiba, Peterson, & Williams, 1997). Bucher and Manning (2003) broadly define the term so that it includes any unacceptable social actions, encompassing threats, bullying, harm, extortion, gang violence, sexual harassment, and other methods of intimidation. Similarly, surveys indicate that aggression most commonly manifests itself at school in the following forms: "student cursing, grabbing, pushing, verbal threats and intimidation" (Scott, Nelson, & Liaupsin, 2001, p.310). These behaviors, however, may be classified to better indicate specific kinds of aggression. Pakaslahti and Keltikangas-Jarvinen (2000) discuss aggression based on whether it is direct or indirect. Direct aggression includes arguing, bullying, and fighting, while indirect aggression addresses concepts like "backbiting" and "intriguing" (p.177).

Given the blurred and expansive meanings of aggression, Mulvey and Cauffman (2001) point out the limitations of predictive capabilities. Although less than one percent

of children who are murdered or commit suicide die on or near their school campus, certainly school officials would like to become more adept at determining which students might become deadly perpetrators. The authors discuss the various challenges administrators face in predicting which aggressors might cross that line. Violence of such magnitude does not occur frequently, so opportunities to study the problem and identify precursors are few. Social interactions further complicate prediction. Violent events are rarely isolated. Rather, they occur as part of a long sequence of social transactions. Social bonding also complicates educators' efforts to predict aggressive escalation. The authors note that, "Youths who are aggressive not only seek each other out but also form coercive cliques" (p. 798). Also, adolescents possess changing characters that are not yet fully developed, making assessment of the potential for violence more difficult. Moreover, researchers and educators do not always know which interventions will be most effective in preventing aggression from progressing to violence. While such prediction is difficult and perhaps even insufficient, the authors contend that the problem does not "justify inaction" (p. 799). They recommend "approach[ing] the problem as one of ongoing risk assessment rather than prediction" (p. 799). This approach will enable school officials to end discriminatory practices and provide more resources for groups of students who are clearly at high risk for perpetrating school violence. According to some, however, allocating resources solely to at-risk student groups is not enough (Henrich, Schwab-Stone, Fanti, Jones, & Ruchkin, 2004). These researchers examined the interaction of exposure to community violence, academic performance, and aggression. They concluded that programs designed to

bolster academic performance, which was linked to reducing aggression, must reach out to the family and community at large to be effective.

Specific Learning Disability as a Predictor of Aggression

According to the results of a 22-year study, low IQ and aggression are related (Huesmann, Eron, & Yarmel, 1987). Specifically, the researchers found that childhood aggression interferes with the development of intellectual functioning. This, in turn, predicts even lower functioning in adulthood. Aggression tended to remain stable across subjects' life spans, as did intellectual functioning. Further, the patterns tended to perpetuate themselves across generations within families and into marriage pairings. While this study clarifies the relationship between intelligence and aggression, it does not take into account what impact a learning disability, where IQ is normal but a processing problem exists as defined previously, might have on aggression.

Attending to that distinction, Romano and Bellack (1983) found that a group of students in seventh through ninth grades labeled LD and a group tagged as having behavior problems scored lower on sociometric ratings than did the control group. Further, the labeled groups produced lower quality alternative solutions to aggression. The findings suggested, therefore, that some relationship exists between learning disabilities and aggressive behaviors, although the researchers went on to acknowledge that such behavior may have been situation specific and not simply a function of verbal intelligence. Furthering the study into learning and risk for bad behavior, Cole, Usher, and Cargo (1993) investigated the relationship between intellectual functioning and the potential for disruptive behavior. The authors noticed that verbal and visuospatial difficulties were associated with above average behavioral problems. They concluded

that a relationship exists between the risk for disruptive behavior issues, troubles in socioemotional functioning, and specific cognitive skills. Another study of fourth and fifth grade students sought to examine the extent to which learning disabilities and social behavior are related (Kravetz, Faust, Lipshitz, & Shalhav, 1999). The authors attempted to determine whether interpersonal understanding mediated the apparent social adaptation difficulties of children with learning disabilities in the classroom. Their work appeared to confirm a relationship between learning disabilities and undesirable behavior. The authors thought the behaviors were the result of a lack of interpersonal understanding. However, they found that social adaptation in the classroom differed greatly between students who are learning disabled and those who are not even after they controlled their statistical procedures for the interpersonal understanding factor. Even so, the misconduct and the lack of interpersonal understanding could be correlates of other consequences of learning disabilities according to the researchers. Christle, Jolivette, and Nelson (2000) corroborate those findings, stating that students with certain disabilities, including specific learning disabilities, are at greater risk for becoming aggressive and committing violent acts. They also may experience academic and social failure more often than other students. The authors also note that a disproportionate number of students with disabilities and those from diverse backgrounds receive punishments such as suspensions. Despite these indications, the writers warn that the information should not be the basis for "profiling," the practice of attempting to determine who might commit an extreme act of violence such as a school shooting based on a student meeting specific indicators on a checklist. Such practices, they say, are unfair, dangerous, and potentially lethal.

Using the Learning Disabilities Association of Canada's definition of the said term which is remarkably similar to the one presented by IDEA (Individuals with Disabilities in Education Act, 2008), Milan, Hou, and Wong (2006) showed that students who have learning disabilities may also demonstrate aggression or conduct problems more frequently than their peers without labels. These subjects have slightly higher scores on an aggression/conduct disorder scale when compared to others. The small elevation in scores found by these researchers, however, may not explain why the authors of other studies found that students with disabilities are suspended more often.

For instance, Maryland's discipline data from 1995-2003 proved that minority students and those with disabilities were disproportionately suspended (Krezmien, Leone, & Achilles, 2006). The suspensions varied by type of disability with those pupils labeled with emotional or behavioral disorders being suspended most often, especially if they were African American. Students who were labeled as learning disabled had "higher risks of being suspended than their same-race peers without disabilities" (p.223). Likewise, data from a study of school discipline in Kansas confirmed that students with disabilities were twice as likely to be suspended or expelled as students receiving regular education services (Cooley, 1995). The data-rich report of the findings showed that 87% of the special education students who were suspended had a behavioral or learning disability label. Moreover, 4.5% of the subjects studied were learning disabled, yet they represented 11% of the suspensions. According to the author, "students with learning disabilities are recognized as frequently having difficulty understanding social situations and learning appropriate coping skills for dealing with frustrating or difficult situations" (p. 3). Even so, pupils with learning disabilities were no more likely to cause injuries

than other students. The offenses for which they were suspended bore no notable differences from any other pupils' infractions. Males, however, represented 83% of the suspensions. Cooley also noted that Asian and Native American students were half as likely to be removed from school as other groups. White students were suspended at rates proportional to their percentage of the population, and black and Hispanic classmates were only slightly over represented. In a review of study findings from multiple states, Leone, Mayer, Malmgren, and Kimber (2000) briefly reiterated the results from Maryland and Kansas, and they summarized information from Kentucky, Delaware, and Minnesota. One eastern Kentucky school district's data showed that students who were disabled received 20% of the suspensions though just 14% of the student population was disabled. The district's gender ratio was 53% male and 47% female; however, boys represented 83% of the suspensions. Similarly, Delaware's 1994-1996 data showed that 23% of the incidents that resulted in suspensions involved exceptional children. Twenty-five percent of Minnesota's suspensions were associated with pupils who had disability labels, and "the overwhelming percentage of suspensions of students with disabilities involved students with learning disabilities and behavior disorders" (p.10). These states are not isolated. In a national study conducted by the Research Triangle Institute, Fiore and Reynolds (1996) reviewed data from all fifty states. Although the authors clearly noted that states are not keeping adequate tracking of discipline data involving exceptional children, they found sufficient records to indicate that "students with disabilities are suspended from schools in significant numbers. Furthermore, all available data suggest that students with disabilities are suspended at rates that exceed their proportion in the total school population" (p.45). However, the

acts committed by these students are no more serious than the offenses of their counterparts without disabilities.

Another author acknowledged that "externalizing behavior and formally defined underachievement are clearly associated" even though learning disabilities and conduct disorders exist concurrently less frequently than some report (Hinshaw, 1992, p. 149). This association was found to grow stronger as age increases from the elementary years into adolescence. Given that some connection between learning disabilities and aggression exists, various authors have sought to develop causal explanations as detailed by Johnson (2002). Three hypotheses emerged as possible explanations of why students with learning disabilities are more likely to be aggressive and delinquent—the school failure hypothesis, the differential treatment hypothesis, and the susceptibility hypothesis (Larson, 1988; Brier, 1989).

School Failure Hypothesis

Because most individuals aspire to some measure of success in school, students who have learning difficulties may feel inferior to other children and even become the objects of teasing or ridicule when they have trouble demonstrating academic progress (Larson, 1988; Brier, 1989). Academic failure, according to the academic failure hypothesis, represents "a first step in a sequence that culminates in delinquency" (Brier, 1989, p. 548). Students not only lose hope in their academic potential, but they also become more likely to "seek out delinquent-prone peer groups to satisfy increased needs for recognition and achievement" (Larson, 1988, p. 357). Further, as these students receive punishments and reach decisions that decrease their time in school (i.e., suspensions and dropping out), their opportunities to participate in delinquent behavior increase. Thus, school

failure and the accompanying frustration are purported by some researchers to make students with learning disabilities more likely to become aggressive.

For instance, D'zurilla, Chang, and Sanna (2003) found that both self-esteem and problem-solving difficulties were related to anger, hostility, and physical aggression. Other authors noted that similar findings held over time and cross-sectionally even when researchers controlled for other influential variables such as positive parenting, relationships, standardized test scores, socioeconomic status, or intelligence (Donnellan, Trzesniewski, Robins, Moffitt, & Caspi, 2005). In addition, students with learning disabilities may espouse lower aspirations based upon their academic experiences. While these aspirations themselves may not impact future attainment, students may use their past experiences and what they perceive to be barriers to career opportunities in ways that influence their futures (Rojewski, 1996). Waldie and Spreen (1993), however, stated that they could not confirm academic failure as a causal theory in the relationship between learning disabilities and bad behavior.

Differential Treatment Hypothesis

A second possible explanation for the link between learning problems and poor conduct is the notion of differential treatment. This position posits the idea that young people, regardless of the presence or absence of a learning disability, exhibit the same kinds of delinquent behaviors at the same rates (Larson, 1988). The contrasting factor is that officials treat youth with learning disabilities differently. Specifically, researchers should ask three straightforward questions when considering this hypothesis: "Are individuals who are learning disabled more likely to be picked up by the police than non-learning-disabled individuals for comparable levels of delinquent activity? Are

individuals with LD who are charged with a violation at greater risk of adjudication than non-learning disabled individuals? Are individuals who are learning disabled more likely to receive a severe disposition from juvenile court than non-learning-disabled youngsters?" (Brier, 1989, p. 549).

Dunivant (in Brier, 1989), conducting a study for the National Center for State Courts, concluded that "youth who were learning disabled were about 200% more likely to be arrested for committing offenses of equal frequency and seriousness than their non-learning-disabled counterparts, and had a higher probability of being officially adjudicated delinquent than did non-learning-disabled peers" (p. 550). The author noted that "the data clearly show that individuals who are learning disabled are treated differently by the judicial system" (p. 550).

Individuals outside the legal system appeared to be no different. Students with learning disabilities were perceived as having poorer social skills and more behavior problems by parents, teachers, peers, and themselves (Haager, Watson, & Willows, 1995). In addition, students with emotional or behavioral disorders who showed both behavioral and learning problems made teaching more difficult (Sutherland, Lewis-Palmer, Stichter, & Morgan, 2008). Their teachers were less likely to be able to teach effectively. Lack of effective instruction, in turn, lessened academic prospects and worsened bad behavior.

Continuing the discussion, Skiba and Peterson (2000) commented on the lack of effort of educators to understand the behaviors of special education students. More direct and critical in their discussion of discipline imposed upon certain students, Foster, Schmidt, and Sabatino (1976) contended that teachers' feelings impact perceptions and

punishments. Their data "strongly suggest[ed] that the label of learning disabled generates a negative bias on the part of teachers and this bias is sufficient to alter teachers' observations of actual child behavior" (p.60). Thus, "it would appear that the learning disabilities movement has created a new category of deviancy and hence a new basis for negative expectancies which is in part caused by the identification system imposed" (p.61).

Susceptibility Hypothesis

By far the most widely supported of the three theories, the susceptibility hypothesis contends that other problematic social issues often accompany a learning disability (Larson, 1988). Specifically, this hypothesis "proposes that the neurological and intellectual difficulties of youngsters who are learning disabled directly contribute to antisocial behavior. These difficulties are said to include problems with impulse control and attention; problems with conceptualization, comprehension, and judgment; and problems with social perception" (Brier, 1989, p. 547). While a learning disability does not appear in its singularity to cause delinquency, students with learning disabilities tend to exhibit certain delinquency-linked susceptibilities more often, increasing the risk of inappropriate behavior. This is especially true if a youngster displays other particular characteristics. For example, "Language and social perception difficulties in interaction with inattentive, impulsive, and aggressive behavior seem to be key elements of this high-risk profile" (p. 548).

Implying susceptibility, several authors addressed phenomena so closely akin to learning disabilities that they might indicate a neurological relationship. Spreen (1989), for instance, found that emotional disorders may precede, follow, or occur simultaneously

with learning disabilities. This led the researcher to believe that learning disabilities and emotional disorders could have a common origin in neurological dysfunction. Similarly, Stein and Hoover (1989) noted that students labeled with learning disabilities and receiving related educational services reported experiencing more anxiety than did their peers without labels. They tended to worry more, and they were more likely to be oversensitive. Waldie and Spreen (1993), testing the hypotheses explaining the link between learning disabilities and aggression, were able to confirm the susceptibility theory. As part of this confirmation, the authors found "certain underdeveloped personality skills, such as general impulsiveness and poor judgment" were important, suggesting neurological problems as a possible explanation (p. 422). These factors influenced measures of social competence, accounting for the fact that adolescent boys with learning disabilities showed more behavioral problems than expected for boys in their age range (McConaughy, 1986). When compared to younger boys, the subjects of this study scored remarkably lower in measures of social competence, suggesting that the apparent neurological issues did not resolve themselves over time. In fact, the problems persisted and worsened as students moved into and through the middle school years.

More specifically, neurological issues with attention may add to the notion of susceptibility. Hinshaw (1992) concluded that most of the externalizing symptoms displayed by students with learning disabilities could be more accurately categorized as symptoms of attention deficit-hyperactivity disorder (ADHD) than as aggression. Routh (1979) agreed, saying that "aggressive and antisocial behaviors are less strongly correlated with learning disabilities than are hyperactive-inattentive behaviors" (p. 185). Furthering the discussion and recognizing the importance of ADHD as it frequently

coexists with a learning disability, Cantwell and Baker (1991) found a strong association between the presence of a learning disability and ADHD. These authors even think that the different areas of learning disability may impact behavior differently, although this is an area marked for future research.

Investigating the separate areas of learning disability, Lewis, Hitch, and Walker (1994) found that math difficulties impact males and females at approximately equal rates, while reading disabilities affect males at a much higher rate than females. Other authors evaluated the behavioral characteristics of students with developmental dyscalculia, a specific learning disability in math (Shalev, Auerback, & Gross-Tsur, 1995). They concluded that difficulty in acquiring math skills did not significantly impact behavior. The notable behavior problems were observed in students whose math disability existed together with either attention or verbal problems.

Indeed, students who have difficulties within the language arts strands may be at greater risk for behavioral problems. According to Vallance, Cummings, and Humphries (1998), a correlation exists between social discourse and social skills ratings. A language learning disability, therefore, ultimately manifests in some children as clinical problems which include externalizing behaviors. More specifically, a lack of verbal skills leads to physical aggression in young children (Kaukiainen, Bjorkqvist, Osterman, & Lagerspetz, 1996). Furthermore, children with language impairments are more likely to also have reading or behavioral disorders (Tomblin, Zhang, & Buckwalter, 2000). These students are more apt to experience reading difficulties than to exhibit bad behavior. However, the risk for behavioral problems "appears to be conditioned on the reading status of the child with [language impairment]. That is, children with [language impairments] have

greater rates of [behavioral disorders] due to their associated problems with [reading disabilities]" (p. 479). Attempting to explain the correlation between learning disabilities in reading and unacceptable behavior, one authorial group proposed four alternative hypotheses (Rutter, Tizard, & Whitmore, 1970 in McGee, Williams, Share, Anderson, and Silva 1986). They identified reading disability producing behavioral problems, problem behavior leading to reading difficulties, both reading disability and problem behavior being produced by a third factor, or these ideas being all or partially true as plausible explanations.

A number of researchers agree that reading disability might produce behavioral problems. McGee, Williams, Share, Anderson, and Silva (1986) found that boys who clearly demonstrated long-term reading disabilities were not only slower in their rates of reading acquisition, but also higher in their teachers' ratings of problem behaviors. Beitchman and Young (1997) also said that "language learning disabilities seem to play an important role in delinquent behavior" (p. 1026). Accordingly, language arts strand disabilities best support and are a part of the susceptibility hypothesis, although the authors believe that the hypotheses are not mutually exclusive. Like other researchers, Ritter (1989) found an association between learning disabilities in reading, social competence, and problem behavior. Unlike most others, however, he noted this association in girls. Miles and Stipek (2006) noticed an expected relationship between literacy achievement and behavior. In contrast to some other research, the results of their study showed a delay in the association. The strength of the association increased over the progression of the elementary years with "poor literacy achievement in first and third grades predicting relatively high aggressive behavior in third and fifth grades,

respectively" (p. 103). Grigorenko (2001) reiterated that reading problems and behavior problems coexist. This correlation can lead to a lifetime of challenges beyond the school career because affected students often "demonstrate significant academic underachievement and tend to complete significantly less schooling than an average person in the general population" (p. 112).

Conversely, problem behavior might account for reading difficulties. Although Prior and Smart (1996) found no differences in the rates of reading disabilities between genders, they think boys are more often diagnosed because of behavior problems and suggest that researchers may need to look more closely at gender differences in behavior. That said, the authors went on to say that very early behavior problems in boys led to behavior problems at school and later emergence of reading difficulties. Girls, in contrast, were more likely to have pure reading disabilities without the presence of behavioral issues. Similarly, other researchers found that reading problems in the early grades as well as learning disabilities in reading were closely related to ADHD symptoms that already existed, implying behavior as being more the culprit in the situation than struggles with reading (Jorm, Share, Matthews, & Maclean, 1986). These authors did, however, acknowledge that antisocial behavior may develop later as a result of those problems and suggested further research. Fergusson and Lynskey (1997) found that while early reading problems were predictive of later conduct problems, the reading did not seem to cause those troubles. Instead, the problems were more closely related to early behavior problems. Reading problems may have simply worsened bad behavior that already existed.

Another possibility is that both reading disability and problem behavior could be produced by a third factor. Maughan, Gray, and Rutter (1985) determined that poor readers, regardless of whether or not officially labeled with a reading disability, were at greater risk for later delinquency. Correlations outside that one specific area were found to be attributable at least in part to other factors, including behavioral issues. Moreover, the authors stated that "reading problems occur in conjunction with other educationally and socially disadvantaging factors" (p. 755). Likewise, Sturge (1982) found a close relationship between severe reading difficulties and antisocial behavior, an association for which "there is no simple overall explanation" (p. 30). Rather, other "disadvantageous factors" likely contribute significantly (p.30). Another pair of researchers found that students with reading disabilities were more likely than others to meet the criteria for other disorders, including ADHD (Willcutt & Pennington, 2000). They noted that males were more likely to externalize or aggress than females. Williams and McGee (1994) also established a connection between reading disabilities and bad behavior that might lead to delinquency, but they acknowledged economic disadvantage as a factor. Other authors believed that a learning disability in reading and its association with antisocial behavior can best be described by environmental factors, not by one causing the other (Trzenski, Moffitt, Caspi, Taylor, & Maughan, 2006). However, as one gets worse so does the other. This observation, along with Sturge's (1982) discussion of "background factors [interacting] to give [a] marked association between reading and antisocial problems," implies the existence of the possibility that all three hypotheses regarding reading disabilities and undesired behavior may be all or partially true, working concurrently to generate the fourth hypothesis of interaction (p. 30).

Even given the evidence that learning disabilities in general can contribute to socially unacceptable behavior, not all authors assume that manifestations of the label alone can account for the causes underlying the correlations. Other factors may play a role. Whereas individuals who face fewer challenges may possess better coping skills or have more access to adequate helpful resources, people with learning disabilities may have more trouble overcoming the other factors that contribute to poor behavior. While one group of researchers confirmed that emotional and behavioral problems were seen in higher frequencies among children with learning disabilities than in the normal population, other factors also increased the odds of students displaying behavior problems (Schachter, Pless, & Bruck, 1991). Adolescents from non-intact families or from lower social class backgrounds were at greater risk for exhibiting behavior problems. They also had more difficulty with community adjustment, in effect limiting their own opportunities for assistance (Learning Disabilities Association of Canada, 2005). Miles and Stipek (2006) also found that children from families with low incomes were at particularly high risk for school failure. Others identified a significant relationship between school success for students with learning disabilities and the socioeconomic status of their families (O'Connor & Spreen, 1988). Of particular importance was the father's income level. Similarly, Milan, Feng, Hou, and Wong (2006) concluded that family characteristics were important to the success of students with learning disabilities. The difficulties faced by these children may be minimized by positive support from the family. According to statistics quoted by Virginia's Department of Correction, one notices that economic challenges may follow youngsters with learning disabilities into adulthood (Philpott, 2008). "Of [adults] self-reporting

learning disabilities, 39% were employed full-time compared to 51% of the general population. The mean salary of persons with learning disabilities was $14,958 as compared to $23, 131 of those without self-reported learning disabilities" (slide 3). This may continue familial patterns of being less than optimally prepared to intervene with adequate support for learning disabled individuals, making susceptibility for aggression a greater possibility for future generations should offspring also be affected with learning disabilities.

Contradicting the findings and opinions of many authors, Stott (1981) studied pupils with learning problems over a three-year span. He noticed that the behavior of children who learned poorly did not worsen over time. Therefore, he concluded that learning problems could not have caused behavior disturbances. Such difficulties could, however, have made affected students more anxious about learning and could have caused them to attempt to avoid particular learning situations. Also, Cornwall and Bawden (1992) further tempered the discussion with their review. Addressing the number of studies pointing to the associations between learning disabilities and aggression and delinquency, they noted that discussions assigning causality to the relationship were common in the popular press. The reviewers dealt most specifically with reading disability, the learning disability identified most frequently. They contended that the evidence was not sufficient to say that a learning disability in reading caused aggressive and delinquent behavior. Rather, the limited data supported the idea that a reading disability may have worsened bad behavior that already existed. Further, they pointed out the lack of specificity in defining a learning disability in much of the research they reviewed.

Aggression as a Predictor of Cognitive Problems

While a number of researchers think a learning disability may assist in predicting aggression, others believe that the converse may be true (Schaeffer, Petras, Ialongo, Poduska, & Kellum, 2003). Specifically, they found high numbers of concentration problems among boys who exhibited high and increasing levels of aggression. Boys with low, stable aggression levels experienced fewer cognitive problems. The authors recommend replication of their work and further study, but they think their findings may be important for early intervention (in first grade) with students whom teachers notice are aggressive. Likewise, Bale (1981) found that restless and uncontrolled behavior often predated reading difficulties. These early signs in preschool-aged children correlated to backward reading in elementary grades and the development of antisocial behaviors once students began experiencing reading difficulties. Thus, "it is probable that the backward reader's poor concentration and impulsive behavior contribute both to the reading difficulty and to the development of antisocial tendencies" (p. 133). Answering his own "the hen or the egg" conundrum, McMichael (1979) concluded that antisocial behavior preceded reading problems. Thus, the author disagreed with suggestions that reading difficulties lead to emotional disorders and bad behavior.

Low Academic Performance as a Predictor of Aggression

Just as some researchers have investigated possible connections between learning disabilities and aggression, others have established the existence of relationships between academic performance and aggressive behavior. While the Justice Department's extensive study of existing research identified a number of potential predictors of youth violence, including individual, family, school, peer-related, and community and

neighborhood factors, academic failure was clearly indicative of risk (Hawkins, Herrenkohl, Farrington, Brewer, Catalano, Harachi, & Cothern, 2000). Voelkl, Welte, and Wieczorek (1999) found specific links between school and delinquency. Poor attendance, low academic performance, and dropping out all indicated risk for both minor and severe incidents of delinquency. Poor grades and dropping out proved to be particularly predictive of delinquency for African American males. The authors hypothesized that the lesser effect of the same risk factors in white males may be attributable to economic status which more often provides a safety net for white students who drop out than for their African American peers. A report commissioned by the National Governors' Association reviewed factors that place youth at risk for violence (McCart, 1994). Poor school performance is listed among the nine significant risk factors for violent behavior identified in the report. Perhaps Maguin and Loeber (1996) present the most convincing evidence of the link between school and general bad behavior. They conducted a meta-analysis of naturalistic studies to identify an academic performance-delinquency relationship. They concluded that students who perform poorly in their schoolwork offend more frequently, more violently, and over longer periods of time. Further, academic performance predicted violence and crime regardless of socioeconomic status.

Not only does poor academic performance correlate to a propensity for violence in general, it also appears to specifically indicate an increased likelihood that a student will display aggression at school. One group of authors reviewed a number of studies, concluding that low academic performance at all levels of education predicts aggression (Valois, MacDonald, Bretous, Fischer, & Drane, 2002). The aggregated data

demonstrate that “poor academic achievement at the elementary, middle, and high school levels has consistently predicted later aggression and violence for both male and female adolescents” (p. 457). Scott, Nelson, and Liaupsin (2001) discussed the relationship between academics and school discipline problems. As they discuss the frequent coexistence of poor school work and bad behavior, the authors acknowledge the “substantial evidence that early identification of, and intervention for, academic learning problems reduces the likelihood that students will engage in disruptive classroom behavior” (p.311). Similarly, Feldhusen (1971) confirmed a relationship between academic achievement and scores on a behavior problems checklist and classroom behavior. “Both poor social adjustment and low academic achievement are correlated with aggressive/disruptive behavior and all three are correlated significantly with eventual delinquent behavior in the community” (p.1). Likewise, “lower academic achievement, as indicated by grades received in school, was associated with higher self-reported incidents of recent fighting. Existing evidence shows that students with higher grades in school tend to have lower self-reported incidence of recent fighting” (Wright & Fitzpatrick, 2006, p. 259). Cunningham and Barkley (1978) point to repeated failure in academic tasks as a cause of bad behavior that is often described as hyperactivity. Urging educators to intervene early, Tremblay, Masse, Perron, and Leblanc (1992) caution that school officials should not underestimate the importance of poor academic performance and disruptive behavior in the lower grades. These clearly lead to adolescent aggressive behavior according to the authors. Poor achievers in elementary school tend to carry negative attitudes and values into adolescence. With similar findings, Ellickson and McGuigan (2000) confirmed that “early deviant behavior [and]

poor grades [. . .] fostered violent behavior several years later" (p. 571). Another group of researchers found this to be particularly true for girls (Lewin, Davis, & Hops, 1999). While early school work was not the best indicator of the aggressive potential of boys, "for girls, regardless of the measure of antisocial behavior, early academic problems were the strongest predictors of future problems" (p. 1). The findings suggested that early academic failure may, in fact, be symptomatic of a norm-breaking pattern for girls that leads to later antisocial behavior. Also, early academic failure may channel girls "into a social network that includes deviant male children, increasing the probability of pairing with such male children and developing similarities in antisocial behavior" (p.13). The authors commented that criminal women are more likely to have had less academic success in school than noncriminal women and recommended carefully addressing the academic needs of female students.

Furthermore, the impact of low academic performance on aggression can develop into a pattern that may become cyclical in nature. Noting reciprocity, Chen, Li, and Ruben (1997) reported that academic performance predicted social skills and behavior and that the level of social functioning and presence or absence of aggression also predicted grades. Christle, Jolivette, and Nelson (2005) discussed how "academic problems often foster behavior problems which frequently result in disciplinary practices (e.g., time-out, suspension) that remove the student from academic instruction" (p. 70). Removal from instruction, in turn, may aggravate the original academic deficiency, perpetuating a cycle that can be particularly problematic for certain students. "Academic failure, exclusionary disciplinary practices, and dropout have been identified as key elements in a 'school to prison pipeline,' especially for minority students and those with disabilities" (p. 70). The

authors noted that middle schools reporting "higher school attendance, higher academic achievement, and a greater percentage of ethnic majority students also reported lower rates of student suspension" (p. 77). Taylor, Davis-Kean, and Malanchuk (2007) also found that the impact of school performance and aggressive behavior moves in both directions. In their study of middle school students, the authors found that low academic self-concept increased the likelihood of aggression at school. The behavior, in turn, led to learning difficulties, further lowering the academic self-concept. Global self-esteem was not predictive of aggression. Resembling this research, the work of Schwartz, Chang, and Farver (2001) showed peer aggression, victimization, and academic performance to be related to one another. Specifically, the authors concluded that victimization can lead to low academic performance, and low academic performance may lead to victimization. Bullying, victimization by aggressive peers, and academic performance were deemed correlative, implying that academic self-esteem played an important role in not only how children perceived themselves, but also in how other students viewed them.

Confirming the findings from individual research projects such as these, the Commission on Behavioral and Social Sciences and Education (2000) presented evidence from various studies and experts. Workshop presenters clearly communicated the reciprocal relationship between low academic performance and aggression. Although acknowledging that the discussion of the direction of causality is ongoing, the workshop summary states "students who do not perform well academically are more likely to be delinquent," but "early aggressive behavior may lead to difficulties in the classroom" (p.6). However, not all misbehavior is the same. Specifically, "not every act of

delinquency affects school performance in the same way. The seriousness of delinquent behavior may determine whether and to what extent school performance suffers. It appears that poor school performance is a more severe problem among serious violent delinquents" (p.6). The findings held true for both boys and girls, but more studies exist using male subjects.

Inversely, some studies indicated that if school performance remained stable or improved with the presence of aggression, the said behavior decreased. Students who exhibited aggression but had good school performance were found to be more resilient than those who had exhibited aggression and had poor school performance (Morrison, Robertson, & Harding, 1998). Also, Colbert and Dorff (1991) found that verbal aggression decreased as a particular set of academic skills increased. Students who studied and participated in debate in high school built argumentative skills. As this skill set increased, verbal aggression decreased. The researchers said the findings supported the notion that deficiencies in social learning and verbal skills related to formulating arguments are two of the major causes of verbal aggression.

Additionally, factors related to academic performance as well as the academic performance itself appear to be worth consideration. For example, academic achievement, academic aspirations, and a learning-focused school environment decreased the likelihood of deviancy among students who had once exhibited bad behavior (Kasen, Cohen, & Brook, 1998). School and classroom climate, factors that influence academics for individual students, were found to be important. Shechtman (2002) noticed that positive classroom climates and relationships reduced aggression. The author found development of positive relationships inside the classroom to be crucial for young

students, particularly in regard to less severe incidents of aggression. While academic performance was found in another study to be predictive of aggression, the findings did not hold true for students who had formed a large number of friendships within the classroom (Schwartz, Gorman, Duong, & Nakamoto, 2008). Conversely, students who had few intraclassroom relationships tended to show a greater number of depressive symptoms, but the risk was mitigated for pupils who held high grade point averages. Furthermore, other authors concluded that school-related extracurricular activities raise self-esteem and lower aggression in females (Bleeker, Evans, Fisher, & Miller, 1998). The authors believed the subjects felt higher levels of inclusion when they participated in clubs or athletics, accounting for the decrease in aggression. The impact on males was not as clear. According to Espelage, Mebane, and Keyes (2008), "school climate is associated with higher academic performance and less bullying" (p. 4). These associations are strongest during the middle school years. Perceived positive school climates lowered rates of bullying. Also, children whose socioeconomic status improved over time showed increases in academic performance and decreases in aggression (Pettit, 1996).

With a somewhat contradictory finding, a research group examined academic difficulties and risk for bad behavior (Bloom, Karagiannakis, Toste, Heath, & Konstantinopoulus, 2007). They noted that the severity of academic difficulty did not impact overall ratings of behavior. Teachers were more likely to assign low ratings on a behavior scale to students who were performing poorly; parents tended to rate their students higher than observers deemed them to be; students usually rated themselves well.

Aggression as a Predictor of Low Academic Performance

As implied by findings of reciprocity, not only have some researchers determined that low academic performance predicts aggression, but others have also addressed the impact of aggressive behavior on school work. Feldhusen, Thurston, and Benning (1970) found that aggression lowers academic performance long term. Students whose teachers rated them as aggressive-disruptive achieved at significantly lower levels than their better-behaved peers after five years. Similarly, another authorial group concluded that the behaviors of children with ADHD adversely impacted their school performance (Faraone, Biederman, Lehman, Spencer, Norman, Seidman, Kraus, Perrin, Chen, & Tsuang, 1993). While students with ADHD were likely to have a number of comorbid difficulties, those who had no issues other than the ADHD classification were still more likely to have academic failures than their peers in the control group. An additional study demonstrated that witnessing aggression and violence over time resulted in lower academic benchmark test scores for middle school students (Henrich, Schwab-Stone, Fanti, Jones, & Ruchkin, 2004). Finn and Frone (2003) also concluded that aggressive students tend to exhibit low academic achievement. Another study attempted to predict low academic behavior from risk factors including violence (Fleming, Haggerty, Catalano, Harachi, Mazza, & Gruman, 2005). Researchers learned that students who had better social skills and decision-making abilities earned better grades, while those who exhibited negative and aggressive behavior made lower grades.

Other studies indicate that these findings hold true for students throughout their secondary school careers. Using subjects in elementary grades, Lord and Mahoney (2007) examined the effects of self-care in crime-ridden neighborhoods. They noted that

young students who must take care of themselves outside of school for extended periods of time witnessed more violence. The crimes they saw caused the children to become more aggressive. As their aggression increased, their academic performance decreased. Academic performance was measured by both grades and standardized test scores in reading. Middle school students in one research project were found to be unique in that their particular stage of development and their urban environment enabled them to attach "positive psychological consequences" to their aggressive behavior (Graham, Bellmore, & Mize, 2006, p. 375). "Despite their positive self-views and acceptance by peers, aggressive youth were just as much at risk for school problems as victims. Aggressors were most likely to perceive the school rules as unfair and that perception predicted low GPA and teacher ratings of disengagement" (p. 375). Hinshaw (1992) commented specifically on this age group of students, saying, "By adolescence, delinquency is clearly associated with school failure" (p. 893). Studying high school students, Loveland, Lounsbury, Welsh, and Buboltz (2007) established that aggression is negatively related to grade point average (GPA) and that aggression is uniquely predictive of academic performance. Further, the authors concluded that "aggression accounts for significantly more variance in the GPA of females than for males, even when controlling for . . . personality factors" (p. 167).

Accordingly, lowering aggression levels positively impacts academic performance. Even among students just entering school, subjects who were less aggressive proved to have better cognitive self-control toward academic tasks and higher achievement (Normandeau & Guay, 1998). The authors found that behavior in kindergarten could predict academic performance by the end of first grade, making early intervention

critical. Researchers in another study involving primary students found that "the number of students who were academically at risk decreased as behavior improved" (Dare, Durand, Moeller, & Washington, 1997, p. 1). They noticed that some of the same interventions used to improve students' classroom behavior also brought about academic progress. Such intervention could be critical in light of Duncan and Huesmann's (2007) research. These authors determined that aggression at the beginning of schooling was not predictive of academic performance itself. Rather, aggression was predictive of lower education levels and occupational potential. This could possibly be true because the teachers and peers of students who exhibit a long-term pattern of aggressive behavior may "punish" those students, stifling learning (p. 2). However, other authors point to the academic impact of aggression as pupils mature (Masten, Coatsworth, Neemann, Gest, Tellegen, & Garmezy, 1995). They noticed that poor conduct remained remarkably stable over time. Of particular relevance to the current study, "conduct problems become increasingly incompatible with academic attainment in adolescence" (p. 1654). Specifically, "results suggest that academic achievement and antisocial behavior are more strongly related in adolescence than earlier in childhood in part *because* antisocial behavior has continuing and increasingly negative effects on academic success" (p. 1654).

After an extensive review of literature detailing studies about the academic status of students with certain disabilities, one authorial group summarized years of research quite succinctly: "Regardless of whether problem behavior causes poor academic performance or vice versa, strong evidence suggests that academic underachievement and problem

behavior engage in a reciprocal relationship that has a short- and long-term impact on students' future outcomes" (Trout, Nordness, Pierce, & Epstein, 2003, p. 2).

Problems with Researching the Relationships between Academics and Behavior

Although numerous studies have attempted to examine the relationship between low academic performance and aggressive behavior, problems regarding measurement and terminology still exist. One group of researchers expressed concern about what assessment measures educators were using to gauge the performance of exceptional children (Trout, Nordness, Pierce, & Epstein, 2003). Other specific limitations the authors mentioned included "incomplete reporting of student information, inadequate research on specific academic skill sets, and limited numbers of studies assessing students served in general education settings" (p. 1). Even when studying subjects without labels, researchers faced the challenge of how to assess academic performance. "A student's academic performance can vary considerably between content areas (e.g., language arts, science, mathematics, social studies, art) and over time. Poor performance in one content area does not necessarily generalize to other areas" (McEvoy & Welker, 2000, p. 131). Also, Hinshaw (1992) pointed out yet another significant problem with researching the relationship between academic achievement and behavior. Many words and phrases are used to describe students whose school work is lacking, including "school failure, learning difficulty, underachievement, specific learning disability, dyslexia, and specific developmental disorder" (p.893). In addition, poor academic performance is referenced by an impossible number of terms, among them "placement in special education classes, retention, low grades, suspension, poor absolute performance on standardized achievement tests, and achievement test scores that fall below the level

predicted from the child's intelligence" (p.893). Lyon (1996) concurred, stating that "definitional issues [. . .] continue to be the single greatest impediment to understanding learning disabilities" (p. 71). The author also believed that continued use of the term makes little sense for scientific research. Furthermore, despite these findings that students with learning disabilities are more often in trouble for aggression and other offenses, Hinshaw (1992) warned that using the learning disability categorization in research may cause educators to ignore other issues. He cautioned, "In short, the inclusionary criterion of an IQ-achievement disparity may unduly restrict sampling of achievement problems and may lead to neglect of important motivational and social factors that pertain to poor academic performance" (p. 84).

Interaction of Learning Disabilities, Aggression, and Low Academic Performance

Synthesizing some of the research findings previously discussed, some authors investigated for possible interactions between learning problems, aggressive behavior, and poor school performance. McHale, Obrzut, and Sabers (2003), for instance, primarily studied the relationship between the cognitive functioning and aggressive behavior in students who are emotionally disabled (ED) and specific learning-disabled (SLD). Secondarily, the group studied the subjects' academic functioning. They noticed that aggressive students in these subgroups scored lower on verbal IQ tests than their initial IQ scores indicated they should. However, subsequent testing could not confirm those results. The authors also documented decreases in math scores over time for aggressive students who were ED or SLD when similar decreases were not detected for their peers who were not aggressive. This study found no relationship between ethnicity or gender and aggression, but the authors noted that this was unusual given the findings

of other studies. Feshbach and Price (1984) also discussed the difficulty of reaching concrete conclusions regarding the complex interactions of academics, learning problems, and behavior. They maintain that "while some research indicates that poor academic performance is related to aggression, it is unclear which components of intellectual ability and performance are critical to the management of aggressive behaviors" (p. 185). In their first study, the authors found that aggression in kindergarten children was more closely related to their academic performance in first and second grades than to their IQ and cognitive test performances. However, a second study of older elementary students by the same researchers found that over three years gender differences were important, as were psychological constructs.

Making greater distinction between subtypes of learning disabilities, McKinney (1989) noted that elementary-age students with learning disabilities (studied as a heterogeneous group), "displayed a persistent pattern of maladaptive classroom behavior that distinguished them from average achieving peers and that was associated with continued underachievement over time" (p. 141). Initially, the author found no achievement differences between the seven behavioral subtypes he identified, but after three years he documented poorer academic outcomes in the pupils who had attention problems or conduct issues associated with their LD status when compared to the other students with learning disabilities. Therefore, one infers from these findings a probable interaction between specific subtypes of learning disability, bad behavior, and academic achievement.

Another study of students in primary grades sought similar data on children with learning disabilities (Vaughn, Zaragoza, Hogan, & Walker, 1993). Researchers found

that students with learning disabilities and pupils who demonstrated low achievement did not differ greatly from one another in their presentation of social skills or behavior problems. The more noticeable difference in behaviors was between these two groups and their average or high-achieving peers. Although the youngsters with learning disabilities or below-average achievement demonstrated lower social skills and more behavior problems than those in the average/high-achieving group, fewer differences existed by third grade. The authors surmised that the subjects with learning disabilities and poor achievement learned over time to cooperate better in school.

Other authors, however, indicate that a potential relationship might be found by looking in a different direction which addresses learners' thoughts and feelings. One group of researchers found that students with learning disabilities displayed lower self-perceptions reflective of distress even when their academic performance was the same as that of their non-learning disabled peers (Lackaye, Margalit, Ziv, & Ziman, 2006). Reported self-efficacy was lower in both the academic and social realms for the group with learning disabilities despite their academic equality with their peers, suggesting that some of their social problems could conceivably have been related to their learning disabilities. Gathering data from a broad longitudinal study, Huesmann and Yarmel (1983) analyzed data from groups whose modal ages were 8, 19, and 30. They found that "aggression and intellectual competence are strongly related and that this strong relationship is due partially to the interference of aggressive behavior patterns with the development of intellectual competence" (p.1). Similarly, Krezmien, Leone, and Achilles (2006) noted that students with disabilities, including those with learning disabilities, often find academic tasks aversive. They are more likely, therefore, to

respond with disruption in effort to avoid tasks. Their disruptive behavior may lead to punishment that removes them from the situation, resulting in no academic improvements. Thus, the authors believe that such behaviors, particularly when exhibited by emotionally disabled pupils, are poorly managed by schools.

Another research perspective acknowledges not only a relationship between aggression, poor academic performance, and learning problems, but it also hones in on the language arts strand of learning. For example, Smith and Griffin (2002) found that improving the conversation skills of aggressive adolescents with learning disabilities might improve behavior, implying that a link exists between performance, learning disability, and aggression. Other researchers reported a relationship between learning problems—particularly reading disabilities—low academic achievement, and psychosocial functioning (Gadeyne, Ghesquiere, & Onghena, 2004). At the Commission on Behavioral and Social Sciences and Education's (2000) workshop, presenters offered information to substantiate the link between verbal and reading deficits and aggression both in and out of school. Students who fall behind in reading are often "marginalized as failures," reducing academic opportunities and perpetuating some of the problems that may cause aggressive behavior (p. 6).

CHAPTER THREE

Methodology

This chapter reviews the methods the author used to carry out the research study. It includes descriptions of the general perspective, the research context, the research subjects, instruments used in data collection, procedures used, and data analysis.

The General Perspective

This research study was quantitative and correlational in nature, examining the relationships between two independent variables and a dependent variable. The research was conducted using pre-existing documents in an intact school district. Therefore, true random selection was not feasible. Rather, specific schools fitting the research criteria and minimizing the possibility of collecting skewed data were used.

The researcher examined the records of middle school students who had been suspended at least once for an act of aggression during the 2006-2007 school year. She noted each student's overall academic average and the presence or absence of a specific learning disability label along with the total number of suspensions for aggression (Appendix E). The data were examined to determine whether a low academic average or a specific learning disability were a better predictor of aggression at school and whether an interaction of the two independent variables might also be important.

Null Hypotheses

1. No correlation exists between grades and aggression at school. As overall average decreases, suspensions for acts of aggression will not increase.

2. No correlation exists between specific learning disabilities and aggression at school. If a student has a specific learning disability, he or she is no more likely to have been aggressive at school than a student who does not have a specific learning disability.
3. The combination of a student having a specific learning disability and performing poorly academically will make him or her no more likely to display aggression at school than students who fall into only one of these variable categories.

The Research Context

The study was conducted in a somewhat rural school district in eastern North Carolina. Although the district is small in comparison to urban school systems, it has grown quite rapidly in recent years. The growth has added to the district's diversity in terms of ethnicity, socioeconomic status, and parent involvement.

Specifically, the county in which the school district under study is located is home to 165,171 residents. Of the inhabitants who are 25 or older, 23% hold college degrees. The median household income is $41,741, approximately $2,000 more than the state average. The median housing structure age is noticeably lower than the state average, evidence of the aforementioned growth in the area (Zillow, 2009). The school district oversaw 36 schools during the 2006-2007 school year. The total district revenue was $189,332,000, and the district expenditure was $210,030,000. The district expenditure per student was $7,603 (Zillow, 2009).

In the regional vicinity of the district under study, middle school consists of grades six through eight. This particular school system had twelve schools which housed students in the middle grades during the 2006-2007 academic year. Of those, seven were

true independent middle schools serving the regular student population. Two also included fifth grade pupils due to facility limitations in several elementary schools and availability of classrooms in those two middle schools. One was a kindergarten through eighth grade school, and another was at that time part of a kindergarten through twelfth grade campus. Finally, one middle school was part of an alternative campus with a high school also on site designed to educate and accommodate students who had been removed from the traditional school setting due to the severity of behavioral concerns.

When studying the seven traditional middle schools, one notices some demographic variations, but nothing of such significance that it might skew the research study (Appendix C). School sizes range from nearly 500 students to more than 900 pupils. The ratio of male to female students is balanced with the number of boys and girls nearly equaling one another. Teacher to student ratios are reasonable, but they vary across the schools from 1:13 to 1:20. The ethnicity of students shows a white majority with pupils of Hispanic and black ethnicities attending each school. Students of American Indian, Asian, and unknown ethnicity also attend some of the schools. Six of the seven schools have a small percentage of students who are part of a migrant population. Perhaps the most noticeable difference between the seven schools is the difference between the percentage of youngsters eligible for free or reduced price lunch. Populations range from 15% to 50% of students eligible for free lunch.

The state administered assessments in the following areas to students in middle grades during the year under study: reading (sixth, seventh, and eighth grades), math (sixth, seventh, and eighth grades), computer (eighth grade only), Algebra (eighth grade only and only for students participating in an advanced math curriculum, writing (seventh

grade only), and science (eighth grade only and in the pilot stages at that time). The data available, therefore, for all middle school students were reading and math scores (Appendix D). The average district proficiency rates were higher than the state averages. Five of the traditional middle schools had proficiency rates that surpassed the district averages, while two showed proficiency rates below district averages. The researcher noticed that these were the two schools with the highest percentages of students eligible for the free lunch program.

The Research Subjects

The research subjects were middle school students who had been suspended at least once for an aggressive act during the given school year. All such potential candidates were used as subjects unless labeled as being educable mentally disabled or behaviorally or emotionally disabled. Specifically, subjects had been punished with an out-of-school suspension for an act denoted by a specific numerical code in the school district's code of conduct which the researcher could determine was aggressive based on the description of the offense. The subjects attended one of the seven true middle schools, making them all members of the grades six, seven, or eight population. Thus, the subjects were selected through non-probability sampling instead of by chance. This purposive sampling relied on the researcher's judgment of obtaining a typical sample. Since all available subjects were used, determining the sample size needed was not necessary. In total 5,131 students populated those seven schools, with 407 being selected as subjects based upon the described criteria. The researcher used subjects' records only; no direct contact was made with the subjects.

Instruments Used in Data Collection

Existing student records were used to study the subjects. School discipline records revealed which students had been punished beyond classroom measures during the 2006-2007 school year. Further, the discipline records showed by codes the reason(s) for each suspension. The school district's Discipline Incident Directory (Appendix B) enabled the researcher to match the discipline code numbers to the description of the incident, and the Discipline Action Directory (Appendix A) allowed for identification of which punishments were out-of-school suspensions. Comparison of these records with one another allowed for selection of the subjects who had been suspended (out-of-school) one or more times for an act of aggression and let the researcher count the number of such incidents. Exceptional children's records showed which of the subjects were identified with a specific learning disability label. Student Information Management System data provided each subject's grades.

Procedures Used

Subjects were selected based on one or more out-of-school suspensions for an act of aggression during the given school year. The researcher chose to use out-of-school suspensions as opposed to other punishments because lesser forms of discipline were more vulnerable to subjectivity in the district under study. For instance, in some schools students may be given a time-out by a teacher and sent directly to a time-out room without administrative consultation. In other locations assignment to time-out is by administrative discretion only. Further, there are no district-wide criteria for assignment to such punishments. Also, some schools have resources that allow them to assign students to in-school suspension, while others do not. Again, criteria for such

punishment are less stringent. However, the district has clear criteria which must be met in order for a student to receive an out-of-school suspension. Additionally, a clear appeal procedure exists, ensuring that students' due process rights are not violated. Therefore, using subjects whose acts of aggression were sufficient to warrant an out-of-school suspension ensured objectivity, reliability, and validity in subject selection.

Out-of-school suspensions were counted per offense, not by the number of days comprising the suspension. Again, in some cases the number of days of suspension for a given offense may be subject to administrative discretion and may depend somewhat on the number of prior conduct offenses which may or may not have been aggressive acts. Therefore, tallying the number of aggressive offenses was more reliable. Students who were labeled as being educable mentally disabled or behaviorally or emotionally disabled were not used as subjects regardless of the number of out-of-school suspensions for aggressive acts because their inclusion would have skewed the study's data and results. Students whose IQ is low enough to warrant an educable mentally disabled label are not within the normal IQ range as was prescribed by the design for this research. Some individuals with such disability may be more likely to exhibit aggression as a manifestation of that disability. Further, their academic instruction is based in self-contained classrooms where differentiated grading scales are used. Therefore, including their overall academic averages would skew that portion of the data. Likewise, students who have a behavioral or emotional disability are more prone to aggression. Their behavioral manifestations are more likely to result from this particular disability than from a specific learning disability or a poor academic average. Students who have labels reflecting either of these issues are specifically excluded from the specific learning

disability definition adopted by the Individuals with Disabilities in Education Act and used for the purposes of the current study.

The school district's Discipline Incident Directory provided a brief description of each code for which a student could have been suspended. The researcher identified those offenses which were deemed as aggressive. The following offenses were counted in each subject's tally of aggressive incidents: threats of death/bodily injury, verbal abuse—aggressive manner, disruption with aggression, threats with aggression, hazing, intimidation, fighting, weapon use (non-robbery, no gun), assault on a student with physical harm, assault on school personnel/volunteer, assault on an employee with physical harm, assault on teachers adults/students, homicide of another student, homicide of a school employee, non-physical sexual harassment, harassment, kidnapping another student, kidnapping a school employee, arson, possession or use of a firearm, possession of weapons—not gun/explosives, possession or placement of explosives, rape, robbery with a weapon but not a gun, sexual assault, and indecent liberties with a minor.

Portions of each subject's records were examined to determine each student's overall academic average and to reveal whether or not each pupil did or did not have a specific learning disability label. Using an overall average allowed the researcher to have a general idea about students' academic performance as opposed to looking at individual grades. This minimized the likelihood of a student being evaluated on a single subject area in which he might have a particular strength or weakness, like or dislike. Also, the researcher noted the presence or absence of a specific learning disability label. Thus, the researcher examined subjects whose IQ's were within the normal range and whose

disabilities, if any, did not obviously account for their aggressive tendencies (disabilities such as behavioral disorders or extremely low IQ).

The researcher then compiled data for each student by subject number, including the number of suspensions for aggression, the overall academic average, and the presence or absence of a SLD label for the given school year. The data were used to determine whether the number of aggressive incidents increased as academic average decreased or with the presence of a SLD label.

Data Analysis

A multiple regression analysis was performed using the collected data. This analysis allowed the researcher to examine the correlations between general academic performance and aggression at school and between a specific learning disability and aggression at school. Further, it allowed for examination of the interaction between both academic average and specific learning disability as they impact aggression at school. The presence or absence of a SLD was recorded as either 0 (for absence) or 1 (for presence) so that the multiple regression analysis could be performed. The researcher examined the results for statistical significance to determine if the correlations found were strong or if they could easily have occurred by chance, using the sample size, the r value, and computations of statistical significance to determine this. A directional (one-tailed) test was used to determine significance since prior research substantiated the direction of conceivable relationship.

Summary of the Methodology

This chapter has explained the research methods and study design the researcher used to conduct this study. Using these described methods yielded results which helped

answer the research question and address the hypotheses. The next chapter details the results the researcher obtained using these methods.

CHAPTER FOUR

Results

As described in Chapter One, this research study sought to determine whether a specific learning disability or general low academic performance is a stronger predictor for the likelihood of a student displaying aggression at school. The methodology allowed the researcher to examine the strength and direction of correlations. Causality was not a factor in the consideration of relationships between variables. This chapter is organized according to the three research null hypotheses. First, the researcher considered the relationship between grades and aggression at school. Next, she determined the correlation between specific learning disabilities and aggression in the educational environment. Finally, she checked to see if the interaction between grades and specific learning disabilities might be important as they related to aggressive behavior at school.

Descriptive Statistics of the Study Sample

The researcher analyzed data on 407 middle school students who had been punished by out-of-school suspension for acts of aggression at least once during the 2006-2007 school year. The researcher noted each subject's number of suspensions for aggression, the presence or absence of a specific learning disability label, and the overall academic average for each student. Subjects' suspensions for acts of aggression ranged from one to five, with the mean number being 1.32. Twelve percent of the subjects were labeled as having a specific learning disability. While students' overall averages encompassed the entire range from A to F, the mean average was 79.8109, a C.

Null Hypothesis #1: No correlation exists between grades and aggression at school. As overall average decreases, suspensions for acts of aggression will not increase.

While subjects' grades, as indicated by overall average for the year, ranged from A to F, the mean average letter grade was C. The overall average was determined using grades from all classes and weighting them equally. This included both core classes such as Language Arts, Math, and Science and enhancement classes such as Physical Education and Art. Table 1 summarizes grade distributions.

Table 1

Averages of Students Categorized by Letter Grade

Average (Letter Grade)	Number of Students
A	18
B	100
C	133
D	116
F	40

A negative correlation between grades and aggression at school was confirmed. As overall average decreased, suspensions for acts of aggression increased. The Pearson correlation between overall average and acts of aggression was -.118. Table 2 summarizes the correlations between acts of aggression, presence or absence of a specific learning disability label, and overall average. The level of significance was .009, less than the .05 critical value chosen by the researcher. Therefore, the negative correlation was statistically significant, not an occurrence of chance. Table 3 summarizes the

significance of the correlations found in the current study. Thus, the null hypothesis was rejected.

Table 2

Correlations Between Acts of Aggression, Presence or Absence of Specific Learning Disability Label, and Overall Average

Pearson Correlations	Acts of Aggression	Presence or Absence of Label	Overall Average
Acts of Aggression	1.000	.008	-.118
Presence or Absence of Label	.008	1.000	-.053
Overall Average	-.118	-.053	1.000

Table 3

Significance of Correlations Between Acts of Aggression, Presence or Absence of Specific Learning Disability Label, and Overall Average

Significance (1-tailed)	Acts of Aggression	Presence or Absence of Label	Overall Average
Acts of Aggression		.434	.009
Presence or Absence of Label	.434		.142
Overall Average	.009	.142	

Null Hypothesis #2: No correlation exists between specific learning disabilities and aggression at school. If a student has a specific learning disability, he or she is no more likely to have been aggressive at school than a student who does not have a specific learning disability.

A small positive correlation of .008 between specific learning disabilities and aggression at school was observed. Table 2 summarizes the correlations between acts of aggression, presence or absence of a specific learning disability label, and overall average. The level of significance was .434, greater than the .05 critical value chosen by the researcher. Therefore, the correlation was not statistically significant; rather, it could have easily occurred by chance. Table 3 summarizes the significance of the correlations found in the current study. Thus, the null hypothesis was accepted.

Null Hypothesis #3: The combination of a student having a specific learning disability and performing poorly academically will make him or her no more likely to display aggression at school than students who fall into only one of these variable categories.

A small negative correlation of -.053 was found to exist between overall average and the presence or absence of a specific learning disability label. If a student had a SLD label, his or her overall average was likely to be slightly lower than if he or she did not have a SLD label. Table 2 summarizes the correlations between acts of aggression, presence or absence of a specific learning disability label, and overall average. However, the significance level of the finding was .142, greater than the .05 critical value selected by the researcher. Table 3 summarizes the significance of the correlations found in the current study. Therefore, the finding was not statistically significant and could have easily occurred by chance. Thus, a specific learning disability label did not necessarily make a student more likely to perform poorly in school as indicated by overall average.

When a partial correlation was performed on the overall average, one of the independent variables, to adjust for the presence of a SLD label, the other independent

variable, a negative correlation was observed. The partial correlation value was -.117, representing a value in close proximity to the original correlation coefficient between overall average and number of suspensions for acts of aggression of -.118. With a significance level of .018, less than the critical value of .05 selected by the researcher, the finding was statistically significant and would not have easily occurred by chance. The tolerance of the collinearity statistics was .997, indicating that the variable was relatively independent of other variables. Specifically, since the tolerance represented a value close to one, the researcher could determine that the independent variable of overall average had little relationship to the other independent variable of the presence or absence of a SLD label as they impacted the number of suspensions for acts of aggression. Tables 4 and 5 summarize these findings.

The researcher determined that the overall average was much more strongly correlated to the number of suspensions for acts of aggression than was the presence or absence of a SLD label. Furthermore, the presence of a SLD label had little effect on the overall average. Even when a student possessed both a low overall average and a SLD label, he or she was no more likely to be suspended for acts of aggression than if he or she had a poor overall average alone. Thus, the null hypothesis was accepted.

Table 4

*Coefficients of the Multiple Regression**

Model	Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
(Constant)	1.322	.037		35.596	.000
Presence or absence of label	.018	.109	.008	.167	.868
(Constant)	2.165	.357		6.072	.000
Presence or absence of label	.004	.109	.002	.041	.968
Overall average	-.011	.004	-.118	-2.376	.018

* Dependent Variable: acts of aggression

Table 5

*Excluded Variables of the Multiple Regression**

Model	Beta In	t	Sig.	Partial Correlation	Collinearity Statistics Tolerance
Overall average	-.118	-2.376	.018	-.117	.997

*Predictors in the Model: (Constant), presence or absence of label
Dependent Variable: acts of aggression

Summary of Data Analysis

The statistical information presented regarding the current study resulted from three research null hypotheses posed at the beginning of the project. An analysis of the data revealed that as overall average decreased, the number of suspensions for acts of aggression in school increased, as hypothesized. In contrast, the presence of a specific learning disability label did not, as hypothesized, increase the likelihood of a student

being suspended for one or more acts of aggression. Similarly, the interaction between low academic average and a specific learning disability was not of great consequence, even though it was originally hypothesized to be important by the researcher.

CHAPTER FIVE

Summary and Discussion

To assist the reader, the researcher restates the research problem and summarizes the methodology of the study. This study focused on the relationships between overall academic average, specific learning disability label, and acts of aggression at school. The major sections of the chapter summarize the results and discuss relevant implications.

Aggression at school is an issue most educators find important. Not only does campus aggression disrupt the educational environment and detract from time on task, but it can also escalate into violence. According to some of the prior research reported by this researcher, middle school students may be at particular risk. Therefore, educators have an interest in determining what factors might lead to aggression and/or violent behavioral outbursts. More accurate prediction can pave the way for further research into intervention (i.e., more intensive guidance counseling for identified groups or students). The current study advanced the knowledge about aggression at school by investigating whether low grades or a SLD label is a better predictor of aggression.

Statement of the Problem

The current study posed the following question: Is a specific learning disability or general low academic performance a stronger predictor for the likelihood of a student displaying aggression at school? The researcher sought to determine which independent variable (overall average of grades or a specific learning disability label) was the better predictor of the dependent variable (number of suspensions for acts of aggression at school) based on the strength and direction of correlations. Further, she wanted to see if

the interaction between the two independent variables, when both were present, could be important as a predictor of the dependent variable.

Review of the Methodology

The subjects for the current research were middle school students in the district under study who had been suspended at least once for an aggressive act committed at school during the 2006-2007 school year. School discipline records provided data regarding suspensions, including code numbers that differentiated aggressive offenses from other conduct violations. Exceptional children's records provided details on which students were identified as having a specific learning disability. Student Information Management System (SIMS) data generated grades for each student.

Using the collected data, the overall average for each subject was noted. Raw scores (actual average of final subject grades) were paired with the respective subjects. The researcher noted the letter grade categories into which the averages fell (This allowed the researcher to grasp how many aggressive students had "A" averages, how many had "B" averages, and so on). Also, the researcher noted whether or not each subject was identified by a specific learning disability label.

Data were organized by subject. Also, subjects were identified by assigned numbers, not names. Subjects had their grade averages, their numbers of suspensions for the academic year for aggressive acts, and their identifications of SLD or lack thereof displayed with their identifying numbers. Further, the author displayed statistical models that helped her confirm or reject the hypotheses and null hypotheses.

Correlational research was utilized for prediction of aggression. This methodology enabled the researcher to look for the strength and direction of the independent variables

(specific learning disability and/or low academic performance) as predictors of the dependent variable (aggression at school). A multiple regression was performed with the data the researcher collected. Using this method the researcher looked at the relationship between a specific learning disability and aggression, the relationship between academic performance and aggression, and any interaction between the two independent variables as they related to aggression. Examining the results for statistical significance, the author determined if the correlations found were strong or if they could easily have occurred by chance. She used the sample size, the r values, and significance levels to determine this.

Summary of the Results

A negative correlation between grades and aggression at school was confirmed. As overall average decreased, suspensions for acts of aggression increased. A small positive correlation between specific learning disabilities and aggression at school was observed. A small negative correlation was found to exist between overall average and the presence or absence of a specific learning disability label. If a student had a SLD label, his or her overall average was likely to be slightly lower than if he or she did not have a SLD label. When a partial correlation was performed on the overall average, one of the independent variables, to adjust for the presence of a SLD label, the other independent variable, a negative correlation was observed. The partial correlation value was in close proximity to the original correlation coefficient between overall average and number of suspensions for acts of aggression. The finding was statistically significant and would not have easily occurred by chance. The tolerance of the collinearity statistics indicated that the variable was relatively independent of other variables. Since the tolerance represented a value close to one, the researcher could determine that the independent variable of overall

average had little relationship to the other independent variable of the presence or absence of a SLD label as they impacted the number of suspensions for acts of aggression. The researcher could determine that the overall average was much more strongly correlated to the number of suspensions for acts of aggression than was the presence or absence of a SLD label. Furthermore, the presence of a SLD label had little effect on the overall average. Even when a student possessed both a low overall average and a SLD label, he or she was no more likely to be suspended for acts of aggression than if he or she had a poor overall average alone.

An analysis of the data revealed that as overall average decreased, the number of suspensions for acts of aggression in school increased, as hypothesized. In contrast, the presence of a specific learning disability label did not, as hypothesized, increase the likelihood of a student being suspended for one or more acts of aggression. Similarly, the interaction between low academic average and a specific learning disability was not of great consequence, even though it was originally hypothesized to be important by the researcher.

Discussion of the Results

Researcher's Insights

As hypothesized, the current research demonstrated the importance of overall average as a predictor of aggression at school. As overall average decreased, the number of suspensions for acts of aggression increased. Thus, students who performed poorly in school, as indicated by their grades, were at increased risk for acting out in an aggressive manner in the educational environment. The correlation between the two was clear, even though the cause of the relationship was not indicated by this study.

Contrary to what was hypothesized, a specific learning disability had no meaningful effect on the number of acts of aggression displayed by labeled students. Students labeled SLD had no greater statistical likelihood of acting out aggressively at school than did their non-labeled peers. Additionally, the interaction of a specific learning disability label and a low average did not appear to be of substantial importance. When a student had both a low average and a SLD label, the grades rather than the disability appeared to be much more important to predicting the likelihood of aggression.

Although the results should not be misconstrued as indicating that a low overall average causes aggression, one can surmise that grades may be one predictor of the likelihood of a student becoming aggressive at school. Further, a low average is probably more closely correlated with factors other than a specific learning disability.

Relationship of the Current Study to Prior Research

The current study extended the existing body of knowledge regarding predicting aggression at school. First, it addressed issues raised by other researchers. Second, it tested three hypotheses, adding data to the collection of information available to educators.

Relationship to problems in prior research. One problem the researcher noted regarding prior research was the lack of clearly defined terms. Cornwall and Bawden (1992) reviewed a number of studies which pointed to relationships between learning disabilities and aggression. Among the issues they mentioned was the lack of specificity in defining a *learning disability* in much of the research they reviewed. Lyon (1996) agreed, stating that definitional issues were the greatest impediment to understanding

learning disabilities. Similarly, Mulvey and Cauffman (2001) mentioned the blurred and expansive meanings of *aggression*.

Therefore, the current study clearly defined the meanings of key terms as they related to the research and data. The researcher followed the Individuals with Disabilities in Education Act's (2008) definition of a *specific learning disability*. This was important because the school district under study followed the same definition when labeling students with challenges. Thus, the reader can find some reliability in what is meant by a subject who is labeled SLD. Also, the researcher defined what constitutes *aggression* for the purposes of this study. (These terms were defined in Chapter One.) Appendices further clarified school district designations that were important to understanding current subjects, data, and findings. In addition, the researcher identified the specific acts which she deemed to be aggressive for the purposes of the current study.

Another problem with prior research was academic assessment. Trout, Nordness, Pierce, and Epstein (2003) expressed concerns about what assessment methods were used to gauge the academic progress of children with exceptionalities as well as the limitations in available information on these students. McEvoy and Welker (2000) discussed their concerns for measuring the academic progress of all students, regardless of the presence or absence of a special education label. They worried that an academic difficulty in one content area did not necessarily generalize to other areas. They went on to say that academic performance could vary over time.

To minimize this concern, the researcher used subjects' overall average for the 2006-2007 school year. This eliminated the problem of allowing one content area or a single grading period to unduly influence a student's academic measurement. Individual

teachers' grading practices may have varied, but everyone adhered to a standardized grading scale. While this did not entirely eliminate bias, the reader has some broad assurances. A standard grading scale implied that a student who had an overall "A" average was likely to be academically sound, while a student who earned an overall "F" probably was not.

A third problem of past studies appeared to be best summarized as a lack of continuity in subject selection and data interpretation. Because of the lack of clear definitions in existing literature and the varied methods of assessing academic standing, making meaningful connections between studies seemed to be difficult. Thus, the body of knowledge was less continuous than it might have been.

In an effort to maximize what the reader might gain from the current study, the researcher used the specific learning disability definition set forth by federal law. Further, she made efforts to lessen the effects of bias where possible. Specifically, she used out-of-school suspensions, where students were protected by due process procedures, in subject selection and overall average based on a standardized grading scale for data inclusion. Thus, any findings might be more generalizable than they otherwise would have been, and the reader may be able to make connections to other studies more easily because they are more comparable.

Relationship of null hypothesis #1 to prior research. A number of researchers have documented a relationship between youth aggression and poor academic performance. The Justice Department, for instance, noted academic failure as an indicator for the risk of violence (Hawkins, Herrenkohl, Farrington, Brewer, Catalano, Harachi, & Cothern, 2000). Likewise, Voelkl, Welte, and Wieczorek (1999) and the National Governors'

Association (McCart, 1994) indicated that low school performance was a significant risk factor for violent behavior among young people. Maguin and Loeber (1996) concluded that poor school performance not only predicted violence, but it also predicted frequency, intensity, and duration of violence.

Further, past research has shown that poor academic performance increased the likelihood of a student displaying aggression at school. Substandard achievement was shown to predict aggression at all levels of education (Valois, MacDonald, Bretous, Fishcer, & Drane, 2002). Other studies corroborated this conclusion, demonstrating relationships between academic performance and aggression at school (Scott, Nelson, & Liaupsin, 2001; Feldhusen, 1971; Wright & Fitzpatrick, 2006; Cunningham & Barkely, 1978). Tremblay, Masse, Perron, and Leblanc (1992) urged educators to intervene early so that the behavioral negativity associated with poor academic performance in lower grades would not carry into adolescence. This was important since Ellickson and McGuigan (2000) confirmed that the said effect could foster violent behavior several years later, especially for girls (Lewin, Davis, & Hops, 1999).

Also, the relationships between academics and aggression may lead to a cycle of violence. Several studies indicated reciprocity, showing that poor academics predicted bad behavior, which, in turn, led to consequences that further impeded academic progress (Chen, Li, & Ruben, 1997; Christle, Jolivette, & Nelson, 2005; Taylor, Davis-Kean, & Malanchuk, 2007; Schwartz, Chang, & Farver, 2001). The Commission on Behavioral and Social Sciences and Education (2000) confirmed the findings of such individual research projects, clearly communicating the existence of a reciprocal relationship between low academic performance and aggression.

Despite the seriousness of all the above-mentioned findings, some researchers offered hope. Studies showed that intervention can help. Students whose academic skills and performance increased exhibited a decrease in aggression (Morrision, Robertson, & Harding, 1998; Colbert & Dorff, 1991).

Therefore, the first hypothesis of the current study as it related to past research was important for several reasons. First, it replicated prior findings correlating academics and aggression, adding validity to what exists in the body of knowledge. Second, the replication clarified certain elements of the observed relationship. The methodology eliminated some of the bias in measuring academic standing by using a standardized grading scale and an overall average as opposed to a grade in one content area. Further, it allowed for assessing all students, regardless of the presence or absence of a specific learning disability label, in an equitable manner (i.e., They were graded using the same scale on like content areas.), making an investigation of the third hypothesis more accurate. Finally, the current study did more than replicate prior research. By using this group of subjects to observe academic performance, SLD label, and suspensions for aggression, the researcher could use data generated from testing the first hypothesis to determine if a low overall average or a specific learning disability was a better predictor of aggression at school and to gain insight into whether the presence of both a low overall average and a specific learning disability was important in predicting aggression.

Relationship of null hypothesis #2 to prior research. Existing literature showed that a number of researchers found evidence to support relationships between learning disabilities and aggressive behavior. Several studies suggested that characteristics typical of many students who have learning disabilities accounted for reduced social skills and

behavioral problems (Romano & Bellack, 1983; Cole, Usher, & Cargo, 1993). Kravetz, Faust, Lipshitz, and Shalhav (1999) investigated the extent to which learning disabilities and social behavior were related, finding noticeable differences between students with learning disabilities and their peers without such labels. Christle, Jolivette, and Nelson (2000) discussed similar findings. Milan, Hou, and Wong (2006) also said that students with learning disabilities may display behavioral problems more frequently than their peers without labels. Hinshaw (1992) agreed that conduct disorders and academic attainment difficulties were associated, but he stated that the two issues coexisted less frequently than once thought.

Other authors commented on the disproportionate numbers of students with learning disabilities who were suspended from school. These students were represented beyond their percentage of the population in Maryland, Kansas, Kentucky, Delaware, and Minnesota (Krezmien, Leone, & Achilles, 2006; Cooley, 1995; Leone, Mayer, Malmgren, & Kimber, 2000). Despite their suspension rates, these students' offenses were no more serious than those of their counterparts.

Three common hypotheses pose possible explanations for why students with learning disabilities are more often in trouble. Research supporting the school failure hypothesis suggested that students who had learning problems may have felt inferior to other children, beginning a downward spiral which included eventual delinquency (Larson, 1988; Brier, 1989). As the effected students lost hope in their academic potential, they gravitated toward other troubled youth and became more likely to receive punishments that deprived them of educational opportunities (Larson, 1988).

Other studies supported the differential treatment hypothesis. Students with learning disabilities were perceived as having lower social skills than other pupils by parents, teachers, peers, and themselves (Haager, Watson, & Willows, 1995; Sutherland, Lewis-Palmer, Stichter, & Morgan, 2008). Other research demonstrated that not all teachers make an effort to understand the behaviors of students with special needs and that teachers' feelings impacted perceptions and punishments (Skiba & Peterson, 2000; Foster, Schmidt, & Sabatino, 1976).

The majority of research addressing possible explanations for relationships between specific learning disabilities and aggression supported the susceptibility hypothesis. Several authors agreed that problematic social issues and learning disabilities are intertwined (Larson, 1988; Brier, 1989). Additionally, the problem appeared to be compounded if a learning disability coexisted with an attention deficit (Brier, 1989; Hinshaw, 1992; Routh, 1979; Cantwell & Baker, 1991). Various emotional problems which impacted behavior accompanied learning disabilities in many cases (Spreen, 1989; Stein & Hoover, 1989; Waldie & Spreen, 1993; McConaughy, 1986).

Despite the number of prior studies suggesting a relationship between learning disabilities and aggression, the current research did not replicate these findings as hypothesized. The relationship between the two was not statistically significant and could have easily occurred by chance. Also, even though data from past studies indicated that students with learning disabilities were disproportionately suspended from school, the current research did not indicate this phenomenon in the district under study.

Of the more than 27,000 students in the district, 18% had a disability label. Thirty-eight percent of these students with disabilities had a SLD label. This means that

approximately seven percent of the district's student population had a specific learning disability, a figure slightly above the national average of four to six percent (Learning Disabilities Association of America, 2009). The current study showed that 12% of the students suspended from school for an act of aggression had a specific learning disability. This figure projected a first impression that students with SLD labels were more aggressive or were represented beyond their proportion of the total student population. However, more careful consideration of the data offered a different insight. Most of the subjects with a SLD label committed a single act of aggression; only a few had multiple offenses, which might indicate a pattern. Further, as will be discussed in the next section, another variable more closely correlated with aggression, leading to the conclusion that the appearance of disproportionate representation is not what it seemed. The state's Annual Report regarding students with disabilities for the district and school year under study added credibility to this inference, stating that a significant discrepancy between the percentage of students with disabilities suspended in the district and the statewide average did not exist (North Carolina Public Schools, 2009).

Relationship of null hypothesis #3 to prior research. Extending the information gained through other studies, some researchers obtained results which supported the presence of an interaction between learning problems, aggressive behavior, and poor school performance (McHale, Obrzut, & Sabers, 2003; Feshbach & Price, 1984; McKinney, 1989; Vaughn, Zaragoza, Hogan, & Walker, 1993). Students who had both learning difficulties and measures of low school performance differed from other students in observable behaviors or in assessments of skills related to behavior. Thus, these researchers suggested that the correlation of all three variables might be important.

The current study, however, did not replicate these findings. The interaction of the three variables was not statistically significant and could have easily occurred by chance. Furthermore, statistical analysis showed that the independent variable of overall average had little relationship to the other independent variable of the presence or absence of a SLD label as they impacted the number of suspensions for acts of aggression. Academic performance, as gauged by grades, therefore, was deemed to be a more important correlate of aggression than a SLD label.

Theoretical Implications of the Study

Relying on existing theories, the current research was designed to clarify, refine, and extend what was known about the relationships between academic performance, specific learning disabilities, and aggression. The study related to established thought in that it examined each dominant theory about academic performance and specific learning disability as they impacted aggression, noting the findings of other researchers. While acknowledging the importance of each existing theory, the current study sought to determine which variable might be of more value in predicting aggression at school and what effect the coexistence of the two variables together might have.

The current study contributed to theory in three ways. First, it strengthened the body of evidence supporting an association between low academic performance and aggression. Also, it called into question some of the previous findings regarding learning disabilities and aggression, possibly beginning an extended professional conversation that will lead to refining the current literary discussion. Finally, the current study answered a research question that added to the current body of knowledge about aggression, allowing for greater opportunity for intervention and better predictive capabilities in the future.

As previously discussed, a negative correlation of statistical significance existed between grades and aggression at school. As grades decreased, acts of aggression punishable by suspension under the discipline code increased. This finding reinforced what other researchers have said about the relationship. Also, the current research added another dimension to existing literature because it used overall average as opposed to other measures of academic success that were found in other studies.

Although the current study yielded results contrary to findings of prior research, it may have theoretical value. Certainly, this single study did not singularly disprove previous findings. Rather, it raised questions which might be instrumental in refining theory through future research. Recommendations for future research will be discussed in a subsequent section.

The volume of material supporting a relationship between learning disability and aggression is respectable. Therefore, the researcher does not necessarily suggest that the existing knowledge is wrong, even though the current study contradicted established thought. In actuality, the current study may accentuate the need to define terminology more clearly in order to select subjects in a more precise manner and standardize results. Further, as the researcher will allude to below, current results may emphasize the need for more research.

Some of the existing research substantiated the idea of differential treatment. The current study did not show a disproportionate number of suspensions for students with learning disabilities. However, this research was specific to a single school district and may not be generalizable to all districts. The concept of differential treatment may be

well-founded in other areas. Also, the current study may indicate a need to investigate further differential treatment in specific districts and the implications of intervention.

Many studies supported the susceptibility hypothesis. Since the current study did not find a statistically significant relationship between specific learning disability and aggression, it did not add credibility to the concept of susceptibility in its singularity. However, some researchers suggested that other factors in combination with learning disabilities may increase the risk of aggression. Perhaps the current study demonstrated the need to continue investigating that thought.

The current study added to the existing body of knowledge regarding aggression at school as it answered the central research question. Analysis of data showed that a low overall academic average was a better predictor of aggression at school than was a specific learning disability. Therefore, educators may find implications for practice and intervention based on better predictive capabilities.

Explanation of Unanticipated Findings

While the current study confirmed a correlation between low overall average and aggression as expected, several other findings were not as anticipated. A specific learning disability did not relate to aggression with statistical significance. Also, the interaction of both a specific learning disability and a low overall average did not relate to aggression with statistical significance. Since these results differed from what was expected based upon prior research, the researcher considered some explanations which might account for the unanticipated findings.

Terminology and subject selection. Given other authors' discussions of variations in terminology, perhaps differences in how a *specific learning disability* was defined shaped

study designs in ways that altered data and results (Cornwall and Bawden, 1992; Lyon, 1996; Mulvey and Cauffman, 2001). Specifically, the criteria by which students were deemed to be learning disabled were essential to subject selection in relevant studies. The current study, for instance, used the federal definition of the said term. Thus, subjects possessed IQs within the normal range. Their challenges were processing problems that prevented them from performing to the potential indicated by the IQ. Students who had IQs below the normal range were excluded from the federal SLD designation and, therefore, were not the subjects of the current investigation. Likewise, students whose dominant condition is emotional or behavioral, necessitating a label reflective of that disability, are sometimes likely to externalize aggressive behavior. They, too, by virtue of possessing a label other than SLD, were excluded from the current study. Studies using less specific definitions were more likely to include any students who might have learning problems. Selecting subjects by using broad criteria created differences in research projects that probably impacted the studies' outcomes. The lack of specificity allowed for the inclusion of subjects with more serious problems in other research, whereas the current study included only subjects who met very specific criteria. This likely increased the tally of aggressive incidents or behavioral ratings in other studies, enabling results that documented a relationship between learning problems and aggression. The researcher does not contend that the results of other studies are incorrect; rather, the researcher recognizes that the authors who noted a lack of specificity in defining terminology had a valid point.

Areas of specific learning disability. Based upon the findings of prior research, perhaps another explanation of unanticipated findings in the current study lays within the

particular areas of specific learning disability. In keeping with a great deal of literature, previously cited regarding the second hypothesis, the current study investigated for a possible relationship between a specific learning disability and aggression. According to the federal definition which was used to set the criteria for subject selection, a specific learning disability can include identification in any of the following areas: "using language, spoken or written, which disorder may manifest itself in the imperfect ability to listen, think, speak, read, write, spell, or do mathematical computations" (Individuals with Disabilities in Education Act, 2008, p. 5). An individual may be labeled SLD in a single area or in more than one area. The current research investigated specific learning disabilities as a single designation. Subjects were categorized by either the presence or absence of a SLD label. Thus, the area(s) of identification within the SLD label were not differentiated.

Some authors addressed identifiable areas of specific learning disability instead of SLD as a single label. Lewis, Hitch, and Walker (1994) found that math difficulties impacted males and females at approximately equal rates, but reading disabilities affect males at a much higher rate than females. Others determined that a learning disability in math did not significantly impact behavior (Shalev, Auerback, & Gross-Tsur, 1995). However, a number of studies indicated an association between language identifications and behavior. Several studies found correlations between verbal language skills and aggressive behaviors (Vallance, Cummings, & Humphries, 1998; Kaukianinen, Bjorkqvist, Osterman, & Lagerspetz, 1996; Smith & Griffin, 2002). Additional research projects noted in particular the associations between reading difficulties and behavior (Tomblin, Zhang, & Buckwalter, 2000; Rutter, Tizard, & Whitmore, 1970; Gadeyne,

Ghesquiere, & Onghena, 2004; Commission on Behavioral and Social Sciences and Education, 2000).

Therefore, the researcher inferred that investigating areas of identification within the SLD label separately might yield different results. While this recognition might explain at least a portion of the unanticipated findings, it does not imply that the results are flawed or not meaningful. First, as discussed elsewhere in the Unanticipated Findings section, it is possible that other issues may have impacted the study and its results. Second, determining that a SLD label in its broadest sense does not correlate significantly with aggression in this study not only added to what was known about predicting aggression, but also clarified the need for future research. Perhaps more investigation is necessary regarding the area(s) of identification and the importance (or lack of importance) of a student being identified SLD in multiple areas. Also, more research is necessary to determine what other factor(s) might interact with a specific learning disability to create possible correlations with aggression and how important the combination of those factors might be.

Middle school grade span. Studying students in grades six through eight may also potentially have accounted for unanticipated findings. A number of the referenced studies connecting learning problems and aggression focused on students in the earlier elementary grades. However, Vaughn, Zaragoza, Hogan, and Walker (1993) found that behavior differences between children with learning disabilities and other students were less pronounced by third grade. The authors thought the pupils with learning disabilities learned over time to cooperate better in school. Therefore, students in middle school may have learned to control more effectively their behavior, minimizing the number of

aggressive outbursts. If these authors' opinion is correct, the use of middle school subjects in the current study could certainly have posed one possible explanation of unexpected results.

In addition, middle school students in the district under study are well-monitored and supported through the Exceptional Children's Program. As will be discussed in a subsequent section, the district's program for students with special needs serves its constituents well. Also, high school students with exceptionalities receive less individualized attention from exceptional children's personnel because of the nature of the high school setting. Perhaps a similar study using high school subjects might have yielded different results.

Pre-existing behavior. An additional plausible explanation for unanticipated findings may be found in the relationship between reading difficulties and behavioral tendencies that pre-date the reading problems. For instance, Stott (1981) found that the behavior of students with learning problems did not worsen over the three-year span in which he studied them. He concluded that their learning disabilities did not cause their behavioral issues. However, he believed that their challenges with learning may have made them more anxious about academic tasks, causing displays of avoidance tactics. Similarly, Fergusson and Lynskey (1997) found that while reading problems were predictive of later conduct problems, the reading issues did not seem to have caused the behaviors. Instead, the problems were more closely related to early behaviors. The authors concluded that reading difficulties may have simply worsened the bad behavior that already existed. Likewise, Corwall and Bawden (1992) stated that the data from the studies they reviewed

did not support the contention that reading disabilities caused poor behavior. Rather, the data demonstrated that reading problems may have worsened poor conduct.

If these authors are correct in their ideas about pre-existing behavior, then their work offers another reason the current study may have produced some unexpected results. Among children with learning problems, students who have less than ideal behavioral characteristics and become frustrated as they try to learn academic material are the pupils most likely to display aggression at school according to these authors' implications. Perhaps the results of the current study were coincidental, meaning that the majority of the subjects had few negative behavioral traits from the outset. More likely, however, the results demonstrated the strength of the Exceptional Children's Program in the district under study, which will be discussed in detail in a subsequent section. In short, support offered through the program minimized the frustration students with learning disabilities experienced as they learned. Many of the behavioral traits that the subjects might have had, therefore, may not have been externalized. This phenomenon may have been district and situation specific, depending upon the depth of support offered to students with learning disabilities in a given place.

Third factor correlates. Extending the ideas presented by the aforementioned authors, some researchers believe that bad behavior not only pre-dates learning disabilities in reading, but that it also may even cause the reading problems. Prior and Smart (1996) found few real differences between boys and girls in reading. They thought boys were identified in the reading area more often because of gender differences in behavior. Jorm, Share, Matthews, and Maclean (1986) found a close relationship between learning disabilities in reading and ADHD symptoms which existed prior to the reading

difficulties. Other authors acknowledged the coexistence of learning problems and bad behavior, but they felt that some important third factor closely correlated to the relationships they observed (Maughan, Gray, & Rutter, 1985; Sturge, 1982; Willcutt & Pennington, 2000; Williams & McGee, 1994; Trzenski, Moffitt, Caspi, Taylor, & Maughan, 2006). These researchers commented on the importance of economic status and disadvantage as one of the possible additional factors.

Such prior research indicated the possibility of a third factor correlating more closely with aggression than did a specific learning disability. Since the current study did not investigate other correlates, this could create another potential explanation of unanticipated findings. If some third factor indeed produced issues that created the appearance of a relationship between SLD and aggression or accentuated a confirmed relationship, then perhaps that factor did not exist or had its effect mitigated in the district under study. This could explain why no significant relationship was observed between the variables or in the interaction of the variables that were studied.

For instance, if economic status and disadvantage are, in actuality, important factors in the SLD-aggression relationship, their impact could have been partially mitigated in the district under study because the county in which the school district is located has experienced rapid growth. In fact, when examining the research context, the researcher noted that five of the traditional middle schools had proficiency rates that surpassed the district averages, while two showed proficiency rates below district averages. The researcher noticed that these were the two schools with the highest percentages of students eligible for the free lunch program.

Exceptional Children's Program. A final possible explanation of unanticipated findings may be summarized as the strength of the Exceptional Children's (EC) Program in the district under study. Several past studies addressed the importance of school and classroom climate and the learning environment. Kasen, Cohen, and Brook (1998) and Shechtman (2002) found that positive climates and relationships reduced levels of deviancy and aggression. According to Espelage, Mebane, and Keyes (2008), "school climate is associated with higher academic performance and less bullying" (p.4). These associations were especially notable during the middle school years.

Therefore, even if a specific learning disability indeed relates to aggression, a positive learning environment along with adequate support from exceptional children's specialists may have mitigated the behaviors observed. Specific to the current research, the district under study went beyond the minimum requirements to serve exceptional children in several ways. The district and individual schools made efforts to maximize staff potential to serve students with special needs, and educators and professional learning communities maintained an attitude of commitment to all students under their instruction.

First, the district under study used its human resources wisely to benefit all exceptional students, including those with SLD labels. Although the No Child Left Behind legislation and the Individuals with Disabilities in Education Act prescribed certain requirements for school districts, federal law did not mandate specific teacher-to-student ratios. States and local education agencies retained jurisdiction over their own staffing requirements and development of individualized education plans (IEPs), which address the specific needs of students with disabilities. The district under study not only used state funding to hire teachers, but it also sought and utilized local money to provide

more teachers and reduce class sizes. This provided greater opportunities for individualized instruction and support from educators. Also, the district provided ample opportunities for staff development that prepared teachers to serve students with special needs more appropriately. While exceptional children's teachers certainly had relevant education, regular education teachers also had many opportunities to learn to better differentiate their instruction to meet the needs of all students and to work alongside EC teachers in inclusion classes.

Second, the exceptional children's teachers in the district under study went beyond the duties required of them by law. Most could be observed not only instructing their students in academic subjects and assisting regular education teachers in inclusion classes and on consultation cases, but also making meaningful, personal connections with students. The researcher has personally witnessed EC teachers intervening to comfort distraught or angry students, defusing situations that could potentially have grown more serious without their efforts. Even though most middle school students were not educated in self-contained classrooms, they were closely monitored. This helped ensure both their academic and behavioral success.

Perhaps the combined efforts of the district under study and the EC teachers it employed created a support system for students with learning disabilities that mitigated the hypothesized effects of a specific learning disability or of the combination of SLD and a low overall average. Thus, the unanticipated findings could have been situation-specific because the district under study maintained a high quality Exceptional Children's Program. For instance, one of the theories that addresses the behaviors and punishments of students with learning disabilities is the idea of differential treatment. Maybe it was

not differential treatment, a negative concept, but rather differential intervention, a positive idea, in the district under study that accounted for the unanticipated findings in the current study. Also, another theory that attempts to explain the relationships between students with learning disabilities and observable behaviors is that of susceptibility. Despite the findings of previous research projects which support the susceptibility notion, the current study did not find a significant relationship. The researcher believes that this might be a result of the support offered by the EC Program in the district under study. Could it be that a strong program for students with disabilities that adequately addressed and met the learners' individual needs mitigated susceptibility?

Adding credibility to the thought that the structure and function of an EC program might be important, Thurlow, Ysseldyke, and Wotruba (1988) investigated the impact of student-teacher ratios on instruction and student success. The authors found that students with learning disabilities completed more tasks and learned more effectively when the ratio of labeled students to EC teachers was low. Small group special education sessions impacted both the quantitative and qualitative aspects of instruction. Even when the subjects were in larger class settings, they completed more work successfully, an apparent result of the academic support they received in small group settings with their special education teachers.

Implications for Practice

Aggressive behavior is more than just a classroom nuisance. It infringes on instructional time, disrupting the flow of information between teachers and students when class is interrupted, focus is redirected, and intervention becomes paramount. Predicting aggression and taking steps to curb it before learning is impeded becomes particularly

important in the middle school years because, “violent and aggressive behavior surges to its apex during the teenage years” (Valois, McDonald, Bretous, Fischer, & Drane, 2002, p. 454). Aggression in these formative years not only can lead to a violation of the educational environment, but also can develop into a pattern that leads to an increased likelihood of adult criminal activity (Moskowitz & Crawley, 1989). Since absolute prediction of aggressive outbursts is not possible, Mulvey and Cauffman (2001) recommend “approach[ing] the problem as one of ongoing risk assessment rather than prediction” (p. 799). The difficulties of the task, however, do not “justify inaction” (p. 799). Accordingly, the knowledge gained from the current study has realistic implications for practice.

First, educators should not underestimate the importance of grades to students’ overall well-being. While some students are more likely to become aggressive if they are performing poorly in school, others, regardless of academic standing, may encounter these perpetrators’ wrath. Thus, low grades affect everyone, no matter who actually earned the marks.

The current study concurred with the results of prior research. Grades and aggression were negatively correlated; as the overall average decreased, the number of suspensions for acts of aggression increased. However, several studies showed that academic stability and improvement led to decreases in aggressive behavior (Morrison, Robertson, & Harding, 1998; Colbert & Dorff, 1991).

Therefore, educators can both facilitate learning and potentially create a safer environment that is more conducive to the development of all students by effectively remediating pupils who fall short of expectations. Given the findings of the current and

previous studies, perhaps academic intervention is one effective measure in preventing aggression at school. Educators should provide time during the school day to tutor students, targeting specific areas of academic need that are in addition to regular instruction. Small group and individualized assistance, where possible, would be beneficial because the learners could both receive intensive academic support and develop the positive relationships that some authors indicated were critical to success (Kasen, Cohen, & Brook, 1998; Shechtman, 2002; Schwartz, Gorman, Duong, & Nakomoto, 2008).

Second, even though the current study did not show a significant relationship between a specific learning disability and aggression, educators should continue to be mindful of the needs of students labeled SLD pending further research. The results of the current study contrasted with the findings of prior research. One cannot yet determine if the prior research wass more accurate, the current study wass more accurate, the current study was not widely generalizable due to chance, or the current study was not widely generalizable because of the success of the interventions in place in the district under study. Educators should follow future research to refine their thoughts on the relationships between SLD and aggression. Until more data and findings are available, educators have an interest in practicing techniques that are sound and surely not harmful and may even someday prove to be beneficial in reducing aggression.

Specifically, teachers and other school personnel should continue interventions that might help students who are labeled SLD. Doing so should help students compensate for their particular learning deficits. Also, relevant instructional modifications are designed to help the students who need them be successful academically. This strategy is likely to

bolster both skills and grades, addressing the relationship between overall average and aggression that was confirmed in the current study.

Further, since one possible explanation offered from prior research for the possible connection between SLD and aggression is the notion of differential treatment, educators should be aware of this possibility and make efforts to prevent such bias. This is an equitable practice that one might argue should be in place anyway. Students should not be targeted and made more likely to receive punishment for the simple fact that they have a SLD label. Perhaps additional staff development addressing the topics of equality and bias in identification of and punishment for aggressive behavior might be beneficial, particularly in districts where a disproportionate number of children with exceptionalities are suspended from school.

Finally, educators could benefit from more thoroughly understanding all the challenges faced by particular students. For instance, if a student has multiple areas for which he or she could be identified as exceptional, the single category which is deemed the dominant disability is used for purposes of labeling. If a student, for example, has a learning disability in multiple identifiable areas, he or she still carries the single label of SLD. If a student has both a learning disability and a diagnosis of Attention Deficit Hyperactivity Disorder, he or she can still be identified with only a single designation. A student fitting this description could be labeled either SLD or Other Health Impaired (OHI). The IEP team would have to decide which was the dominant disorder and assign the corresponding label to the student.

One possibility for improving current practice might be a nationally accepted system of using dual labels. Allowing students to carry multiple labels would be cumbersome,

but it would facilitate personal understanding and research. Educators could see at a glance each area of difficulty for a specific student. This would enable teachers and administrators to gauge more quickly the broad needs of the student and move on to refining practice to meet the child's specific requirements. Ultimately, such labeling practices might, therefore, prove to be more efficient despite the initial work of documenting multiple labels. Also, assigning more than one label could be of immeasurable value to researchers. Investigators would be able to identify more easily the effects of combined disabilities on their areas of research. They might sort out the effects of particular areas of disability more effectively, as well.

Until such time as dual labeling is accepted, if ever, educators need to invest the time and effort to review sufficiently the records of each student with a label of exceptionality. Carefully examining a pupil's records allows teachers to see each area the IEP team considered for identification, even though only one label could be used. Thus, they better understand the specific needs of the child earlier than if they wait to discover academic or behavioral deficits haphazardly.

Limitations of the Current Study

While the current study added to what is known about predicting aggression at school, this research also had its limitations. The results indeed provided an answer to an important research question: Is a specific learning disability or general low academic performance a stronger predictor for the likelihood of a student displaying aggression at school? Statistical analysis allowed the researcher to identify general low academic performance as the better predictor, giving educators the ability to distinguish between

these two possible indicators. Even so, limitations existed as to the generalizability of the study and in areas that may require further research for clarification.

The current study may not be generalizable to all areas for several reasons. First, demographics in the district under study may not be the same as those in other regions. It is possible that such differences could impact not only the data and results, but also the usability of the information gained. Second, not all districts have Exceptional Children's Programs of the quality of that in the district under study. This, too, may make a difference that affects both the results and the generalizability of the current study.

Specifically, this research was conducted in a single school district. The school district boundaries coincide with the county lines, encompassing a large rural area and some incorporated towns. This area has become more diverse in the past decade because of recent rapid growth. Also, the growth has stimulated the local economy, accounting for such observations as a lower-than-state-average age of housing structures. Although the district has changed, it still remains less diverse than some other areas. Its size may limit generalizability, as well. Many school districts are either much smaller or significantly larger than the one under study. If other authors are correct in their beliefs that some important third factor, perhaps economic disadvantage, is closely related to their observed relationships between learning problems and bad behavior, then demographic differences could be critical to generalizability (Maughan, Gray, & Rutter, 1985; Sturge, 1982; Willcutt & Pennington, 2000; Williams & McGee, 1994; Trzenski, Moffitt, Caspi, Taylor, & Maughan, 2006). While many educators might benefit from the additional information contributed by the current study, it may be of most use to those in districts that are demographically similar.

Further, the Exceptional Children's Program in the district under study is strong. While all public school districts are required to meet certain standards under federal law, not all programs are of the quality observed in the district under study. As previously discussed, most EC personnel in the district go beyond what is required of them. Their concern, individualized attention, and intervention sometimes change the direction a potentially volatile situation is taking. Therefore, the results of the current study may not be generalizable to other areas where no more than the minimum academic interventions are made for students with specific learning disabilities.

However, the reader should continue to bear in mind that any findings might be more generalizable than they otherwise would have been. Aiding the reader's ability to generalize as much as possible, the researcher used the specific learning disability definition set forth by federal law. Further, she made efforts to lessen the effects of bias where possible. Specifically, she used out-of-school suspensions, where students are protected by due process procedures, in subject selection and overall average based on a standardized grading scale for data inclusion.

Other limitations of the current study may arise from the ongoing need for more research in education. Since the current study identified the presence or absence of a SLD label for each subject, the research operated using the primary identifiable disability for which the subjects might be labeled. Other important underlying conditions might have existed for those subjects, creating a limitation in the current study. Further, this project used the SLD designation. Subjects could have been labeled SLD in one of various areas or in multiple areas. The single designation may have created a limitation, as well.

As described in the discussion of the susceptibility hypothesis, some researchers stated that attention problems coupled with a learning disability might be important (Brier, 1989; Hinshaw, 1992; Routh, 1979; Cantwell & Baker, 1991). The current study identified subjects as having or not having an SLD label. The system by which students are labeled allows a child to have only one label. The condition deemed by the IEP team to be the dominant disability is used for labeling. Thus, it is possible for a student to have one or more significant underlying conditions that may impact both the pupil and any research conducted using that child as a subject. A potential subject who has both a specific learning disability and Attention Deficit Disorder (ADD) or ADHD would be labeled either SLD or OHI, not both. The current study was valid in that it used a federally recognized descriptor, where applicable, for subjects. However, educators should be aware that the SLD label may not be exclusive. (For the record, the OHI label creates issues in research, as well. This designation can include many physical or mental disabilities, not just difficulties with attention.)

Additionally, the current study identified subjects as having or not having a SLD label. The designation was not separated into the various area(s) of identification. However, some authors indicated a specific link between a learning disability in reading and aggression (Tomblin, Zhang, & Buckwalter, 2000; Rutter, Tizard, & Whitmore, 1970; Gadeyne, Ghesquiere, & Onghena, 2004; Commission on Behavioral and Social Sciences and Education, 2000). Again, the current study was valid in that it uses a federally recognized descriptor, where applicable, for subjects. However, the study may have been limited for some purposes because it used a broad identifier as opposed to giving the specifics of the area(s) of identification.

Also, this research focused on middle school students. Using this age group was important because these students were in what one might call a critical transitional period. While youngsters with learning disabilities or below-average achievement in one study demonstrated lower social skills and more behavior problems than those in the average/high-achieving group, fewer differences existed by third grade (Vaughn, Zaragoza, Hogan, & Walker, 1993). The authors surmised that the subjects with learning disabilities and poor achievement learned over time to cooperate better in school. In contrast, other researchers said that, "violent and aggressive behavior surges to its apex during the teenage years" (Valois, McDonald, Bretous, Fischer, & Drane, 2002, p.454). Addressing those years in between, Modglin (2006) believed that, "middle schoolers have the potential to do things good or bad that will have a ripple effect around the country or even the world" (p.1). Since middle school students are in a critical phase of life and education, gathering data and obtaining results specific to their age is both valid and necessary. However, research specific to middle school creates an issue with generalizability. The findings may not apply as meaningfully to younger or older age groups.

Finally, the current study was limited, to some extent, by existence of an alternative education program and campus. The research did not include as subjects some students who attended the middle school that was part of an alternative campus with a high school also on site designed to educate and accommodate students who had been removed from the traditional school setting due to the severity of behavioral concerns. This particular school did not fit the profile of the traditional middle school that was used for subject selection. However, some of its students became subjects based on their attendance for

part of the school year under investigation in a traditional middle school. If a student attended a traditional middle school in the district under study and was later placed in the alternative school, his or her suspensions for aggression were included in the year's records for the traditional school for the period of attendance. Therefore, he or she was used as a subject. Likewise, if a student's placement at the alternative middle school terminated during the school year under study, then his or her suspensions for aggression were included in the year's records for the traditional school for the period of attendance. He or she was used for a subject in this case, as well. Students who remained in alternative placement for the entire school year under study were not used as subjects.

Thus, one might note that the students with the greatest number of suspensions for aggression may not have been included as subjects in the current study. Those students were assigned to an alternative program for that specific reason. If they did attend a regular school for a portion of the academic year, only those suspensions for aggression that were committed while in the traditional middle school setting were counted in the tally for the purposes of this study. Therefore, the full number of suspensions for aggression for a few subjects was not documented. This limitation should impact only a minimal number of subjects, however.

Recommendations for Further Research

As the researcher delved into the current study and added to existing knowledge about predicting aggression, she found areas that need additional investigation. More research is needed that might replicate the current findings and/or make them more generalizable. Also, further study is needed regarding relationships between aggression, specific learning disabilities, and attention problems. Finally, additional research is needed

regarding interventions that might improve the situations identified through better predictive capabilities.

For example, additional studies need to be completed using the same definitions as the current research and overall averages as measures of academic performance. If other authors make similar findings using subjects from other districts, different regions, and additional demographic settings, then the results will be more generalizable. Also, the researcher recommends using the nearly the same criteria for subject selection and evaluation, changing only the grade spans of the students involved. Repeating the current study using elementary and high school students will allow educators to determine if findings similar to those observed in middle school will hold true for other grade spans. This, too, will address issues of generalizability. In short, the more studies that are conducted in similar manners with like terminology, the more comparable and usable the findings will be.

Also, more research into the areas of SLD identification and coexistence of other disabilities with SLD is needed. Additional studies may clarify whether one type of learning disability is more important than another in predicting aggression. Perhaps these future investigations can also help educators determine if identification in more than one area of specific learning disability or the coexistence of SLD with another disability is important in relation to aggression.

Some authors suggest that differential treatment accounts for aggressive behaviors observed in children with learning disabilities, yet the current study did not replicate such findings. The researcher does not know if the findings of the current study are unique to the district under study. Further, she wonders if energy directed toward effective

interventions for students with disabilities instead of focus placed on differential treatment might make a difference for students with a SLD label. Therefore, further research into differential treatment and intervention is recommended.

Additionally, some authors believe that attention problems in combination with learning issues increase the likelihood of aggression. The current study did not and could not have addressed this combination. The researcher operated using the label of disability (or lack thereof) assigned to each subject. Students bearing a SLD label cannot, under the system in current use, also have an exceptional children's label reflective of an attention problem. If the student is labeled SLD, then any existing attention deficit has been deemed as a secondary disability. While it is possible to determine the existence of a diagnosed attention problem through full examination of individual students' records, it cannot be determined using the methodology of the current study. The researcher, therefore, recommends further research into the coexistence of learning and attention problems.

Even though a number of studies found a relationship between learning disabilities and aggression and some of them support the notion of susceptibility, perhaps quality interventions can change outcomes. The researcher wonders if a strong Exceptional Children's Program might mitigate the relationships observed by other authors. Therefore, she recommends further research into early and appropriate interventions for students with specific learning disabilities as well as the depth of relationships between those students and their exceptional children's teachers.

Regardless of exceptionality, all students who might be at risk for becoming aggressive could benefit from intervention. One of the most obvious interventions in a

public school should be guidance counseling, particularly for students or groups identified as being at greater risk for aggression than their peers. Perhaps additional research into how to target interventions according to grade span specific risk factors such as those discussed in the current study could make guidance more relevant and effective.

Further, given the findings of prior research and the current study, thorough investigation into the types, levels, and intensities of academic interventions is needed. Educators need to know which levels of tutorial are effective in helping students with substandard academic performance. Thus, research is needed to determine whether assistance from teachers, volunteers, or peers, or some combination of these is most effective. Also, researchers need to study time factors. Do academically at-risk students benefit more from short, intensive interventions or slower-paced sessions over a longer duration? The effectiveness of various strategies on academic improvement and risk reduction should be monitored, as well.

Finally, according to Larson (1988), students who perform poorly academically lose hope in their academic potential, causing them to gravitate toward other troubled youth. They find themselves in trouble, and their subsequent punishments often remove them from their classrooms and opportunities for academic growth. The researcher wonders, however, what becomes of students fitting this profile who benefit from adequate academic interventions. If academic gains are made and hope for academic potential restored, do students at risk of displaying aggression begin separating themselves from the troubled youth toward which they had gravitated, thus reducing their risk by both improving academics and associating with better-behaved peers? The researcher

suggests further study to determine the impact of academic intervention and improvement on both personal and peer group associated risks for aggression.

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APPENDIX A

Discipline Action Directory

for School District Under Study

CODE	DESCRIPTION
ALA	Alternative school assignment
ALR	Alternative school referral
CP	Corporal punishment
DEAB	After/before school detention
DELN	Lunch detention
DESA	Saturday detention
EX	Expulsion
IS01	In school suspension—one day
IS02	In school suspension—two days
IS03	In school suspension—three days
IS04	In school suspension—four days
IS05	In school suspension—five days
IS06	In school suspension—six days
IS07	In school suspension—seven days
IS08	In school suspension—eight days
IS09	In school suspension—nine days
IS10	In school suspension—ten days
LTD	Long term suspension (< year)
LTY	Long term suspension (one year)

OS1 Out of school suspension—1 day

OS10 Out of school suspension—10 days

OS2 Out of school suspension—2 days

OS3 Out of school suspension—3 days

OS4 Out of school suspension—4 days

OS5 Out of school suspension—5 days

OS6 Out of school suspension—6 days

OS7 Out of school suspension—7 days

OS8 Out of school suspension—8 days

OS9 Out of school suspension—9 days

OTHA Counseling by administrator

OTHB Counseling by student services

OTHC Counseling by teacher

OTHD Counseling by SRO officer

OTHE Parent contact

OTHF Parent conference

OTHG Parent shadowing

OTHH Loss of bus privileges

OTHI Bus warning

OTHJ Loss of driving privileges

OTHK Time out

OTHL Restitution

OTHM Arrested

APPENDIX B

Discipline Incident Directory

for School District Under Study

CODE	DESCRIPTION
AB00	Threats of death/bodily injury
AB01	Verbal abuse—aggressive manner
AB02	Disruption with aggression
AB03	Threats with aggression
AB04	Hazing
AB05	Intimidation
AB06	Fighting
AIW	Weapon use (non-robbery, no gun)
API	Assault on student w/ phy. Harm
API1	Assault on school personnel/vol.
ASO	Assault on employee w/ phy. Harm
ASO1	Assault on teachers adults/stud.
HI	Health/immunizations
HOM1	Homicide of another student
HOM2	Homicide of a school employee
HRO1	Non-physical sexual harassment
HRO2	Harassment
KID1	Kidnapping another student
KID2	Kidnapping a school employee

PCS	Possess a controlled substance
PD02	Arson
PD01	Damage to property > $1,000
PD00	Damage to property < $1,000
PFA	Possession or use of a firearm
PWP1	Possess weapons—not guns/explo.
PWP2	Possess or place explosives
RAP	Rape
ROB	Theft when police is called
ROW	Robbery w/ weapon, but not a gun
RV01	Dress code rule violation
RV02	Gambling rule violation
RV03	Peer relations rule violation
RV04	Integrity rule violation
RV05	Tobacco products rule violation
RV06	Trespassing rule violation
RV07	Bus conduct rule violation
RV08	Fireworks rule violation
RV09	Lawful directive rule violation
RV10	Alcohol use rule violation
RV11	Devices causing noise or disturbance
RV12	Sale or purchase of drugs or alc.
SA	Substance abuse, not alcohol

SXA	Sexual assault
SXO	Sexual offense
TF	Theft when police not called
TIL	Indecent liberties with a minor
TR	Skipping school
UD01	Verbal abuse—no aggression
UD02	Disruption
UD03	Protest disturbance
UD04	Boycott disturbance
UD05	Disruptive or obscene material
UD06	Fire alarm disturbance
UD07	Bomb threat disturbance

APPENDIX C

Demographics for 2006-2007 School Year

	# of Stdnts	Ratio Male/ Female	# of Tchrs	Ratio Tchr/ Stdnt	Ethnicity	Lunch	Migrant Students
State				1:15	Am. Ind.1% Asian 2% Hspnc 10% Black 30% White 55%	Free 39% Rdcd 7%	
District	30,128						
School 1	499	53%/47%	37	1:13	Asian 1% Hspnc 14% Black 17% White 68%	Free 42% Rdcd 7%	1%
School 2	705	49%/51%	50	1:14	Hspnc 11% Black 27% White 61% Unknwn 1%	Free 23% Rdcd 4%	1%
School 3	921	48%/52%	47	1:20	Am. Ind.1% Asian 1% Hspnc 5% Black 17%	Free 15% Rdcd 5%	2%

					White 77%		
School 4	668	48%/52%	35	1:19	Am. Ind.1% Asian 1% Hspnc 9% Black 12% White 77%	Free 22% Rdcd 8%	1%
School 5	604	50%/50%	43	1:14	Hspnc 13% Black 20% White 66% Unknwn 1%	Free 45% Rdcd 7%	2%
School 6	911	54%/46%	47	1:19	Hspnc 6% Black 19% White 74% Unknwn 1%	Free 17% Rdcd 5%	N/A
School 7	823	51%/49%	55	1:15	Hspnc 18% Black 37% White 44% Unknwn 1%	Free 50% Rdcd 6%	3%

(adapted from Public School Review, 2009)

APPENDIX D

State Assessment Proficiency for the 2006-2007 School Year

(Percent Proficient)

	6th Grade Math	6th Grade Reading	7th Grade Math	7th Grade Reading	8th Grade Math	8th Grade Reading
State	64.6%	82.5%	63.5%	86.3%	65.1%	87.9%
District	66.6%	85.1%	66.3%	89.5%	68.8%	90.0%
School 1	76.1%	85.8%	70.9%	88.4%	71%	92.2%
School 2	79.4%	91.4%	78.1%	94.3%	86.0%	94.6%
School 3	76.9%	89.4%	73.3%	93.6%	78.0%	93.9%
School 4	68.3%	87.9%	65.6%	91.3%	74.2%	93.3%
School 5	59.5%	82.8%	66.7%	86.6%	76.4%	90.1%
School 6	76.4%	89.6%	78.5%	93.8%	74.6%	94.0%
School 7	48.3%	74.0%	49.1%	85.6%	59.8%	86.9%

(adapted from GreatSchools District Ratings, 2009 and Zillow, 2009)

APPENDIX E

Subject Data for the 2006-2007 School Year

Subject	Number of Suspensions for Aggression	Specific Learning Disability Label 0=absence; 1=presence	Overall Average (by number)	Overall Average (by letter)
	School 1			
1	4	0	79.33	C
2	1	0	71.79	D
3	1	0	84.17	C
4	1	0	75.00	D
5	1	0	81.33	C
6	1	1	85.29	B
7	1	0	80.04	C
8	2	0	71.92	D
9	1	0	80.92	C
10	1	0	82.92	C
11	1	0	94.92	A
12	1	0	87.83	B
13	1	0	88.25	B
14	1	1	82.77	C
15	1	0	81.63	C
16	1	1	74.43	D
17	4	0	80.08	C

18	1	1	84.71	C
19	1	0	74.00	D
20	1	0	73.08	D
21	1	0	69.46	F
22	1	0	73.33	D
23	1	0	81.13	C
24	1	0	87.79	B
25	1	0	91.00	B
26	2	0	82.46	C
27	1	1	82.79	C
28	2	0	71.92	D
29	1	0	76.67	D
30	1	1	69.29	F
31	1	0	87.54	B
32	1	1	92.83	B
33	1	0	80.75	C
34	1	0	78.42	C
35	1	0	86.54	B
36	1	0	91.38	B
37	2	0	69.58	F
38	2	1	73.67	D
39	1	0	80.67	C
40	1	0	72.38	D

41	1	0	80.25	C
42	1	0	77.42	C
43	1	0	89.92	B
44	1	1	80.25	C
45	1	0	76.35	D
46	3	0	71.63	D
	School 2			
47	1	0	91.57	B
48	2	0	67.83	F
49	1	0	83.85	C
50	1	0	92.22	B
51	1	0	76.39	D
52	1	0	70.78	D
53	1	0	87.22	B
54	1	0	78.27	C
55	2	0	75.57	D
56	1	0	63.57	F
57	1	0	64.04	F
58	1	0	68.96	F
59	2	0	60.77	F
60	1	1	76.57	D
61	2	1	81.07	C
62	1	0	94.78	A

63	2	0	83.00	C
64	1	0	90.18	B
65	1	0	70.96	D
66	1	0	91.70	B
67	1	0	82.48	C
68	1	0	75.35	D
69	2	0	70.88	D
70	1	1	75.39	D
71	1	0	90.17	B
72	1	0	53.57	F
73	1	0	81.30	C
74	1	0	84.83	C
75	2	0	66.35	F
76	2	0	58.43	F
77	1	0	83.83	C
78	1	0	97.61	A
79	1	1	62.48	F
80	1	0	71.04	D
81	1	0	78.30	C
82	1	0	66.17	F
83	1	0	94.00	A
84	2	0	91.22	B
85	1	1	70.13	D

86	1	1	81.87	C
87	1	0	79.38	C
88	1	0	86.96	B
89	1	0	86.17	B
90	1	0	62.91	F
91	1	0	65.78	F
92	2	0	72.91	D
93	1	0	71.64	D
	School 3			
94	2	0	82.30	C
95	1	0	79.79	C
96	1	1	83.48	C
97	1	0	81.24	C
98	1	0	77.21	C
99	2	0	79.36	C
100	1	0	82.54	C
101	2	0	91.42	B
102	2	0	74.08	D
103	2	0	87.46	B
104	1	0	80.67	C
105	2	0	75.75	D
106	2	0	81.63	C
107	2	0	75.17	D

108	2	0	94.25	A
109	1	0	76.00	D
110	1	0	71.24	D
111	1	0	84.92	C
112	1	0	78.45	C
113	3	0	80.75	C
114	2	0	83.54	C
115	1	0	94.04	A
116	1	0	76.13	D
117	1	0	92.71	B
118	1	0	78.88	C
119	4	0	72.71	D
120	1	1	74.83	D
121	2	0	75.33	D
122	2	0	92.71	B
123	2	0	91.96	B
124	4	0	81.17	C
125	2	0	93.04	A
126	2	0	89.77	B
127	1	0	88.92	B
128	1	0	94.17	A
129	2	0	87.79	B
130	3	0	75.00	D

131	3	0	86.21	B
132	2	0	96.04	A
133	1	0	82.25	C
134	1	0	85.99	B
135	1	0	86.36	B
136	1	0	86.48	B
137	1	0	84.38	C
138	3	0	78.75	C
139	2	0	82.04	C
140	1	0	90.63	B
141	1	0	76.63	D
142	1	0	84.46	C
143	2	0	92.33	B
144	1	0	78.96	C
145	1	0	85.71	B
146	3	1	86.25	B
147	3	0	91.38	B
148	1	0	79.08	C
149	3	0	79.67	C
150	1	0	73.67	D
151	1	0	77.75	C
152	1	0	73.05	D
153	1	0	85.00	B

154	1	0	88.33	B
155	1	0	87.38	B
156	1	0	88.29	B
157	5	0	78.58	D
158	1	0	76.17	D
159	1	0	83.13	C
160	1	0	77.17	C
161	1	0	88.38	B
	School 4			
162	1	0	85.25	B
163	1	0	70.54	D
164	1	0	70.46	D
165	1	0	64.71	F
166	1	0	88.63	B
167	1	1	76.29	D
168	1	0	76.46	D
169	1	0	71.54	D
170	1	0	73.75	D
171	1	0	85.75	B
172	1	0	89.29	B
173	2	0	81.58	B
174	5	0	76.96	D
175	1	0	85.79	B

176	1	0	79.96	C
177	3	0	70.71	D
178	1	0	74.21	D
179	1	0	62.71	F
180	1	0	72.08	D
181	1	0	85.33	B
182	2	0	70.33	D
183	1	0	71.04	D
184	2	0	70.79	D
185	1	0	68.00	F
186	1	0	69.33	F
187	1	0	85.52	B
188	1	0	74.71	D
189	1	0	68.67	F
190	1	1	77.00	C
191	1	1	78.04	C
192	1	0	75.63	D
193	3	0	82.13	C
194	1	0	72.96	D
195	1	0	86.54	B
196	1	0	70.21	D
197	2	1	75.33	D
198	1	0	79.25	C

199	1	0	84.88	C
200	1	0	72.92	D
201	1	0	70.38	D
202	1	0	84.33	C
203	1	0	70.13	D
204	1	0	74.83	D
205	1	0	85.42	B
206	1	0	76.82	D
207	1	0	81.29	C
208	1	0	89.50	B
209	1	0	92.17	B
210	1	0	78.33	C
211	1	0	72.50	D
212	1	0	82.63	C
213	1	0	82.08	C
214	2	0	75.04	D
215	4	0	74.50	D
216	1	0	89.00	B
217	1	0	78.38	C
218	1	0	87.63	B
219	1	1	83.13	C
220	1	0	75.38	D
221	1	0	93.13	A

222	1	0	78.04	C
223	1	0	89.83	B
224	1	0	92.08	B
225	1	1	83.33	C
226	1	0	71.83	D
227	1	0	71.17	D
228	2	0	75.95	D
229	2	1	71.82	D
230	2	0	70.50	D
231	2	0	68.42	F
232	2	0	81.33	C
233	1	0	74.91	D
234	2	0	79.21	C
235	1	0	87.88	B
236	1	0	79.75	C
237	1	1	81.00	C
	School 5			
238	1	0	84.83	C
239	1	1	85.60	B
240	1	0	86.79	B
241	2	0	82.30	C
242	1	0	74.21	D
243	1	0	86.38	B

244	1	1	71.04	D
245	1	0	66.08	F
246	1	0	69.79	F
247	1	0	84.33	C
248	1	1	86.67	B
249	1	0	81.58	C
250	1	0	79.13	C
251	1	0	87.31	B
252	1	0	70.21	D
253	1	0	83.75	C
254	1	0	72.54	D
255	2	0	78.04	C
256	2	0	83.50	C
257	1	0	94.75	A
258	2	0	73.25	D
259	1	1	83.17	C
260	1	0	85.92	B
261	1	0	80.75	C
262	1	0	71.67	D
263	1	0	81.29	C
264	1	1	75.79	D
265	1	0	76.75	D
266	1	0	77.00	C

267	1	0	77.38	C
268	2	0	65.18	F
269	1	0	86.58	B
270	1	0	79.88	C
271	1	0	83.33	C
272	2	1	80.00	C
273	1	0	92.42	B
274	1	0	84.50	C
275	1	0	79.25	C
276	2	0	86.00	B
277	1	0	81.21	C
278	1	0	87.00	B
279	1	0	87.57	B
280	1	0	80.96	C
281	1	0	88.83	B
282	2	0	72.54	D
283	1	0	54.00	F
284	2	0	72.33	D
	School 6			
285	3	0	76.21	D
286	1	0	67.54	F
287	1	0	63.13	F
288	5	1	74.38	D

289	4	0	66.88	F
290	1	1	69.33	F
291	2	0	72.39	D
292	2	0	81.54	C
293	2	0	93.46	A
294	1	0	71.33	D
295	2	0	76.04	D
296	1	0	74.50	D
297	1	0	67.50	F
298	1	1	86.79	B
299	2	0	78.54	C
300	1	0	92.63	B
301	1	0	86.44	B
302	1	0	73.79	D
303	1	0	84.96	C
304	1	0	75.74	D
305	1	0	81.63	C
306	1	0	78.96	C
307	1	0	80.54	C
308	1	0	69.92	F
309	1	0	81.04	C
310	1	0	63.92	F
311	1	0	94.63	A

312	1	0	80.67	C
313	1	0	77.75	C
314	1	0	73.63	D
315	2	0	73.12	D
316	1	1	79.08	C
317	2	0	74.32	D
318	1	0	87.58	B
319	1	0	76.75	D
320	1	0	78.67	C
321	1	0	91.13	B
322	1	0	83.63	C
323	1	0	71.38	D
324	1	0	84.17	C
325	1	0	77.00	C
326	2	0	63.42	F
327	1	0	66.73	F
328	1	0	80.25	D
329	1	0	76.46	D
330	1	0	67.17	F
331	2	0	74.88	D
332	1	0	91.25	B
333	1	0	81.00	C
334	3	1	76.33	D

335	2	0	78.87	C
336	1	0	85.33	B
337	2	0	76.96	D
338	1	0	90.33	B
339	1	0	75.21	D
340	1	0	81.46	C
341	1	0	84.13	C
342	1	0	87.00	B
343	1	1	80.20	C
344	5	0	76.79	D
345	3	1	68.79	D
346	2	0	75.71	D
347	1	0	74.33	D
348	1	1	87.71	B
349	1	0	73.54	D
350	3	0	85.65	B
	School 7			
351	1	1	86.29	B
352	1	1	67.90	F
353	1	0	75.32	D
354	1	0	79.38	C
355	2	0	81.27	C
356	1	0	74.38	D

357	1	1	80.64	C
358	1	0	79.83	C
359	1	0	85.50	B
360	2	0	76.54	D
361	1	0	85.38	B
362	1	0	88.25	B
363	1	0	87.74	B
364	1	1	82.17	C
365	1	0	78.46	C
366	1	0	69.77	F
367	1	0	86.43	B
368	1	0	72.79	D
369	1	0	69.79	F
370	2	1	71.27	D
371	1	0	78.32	C
372	1	0	85.36	B
373	1	0	76.96	D
374	1	0	94.88	A
375	1	0	92.75	B
376	1	0	82.07	C
377	1	0	84.07	C
378	1	0	84.82	C
379	1	0	80.43	C

380	1	0	82.79	C
381	1	0	84.36	C
382	1	0	88.57	B
383	1	0	86.00	B
384	1	1	79.32	C
385	1	0	87.68	B
386	1	0	68.50	F
387	1	0	93.77	A
388	1	0	79.50	C
389	1	0	77.54	C
390	1	0	76.32	D
391	1	1	77.21	C
392	1	0	85.86	B
393	1	0	79.00	C
394	2	0	75.83	D
395	1	0	87.13	B
396	1	0	84.54	C
397	1	0	88.21	B
398	1	0	84.29	C
399	1	0	89.25	B
400	1	0	87.25	B
401	1	0	93.25	A
402	1	0	91.63	B

403	1	0	83.50	C
404	1	0	72.88	D
405	1	0	69.77	F
406	1	0	88.08	B
407	1	0	88.67	B