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The University of Southern Mississippi

SCHOOL, DISABILITY STATUS, AND DELINQUENCY: AN EXAMINATION OF
DELINQUENCY AMONG RURAL ADOLESCENTS

by

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A Thesis
Submitted to the Graduate School
of The University of Southern Mississippi
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ABSTRACT

SCHOOL, DISABILITY STATUS, AND DELINQUENCY: AN EXAMINATION OF DELINQUENCY AMONG RURAL ADOLESCENTS

by Miriam Yvonne Brooks

May 2014

Extensive research has been devoted to identifying risk-factors that contribute to the onset of juvenile delinquency. Furthermore, evidence has suggested that a disproportionate number of adolescents with learning disabilities are confined in juvenile correctional facilities. Yet, there is a substantial gap in empirical research that explores the possible relationship between learning disabilities and delinquent behavior. The purpose of the current study is to assess how specific learning disabilities relate to various forms of delinquent behavior among adolescents from rural high schools in a southern state. Specifically, this study aims to assess how Dyslexia, Dyscalculia, and Dysgraphia relate to drug use, property crime, violent crime, and victimization. Relevant policy implications and future research will be discussed.

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CHAPTER I

INTRODUCTION

Juvenile delinquency has received an extensive amount of attention in both academia and the general public. The increase in concern over juvenile delinquency was sparked during the 1980s when empirical research indicated that juvenile crimes were becoming increasingly frequent and serious (Morris & Morris, 2006). In recent years, researchers have attempted to identify specific risk factors that may increase the likelihood of delinquent behavior (Shader, 2003). Scholars suggest that the identification of risk factors associated with delinquency is crucial to develop appropriate prevention and intervention programs (Fagan, Van Horn, Hawkins, & Arthur, 2007; Loeber, 1990; Loeber & Farrington, 2000).

One of the most widely debated risk factors for delinquency is the presence of a learning disability. A discussion of a possible *link* between learning disabilities and delinquency arose when theorists recognized the important role that academic achievement and subsequent school failure contributed to the development of juvenile delinquency (Lane, 1980). Researchers have noted, however, that the concepts of learning disabilities, low academic achievement, and school failure are qualitatively distinct and contribute to delinquency in unique ways. As a result, the current thesis is devoted to exploring the relationship between learning disabilities and delinquency among a sample of adolescent youth in a southern state.

The concepts of school failure and academic achievement may have prompted learning disabilities to be brought to theorists' attention, but other factors have maintained this interest. For example, it has been widely accepted that a disproportionate

number of adolescents with disabilities are confined in juvenile correctional facilities (Larson, 1988; Morris & Morris, 2006; Morris & Thompson, 2008; Williams, 2005). Previous research has indicated that individuals with learning disabilities represent 14% to 70% of disabled youth in juvenile correctional facilities (Cortiella, 2011; Kirk & Reid, 2001; O'Brien, Langhinrichsen-Rohling, Shelley-Tremblay, 2007; Rutherford, Bullis, Anderson, & Griller-Clark, 2002; Wilgosh & Paitich, 1982). A recent, nationally representative study indicates that approximately one-third (30%) of incarcerated juveniles report being diagnosed with a learning disability (Sedlak & McPherson, 2010). Despite this variability in prevalence rates, these numbers are still much higher than the roughly 5% of public school students with specific learning disabilities (Cortiella, 2011). Considering the overrepresentation of youth with learning disabilities within juvenile correctional facilities, it becomes important to explore the possibility that these adolescents may be at an increased risk of delinquent behavior.

Over the past thirty years, empirical evidence has yielded mixed results regarding a significant association between delinquent behavior and the presence of a specific learning disability despite their overrepresentation in correctional facilities across the United States (Lane, 1980; Larson, 1988; Lombardo & Lombardo, 1991; Malmgren, Abbott, & Hawkins, 1999). To that end, the purpose of the current study is to further contribute to the literature on juvenile delinquency and learning disabilities by providing an in-depth analysis of the association between these two variables. Specifically, the current study will attempt to identify differences among adolescents with learning disabilities, adolescents with indicators of learning disabilities, and adolescents without learning disabilities in terms of delinquency, bullying, and victimization. The current

study will also account for additional factors that previous research has failed to consider when exploring the relationship between having a learning disability and greater participation in delinquency (e.g., demographics, depression, social skills deficits).

Statement of the Problem

Learning Disabilities

Understanding what exactly constitutes a learning disability is vital for researchers. The very definition of *disability* can often become a methodological issue in research design and operationalization. For example, discrepancy in prevalence rates of adolescents with learning disabilities in correctional facilities (14%-70%) can be attributed to considerable variation in how the term *learning disability* is defined and operationalized (Morris & Morris, 2006; Rutherford et al., 2002). There also has been inconsistency in the processes of identification and assessment of youth with learning disabilities within and between public schools and juvenile correctional facilities (Morris & Morris, 2006).

Morris and Morris (2006) suggest that the majority of juveniles within the United States are identified as having a learning disability under the criteria set forth in the federal special education law, Individuals with Disabilities Education Act (IDEA). On the other hand, some individuals are identified as having a learning disorder through DSM-V and various other techniques (American Psychiatric Association, 2013). Regarding IDEA, thirteen disabilities, including specific learning disabilities, are identified as being protected under the law. The definition of specific learning disability provided by IDEA is “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 calculations” (Individuals with Disabilities Education Act, 2004). The most commonly diagnosed learning disabilities include Dyslexia, Dyscalculia, Dysgraphia, Auditory or Visual Processing disorders, and Nonverbal Learning disorders (Cortiella, 2011; Woliver, 2009).¹ With that said, it is beyond the scope of the current study to address all of these learning disabilities; therefore, the disabilities that will be explored are Dyslexia, Dyscalculia, and Dysgraphia.

Despite variations in definitions, the term *learning disability* does not mean that an individual has a lower intelligence level (Lawrence, 2007; Woliver, 2009). In fact, Woliver (2009) concludes that adolescents with learning disabilities are typically of average or above average intelligence and struggle in one specific academic area. For example, an individual with a learning disability may read two grade levels below his peers, but that same individual can also perform two grade levels above his peers in another academic area (Osher, Quinn, Kendziora, & Woodruff, 2002). This distinction must be noted when conducting empirical research on learning disabilities and juvenile delinquency in order to avoid methodological flaws in research design and continued mixed findings.

Another factor that contributes to the intricacy of understanding learning disabilities is differences in manifestation. Woliver (2009) writes, “It might be said that no two learning disabled children are the same. There are numerous combinations of disorders, signs, and symptoms in children with learning disabilities and many children display manifestations that are unique to them” (p.264). The variation in manifestation of

¹ See Appendix A for a complete description of these specific learning disabilities.

learning disabilities can help explain why some youth with learning disabilities may not be properly diagnosed until later in life or may never be properly diagnosed.

The complex nature of learning disabilities has contributed to the majority of uncertainty surrounding these disorders. While it is known that learning disabilities are the result of a neurological disorder, the exact cause of the specific neurological disorder remains unclear (Cortiella, 2011). Generally, genetics has been considered to be a major factor in the development of learning disabilities. Other causal factors that have been suggested include environmental factors and factors that may occur during prenatal development (e.g., maternal tobacco/alcohol use, poor prenatal care, and poor nutrition) (Cortiella, 2011; Woliver, 2009).

The presence of a learning disability can produce multiple negative consequences for individuals, especially children. According to Groce (2004), many youth with disabilities will encounter prejudice, social isolation, stigma, and discrimination throughout their lives. More specifically, youth with learning disabilities may experience an increased susceptibility of rejection at school by both teachers and peers. Similarly, Woliver (2009) found youth with learning disabilities typically experience deficits that are easily perceived and misinterpreted by other individuals. For example, children with learning disabilities are more likely to be teased and bullied than their peers without a learning disability (Woliver, 2009).

A limited amount of empirical research has addressed adolescents with learning disabilities and bullying. Yet, evidence has suggested that children with learning disabilities are susceptible of being both perpetrators and victims of bullying (Estell et al., 2009; Kaukiainen et al., 2003). There have been several hypotheses offered to explain

why adolescents with learning disabilities may be more likely to bully and be bullied. Researchers have suggested that children with learning disabilities may become perpetrators of bullying due to such factors as feelings of frustration, aggression, and social vulnerability (Estell et al., 2009; Kaukiainen et al., 2002). Conversely, children with learning disabilities may become victims of bullying due to such factors as rejection by peers, social vulnerability, and poor social skills (Estell et al., 2009; Kaukiainen et al., 2002). Considering the negative and persisting effects bullying can have on an individual, additional research is needed to clarify experiences of bullying and being bullied as it applies to children with learning disabilities.

An additional negative consequence that adolescents with learning disabilities may experience in school is the possibility that behaviors related to their disability may be misinterpreted as misbehavior by their teachers (Woliver, 2009). This possibility is a particularly strong for youth with learning disabilities who have never been properly diagnosed. Previous research has also indicated that individuals with learning disabilities are more susceptible to feelings of frustration, low self-esteem, risk-taking behavior, school failure, and unemployment later in life (Lawrence, 2007; McNamara & Willoughby, 2010; Woliver, 2009). Considering these findings, adolescents with learning disabilities may become susceptible to participation in delinquent behavior in an attempt to alleviate feelings of frustration, rejection, or blockage of goals.

Juvenile Delinquency

As previously noted, juvenile delinquency is considered a social problem and can result in members of the public becoming consumed with the fear of violent juvenile crime. In fact, evidence has suggested that a disproportionate number of juveniles

participate in delinquent and criminal activities (Lawrence, 2007). According to the most recent official statistics, approximately 2 million youth were arrested in 2009 (Puzzanchera & Adams, 2011). Of these juvenile arrests, roughly 86,000 were for violent crimes, while an estimated 420,000 were for property crimes (Puzzanchera & Adams, 2011). Knoll and Sickmund (2011) estimate that in 2009, 59% of all petitioned juvenile court cases resulted in an adolescent being adjudicated as delinquent. Furthermore, juvenile court judges waived an estimated 7,600 delinquency cases to adult criminal court.

Consistent with the 2009 juvenile crime statistic, Lawrence (2007) suggests that crimes committed by youth are typically nonviolent in nature (e.g., property offenses). However, the media and public's attention is primarily devoted to violent juvenile crime. Tragic incidents such as school shootings often spark a moral panic among society by increasing the fear of the violent juvenile offender. During the late 1980s and early 1990s, empirical evidence revealed that juvenile violent crime increased to a historic high (Puzzanchera & Adams, 2011). This evidence, combined with the public's fear, prompted a movement away from rehabilitation to punishment. The subsequent Crime Control Era resulted in the creation of laws that significantly increased the number of juvenile delinquents entering the juvenile and adult justice systems (Bilchik, 1999; Puzzanchera & Adams, 2011). However, this movement appears to have been premature considering that juvenile violent crime arrest rates began to decrease in 1994 continued to fall until 2009. In 2009, juvenile arrest rates for almost every offense category, regardless of gender or ethnicity, were down.

The aforementioned statistics indicate that a number of juveniles are continuing to come into contact with the juvenile and criminal justice system. Furthermore, the treatment of these juveniles is not in accordance with the juvenile justice system's original purpose of protection and rehabilitation (Bilchik, 1999). To treat juveniles in a strictly punitive manner is an abandonment of the primary goal of the juvenile justice system. In order for the juvenile justice system to accomplish its original objective of rehabilitation, empirical research is needed. Such research is essential in providing information necessary to develop prevention and intervention programs for juvenile delinquents, especially among youth with disabilities. To that end, the identification of risk factors associated with delinquent behavior is vital to the creation of such models.

Exploring the "Link"

Three main explanations have been offered regarding the hypothesized association between learning disabilities and juvenile delinquency. These explanations are the susceptibility hypothesis, school failure hypothesis, and differential treatment hypothesis (Brier, 1989; Lane, 1980; Murray, 1976). The susceptibility hypothesis suggests that individuals with learning disabilities experience neurological and intellectual deficits such as impulsivity or poor judgment, which leads to uncontrollable antisocial behavior and delinquency (Brier, 1989; Larson, 1988; Lawrence, 2007). The school failure hypothesis argues, however, that children with learning disabilities experience a sequence of events including failure in school, rejection by peers and teachers, development of low self-image, and frustration (Brier, 1989; Larson, 1988; Lawrence, 2007). Initiated by school failure, this series of events leads individuals with learning disabilities to seek out delinquent peers to gain feelings of acceptance and

achievement. Finally, the differential treatment hypothesis suggests that youth with learning disabilities participate in the same rate of delinquency as youth without a learning disability; however, children with learning disabilities are more likely to be treated differently at every stage of the juvenile justice process, from arrest to adjudication (Brier, 1989; Larson, 1988). Additional criminological theories that can potentially explain the association between learning disabilities and delinquency include: Gottfredson and Hirschi's (1990) General Theory of Crime, Moffitt's (1993) Pathways in the Life Course to Crime, and Labeling Theory. Further discussion of these theories will be provided in Chapter II.

In general, previous research regarding learning disabilities and juvenile delinquency has offered mixed results due to significant methodological flaws (Brier, 1989; Larson, 1988; Lawrence, 2007). Grigorenko (2006) suggests that the variation among previous research can be explained by differences in sampling, assessment instruments, diagnosis criteria, and failure to control for other relevant factors (e.g., age, socioeconomic status, gender). Furthermore, previous research has primarily been restricted to the investigation of prevalence rates of adolescents with learning disabilities in custody, prevalence rates of learning disabilities among youth that exhibit antisocial behavior, prevalence rates of behavioral problems in children with disabilities, or comparative analyses of academic achievement among youth in custody and youth not in custody (Grigorenko, 2006). While establishing prevalence rates is important, there are many other questions and areas regarding learning disabilities and juvenile delinquency that should be further explored.

One important question that must be addressed is *why* youth with learning disabilities may be more likely to participate in delinquency and other risk-taking behaviors (McNamara & Willoughby, 2010). For example, investigation of adolescents' perceptions of individuals with learning disabilities, academic achievement, and their own intelligence level may be beneficial in understanding *why* children with learning disabilities might be at an increased risk of delinquent behavior. Thus, the application of theory is essential to properly identify specific factors that may increase a child's probability of participating in delinquent and risk-taking behaviors, especially among those with learning disabilities.

There is also a need for research to further explore the experiences of children who may have never been diagnosed with a learning disability, or who may have been misdiagnosed. This research is needed due to the negative consequences a child with a learning disability can experience if he or she does not receive proper intervention and services. Finally, there is a need for empirical research that addresses individual differences and experiences among youth with learning disabilities (e.g., bullying, victimization, receiving special education). These individual experiences among adolescents with learning disabilities are essential in understanding differences in perceptions, frustrations, and possibly, delinquent or risk-taking behaviors.

Purpose of the Study

The purpose of the current study is to contribute to the literature regarding the association between learning disabilities and juvenile delinquency. Specifically, the current study will attempt to answer the following three research questions:

1. What differences in delinquent behaviors exist among adolescents with a diagnosed learning disability, adolescents with indicators of a learning disability who have not been diagnosed, and adolescents without a learning disability?
2. What differences in bullying and victimization exist across these three groups?
3. Does a relationship between learning disabilities or indicators of learning disabilities and delinquency hold when controlling for relevant factors? (e.g. demographics, depression, social skills deficits)

To address these research questions high school students, grades 9th through 12th, will be recruited to complete a self-administered survey concerning disability status, delinquent behavior, bullying, victimization, and additional relevant factors. Specifically, participants for the current study will be selected from a sampling frame of three rural high schools varying in size in a southern state. Specific details regarding the sample for the study will be provided in Chapter III.

The present study will build upon previous research of learning disabilities and juvenile delinquency in a number of ways. First, the study will be one of the most comprehensive studies conducted to date on rural adolescents with learning disabilities and their involvement in delinquency. Second, a vast array of delinquent behaviors will be measured that have not previously been explored among rural adolescents (e.g., property offenses, violent offenses, drug offenses, sexting). In addition to delinquency, this study will address the dependent variables of bullying and victimization to better understand overall experiences of adolescents with learning disabilities. Third, this study

will not only include diagnosis of learning disabilities, but also indicators of specific learning disabilities, which will allow the researcher to examine differences that may exist among adolescents with learning disabilities, adolescents with indicators of learning disabilities but who have not been diagnosed, and adolescents without learning disabilities. Finally, this study will also account for additional factors relevant to learning disabilities and delinquency (e.g., demographics depression, social skills deficits).

The current research is divided into four additional chapters with each representing a different stage of the study. Chapter II will provide an extensive review of the relevant literature concerning learning disabilities and juvenile delinquency along with a more detailed discussion of the criminological theoretical perspectives that have been used to examine this relationship of interest. In Chapter III, the methodology for the study will be explained in detail as well as the statistical analysis techniques to be used. Chapter IV will review the findings of this study, and Chapter V will provide a discussion of the findings, limitations related to the study, related policy implications, and suggestions for future research.

CHAPTER II

REVIEW OF THE LITERATURE

Historically, individuals with disabilities have been stigmatized and overlooked by both the general public and empirical research. The very term *disability* has often been value-laden with negative perceptions regarding the individual and his or her family (Williams, 2005). According to Barnes, Mercer, and Shakespeare (1999), individuals with disabilities often have been met with pity, indifference, rejection, and hostility. Furthermore, early empirical research failed to address the distinct experiences, risks, and service needs a disability could produce for an individual. It was not until the 1970s that disabilities began to be viewed as an issue that affected a substantial percentage of the population, and a political movement was generated to reduce societal prejudice of disabilities (Barns et al., 1999). Also, during this time period that scholars began to explore more thoroughly the consequences that disabilities could produce for individuals, especially children.

Thus, existing research led many to think that one potential consequence of having a disability was increased participation in delinquency. This participation was reflected in statistics that showed a disproportionate number of adolescents in juvenile correctional facilities were classified as having a disability (Brier, 1989; Lane, 1980; Larson, 1988). The same researched indicated that the most prevalent disability found among delinquent populations was learning disabilities (Brier, 1989; Lane, 1980; Larson, 1988). According to Malmgren et al. (1999), attention was directed to specifically exploring learning disabilities in relation to delinquency when practitioners working with juvenile delinquents observed that the adolescents experienced difficulties learning in

normal classroom settings. This discovery was followed by a body of research indicating that youth with learning disabilities may be at an increased risk of juvenile delinquency. However, literature produced over the last thirty years has often yielded inconsistent and mixed results regarding the relationship between these two variables. Thus, there is a need for further research that contributes to an understanding of the association between learning disabilities and juvenile delinquency, while also addressing limitations of previous literature.

In order to establish the gaps in the existing literature and the need for further research, this literature review will be threefold. First, a theoretical framework for explaining the association between learning disabilities and delinquent behavior will be discussed. Second, a brief overview of the deficits and negative consequences children with learning disabilities can experience will be offered. Particular attention will be given to the process of how factors associated with learning disabilities relate to delinquency. Third, a close examination of the literature regarding the relationship between learning disabilities and juvenile delinquency will be provided. Specifically, the researcher will address the association between learning disabilities and delinquency in terms of violent crime, property crime, drug use, victimization, prevalence rates, and contact with the juvenile justice system.

Theoretical Framework

A General Theory of Crime

Several criminological theories offer an explanation for the association between learning disabilities and juvenile delinquency. Gottfredson and Hirschi's General Theory of Crime (1990) is founded on the primary premise that low self-control contributes to

higher rates of criminal behavior and acts analogous to crime (Cullen & Agnew, 2010). Gottfredson and Hirschi focus on events in early childhood by suggesting that parents' failure to teach a child that misbehaviors have consequences results in the child's subsequent failure to develop self-control (Cullen & Agnew, 2010; Vold, Bernard, & Snipes, 2002). Children who fail to develop self-control will tend to be impulsive, insensitive, physical, risk-takers, short-sighted, and nonverbal. Furthermore, Gottfredson and Hirschi conclude that ordinary crimes require few skills, offering individuals immediate gratification with few long-term benefits (Vold et al., 2002). Thus, individuals with low self-control will be drawn to such behaviors. Gottfredson and Hirschi also applied their theory to juvenile delinquency by suggesting that adolescents with low self-control will be drawn to other peers with low self-control. Moreover, adolescents with low self-control may not perform well in school and thus, will either dropout or avoid the school setting (Vold et al., 2002).

Gottfredson and Hirschi's General Theory of Crime could possibly offer an explanation as to why adolescents with learning disabilities may be more susceptible to participate in delinquency. For example, research has indicated that impulsivity and risk-taking behaviors are common among youth with learning disabilities (Brier, 1989; Brier, 1994; McNamara and Willoughby, 2010; Robinson & Rapport, 1999; Woliver, 2009). Such risky behaviors could be interpreted as low self-control within individuals with learning disabilities. However, empirical evidence has suggested that deficits resulting from the adolescent's neurological disorder can contribute to such behaviors (Cortiella, 2011; Woliver, 2009). Furthermore, the effects of this neurological disorder will remain throughout an individual's life (Osher et al. 2002). In contrast, Gottfredson and Hirschi

suggest that low self-control has the potential to be avoided until the age of eight through the use of appropriate punishment (Vold et al., 2002). A concern about applying Gottfredson and Hirschi's theory to learning disabilities and delinquency would be the lack of consideration for the neurological component of learning disabilities.

Specifically, Gottfredson and Hirschi emphasize socialization when describing the development of low self-control and subsequent delinquent behavior. Yet, when considering individuals with learning disabilities, it is necessary to also consider the biological component of their disability.

Pathways in the Life Course to Crime

A second theory that could possibly explain the association between having a learning disability and participation in delinquency is Moffitt's (1993) developmental theory of crime. Moffitt concluded that there are two specific categories of juveniles that engage in antisocial behavior (Cullen & Agnew, 2010; Vold et al., 2002). First, there is a group of juveniles that engage in high rates of antisocial behavior throughout the majority of their lives (i.e., life-course-persistent offenders). Second, there is a much larger group of juveniles whose engagement in antisocial behavior is limited to their adolescent years (i.e., adolescence-limited offenders). Furthermore, Moffitt argues that biological, psychological, and sociological variables interact to create different developmental or life-course pathways that can explain persisting antisocial behavior (Cullen & Agnew, 2010; Vold et al., 2002). Moffitt's explanations of developmental pathways of persisting offenders demonstrate the mutual interaction between individual traits and social environment (Cullen & Agnew, 2010). For example, negative environments intensify

negative individual traits, while negative individual traits increase susceptibility to negative environments (Cullen & Agnew, 2010).

In examining the association between learning disabilities and delinquency, Moffitt's theory would emphasize the neurological component of learning disabilities. For example, neuropsychological deficits producing impairments in reading, attention, problem solving, language, and impulsivity are often found within adolescents with learning disabilities (Brier, 1989; Osher et al., 2002; Rutherford et al., 2002; Woliver, 2009). Furthermore, research has suggested that such negative deficits evoke negative responses from schools and the juvenile justice system (Leone, Zaremba, Chapin, & Iseli, 1995; Shelton, 2006; Woliver, 2009). Moffitt's theory suggests that neurological disorders such as learning disabilities lead to increased impulsivity and the inability to think of future consequences of behavior (Vold et al., 2002). Thus, negative deficits resulting from a neurological disorder may increase the probability of persistent offending in adolescents with learning disabilities (Vold et al., 2002).

Labeling Theory

The final theory that will be addressed as an explanation for a relationship between learning disabilities and juvenile delinquency is Labeling Theory (Tannenbaum, 1938). The roots of Labeling Theory are grounded within symbolic interactionism. Specifically, the way in which an individual views himself is constructed primarily through social interactions with others (Vold et al., 2002). Frank Tannenbaum (1938) originally used this concept to lay the foundation for what Labeling Theory is today. Tannenbaum suggested that the process in which society identifies and segregates an individual as *criminal* contributes to the probability that such behavior will continue

(Lawrence, 2007; Vold et al., 2002). In other words, the act of identifying an individual as *deviant* or *criminal* produces a self-fulfilling prophecy. Lemert (1951) further contributed to labeling theory by adding the terms *primary deviance* and *secondary deviance*. Primary deviance is described as the original behavior of the individual being labeled and secondary deviance is described as the result of society's reaction to that behavior (Lawrence, 2007; Vold et al., 2002). Specifically, the reaction from society will eventually lead to the individual's incorporation of the negative definition as part of his or her identity. In 1963 Howard Becker expanded upon Labeling Theory by suggesting that once a criminal label is applied to an individual, it will dominate all other labels (Vold et al., 2002). In other words, once an individual is labeled by society, he or she will primarily be viewed in terms of that label and the stereotypes attached. Due to the deviant label that is given to them, individuals will seek out others labeled as deviant and display behaviors consistent with their new identity (Lawrence, 2007; Vold et al., 2002).

Labeling Theory offers a significant explanation for the association between learning disabilities and delinquency. Research has indicated that characteristics of learning disabilities are often misinterpreted by others as hostility, dangerousness, and misconduct (Cortiella, 2011; Leone et al., 1995; Shelton, 2006; Woliver, 2009). Labeling Theory would suggest that adolescents with disabilities are labeled in negative terms by society due to misconceptions regarding their disability, which can lead to the adaption of that label into the adolescents' new self-identity (e.g., dumb, stupid, slow, not smart). Furthermore, labeling theory can also be related to the social model of disability theory. The social model argues that the term *disability* is a social construct used to stigmatize individuals (Barnes, Mercer, & Shakespeare, 1999). Thus, a possible explanation for a

relationship between learning disabilities and delinquent behaviors is the negative stigma that society places onto these children. The end results of such stigma could be very harmful for children with learning disabilities, such as being cycled through the juvenile justice system without hope of appropriate treatments and services.

A question posed by Shelton (2006) addresses the importance of reflection upon how society responds to children with learning disabilities. She writes, “The question becomes one of whether we, as a society, will treat or incarcerate children who have behavioral problems as well as learning disabilities” (Shelton, 2006, p. 41). Children with learning disabilities may experience a number of deficits that can contribute to problem behaviors such as delinquency. Furthermore, society has a tendency to label problem behaviors as individualistic, which leads to the punishment of such behaviors. To avoid inappropriate responses to adolescents with learning disabilities, empirical research is needed to provide an in-depth evaluation of the association between learning disabilities and delinquency. The first step in addressing this association is an understanding of the deficits children with learning disabilities can experience.

Learning Disability Deficits

A general explanation of what constitutes a learning disability includes difficulties in the attainment and use of spoken and written language, which contributes to challenges in listening, speaking, reading, writing, reasoning, and mathematical capabilities (Osher et al., 2002; Rutherford et al., 2002). The complexity in which learning disabilities manifest in individuals often contributes to dissimilarities in the severity of deficits experienced. For example, learning disabilities can emerge with numerous combinations of disorders, signs, and symptoms (Woliver, 2009). Thus,

adolescents with learning disabilities may experience manifestations that are entirely individualistic (Woliver, 2009). However, the one factor that is constant for all individuals with a learning disability is that it will affect them throughout their lives. A learning disability is a life-long condition that an adolescent will not *outgrow* (Osher et al., 2002). In order to overcome the challenges of a learning disability an adolescent must learn appropriate coping skills that build upon his or her individual strengths (Osher et al., 2002).

With that said, deficits of learning disabilities can have a number of negative consequences for children. Empirical research has suggested that youth with learning disabilities experience a high probability of deficits in attention, impulsivity, comprehension, social perceptions, and social relationships than individuals without learning disabilities (Brier, 1989; Brier, 1994; Robinson & Rapport 1999; Woliver, 2009). For example, children with learning disabilities may have trouble understanding social cues and interpreting others' feelings, which leads to awkward social interactions (Osher et al., 2002; Woliver, 2009). It is clear that children with learning disabilities have many barriers to overcome. Such barriers can leave adolescents with learning disabilities susceptible to feelings of inferiority, frustration, and low self-esteem (Cortiella, 2011; Kirk & Reid, 2001; Osher et al., 2002; Woliver, 2009). Specifically, low self-esteem in children with learning disabilities is often related to insecurities regarding the use of problem solving skills to respond appropriately in certain situations and to make correct choices (Osher et al., 2002).

To that end, children with disabilities often feel that they lack control over situations, which can lead to feelings of frustration (Osher et al., 2002; Woliver, 2009).

According to Pihl and McLarnon (1984), these social, behavioral, personal, and emotional deficits often persist into adulthood for individuals. In relation to such conclusions, scholars have stressed the importance of addressing both cognitive and social deficits of learning disabilities to properly identify children and provide appropriate interventions (Bender & Wall, 1994; Hale, 2010). It is vital that children with learning disabilities receive appropriate interventions and treatment services to combat the negative effects of deficits. Specifically, early intervention is needed to help children with learning disabilities gain and maintain skills that may otherwise be lost (Woliver, 2009). However, issues arise when an adolescent with a learning disability is not properly diagnosed or misdiagnosed. Woliver (2009) argues that children with learning disabilities who are undiagnosed or misdiagnosed are even less likely to receive appropriate services, which results in continued difficulties socially and psychologically. If youth with learning disabilities do not receive proper interventions, then such social and psychological difficulties may increase their susceptibility of engaging in problem behaviors.

Problem Behaviors and Delinquency

Extant research has explored the social and emotional development of individuals with learning disabilities. Such research has indicated that adolescents with learning disabilities significantly differ from their peers without learning disabilities in displaying lower levels of social and emotional abilities as well as higher levels of externalizing and internalizing problem behaviors (Bender & Wall, 1994; Greenham, 1999; Gresham & MacMillan, 1997). Examples of internalizing problem behaviors are feelings of loneliness, depression, and anxiety. Furthermore, adolescents with learning disabilities

who display externalizing problem behaviors may exhibit various forms of misconduct and maladaptive behavior such as fighting (Bender & Wall, 1994; Greenham, 1999).

In order to understand the internalizing and externalizing behaviors of youth with learning disabilities, the emotional well-being of these children should be considered. Svetaz, Ireland, and Blum (2000) conducted a study ($n = 16,340$) to compare occurrences of emotional distress among a nationally representative sample of adolescents with ($n = 1,603$) and without learning disabilities. The authors found that youth with learning disabilities were more likely to report severe emotional distress, suicide attempts, and violent behavior than youth without learning disabilities. Specifically, the results indicated that the presence of a learning disability was associated with nearly double the odds of emotional distress. Adolescents with learning disabilities experiencing emotional distress were eight times more likely to report suicide attempts and five times more likely to report violent behavior than peers not experiencing emotional distress. Another finding indicated that adolescents with learning disabilities were more likely to report incidents of getting in trouble at school and grade retention than their peers without learning disabilities. Both of these factors were associated with an increased risk of emotional distress, suicide attempts, and involvement in violence.

With that said, the empirical evidence appears to support the conclusion that children with learning disabilities are at an increased risk of negative emotional and behavioral problems, which can lead to disciplinary action at school. Disciplinary action is particularly likely if school administrators and teachers fail to associate certain behaviors with the student's disability and instead interpret them as signs of hostility (Shelton, 2006; Woliver, 2009). Scholars have suggested that incidents of misdiagnosis,

never being diagnosed, and lack of proper intervention can amplify occurrences of problem behaviors and disciplinary actions for children with learning disabilities (Kirk & Reid, 2001; Woliver, 2009). In fact, a recent report released by the National Center for Learning Disabilities (NCLD) suggests that in the 2008-2009 school year, students with learning disabilities accounted for 52% of all students with disabilities that were expelled or suspended from school (Cortiella, 2011). More than 600,000 (24%) of all students identified with a learning disability had received some form of disciplinary action in school.

A concern of such disciplinary action is that it often restricts access to education and supportive interventions that are essential for adolescents with learning disabilities. If students with learning disabilities do not receive proper interventions and support, then problem behaviors will most likely continue and possibly be exacerbated to the point of delinquency. Kirk and Reid (2001) theorized that youth with learning disabilities who are not properly diagnosed or who do not receive sufficient support and intervention can experience low self-esteem due to feelings of being devalued at school. Thus, such youth may turn to deviant behavior in an attempt to gain some form of recognition (Kirk & Reid, 2001).

When evaluating a potential relationship between learning disabilities and delinquency, scholars have often emphasized a number of similarities between juveniles with learning disabilities and juvenile delinquents. For example, factors such as low academic achievement, social skills deficits, lower verbal IQ, grade retention, school failure, dropout, impulsivity, and low self-esteem have been proposed as common occurrences among both juvenile delinquents and juveniles with learning disabilities

(Brier, 1989; Brier, 1994; Foley, 2001; Grigorenko, 2006; Keith & McCray, 2002; Lane, 1980; Larson, 1988; Meltzer et al., 1984; Pihl & McLarnon, 1984; Robinson & Rapport, 1999). A study conducted by Schumaker, Hazel, Sherman, and Sheldon (1982) analyzed similarities and differences in social skills among juveniles with learning disabilities, juveniles without learning disabilities, and juvenile delinquents. The researchers concluded that youth without learning disabilities displayed superior social skills than youth with learning disabilities and delinquent youth. Furthermore, Schumaker and colleagues (1982) concluded that youth with learning disabilities performed similar to delinquent youth on seven of the eight general social skills examined. However, the results of the study also indicated that in regards to social skills, adolescents with learning disabilities were not a homogeneous group. An explanation for this finding could be the variation in deficits that many youth with learning disabilities display. Thus, some children with learning disabilities may exhibit significant deficits in social skills, while others may only exhibit minor deficits.

Other common factors that have been presented as similarities between youth with learning disabilities and delinquent youth are low academic achievement and school failure. According to Cortiella (2011), almost half of students with learning disabilities test more than three grade levels behind peers without learning disabilities in the areas of math and reading by the time they reach high school. Furthermore, in 2009 adolescents with learning disabilities had one of the highest dropout rates (22%) of all students with disabilities. In regards to juvenile delinquency, scholars have suggested that the majority of delinquent youth display significant deficits in multiple academic areas, histories of grade retention, and incidents of dropout (Foley, 2001; Geib, Chapman, D'Amaddio, &

Grigorenko, 2006; Grigorenko, 2006; Meltzer et al., 1984; Sweeten, Bushway, & Paternoster, 2009). However, while similar experiences in school may be found between the two groups, the terms of *low academic achievement* and *specific learning disability* are not synonymous and must be addressed as distinct concepts. For example, low academic achievement may be caused by a number of possible factors other than a learning disability (e.g. not studying, sleeping in class, skipping class). According to Hale (2010), experts who have published extensively on specific learning disabilities agreed that low academic achievement alone does not indicate the presence of a learning disability. Thus, research evaluating a possible relationship between learning disabilities and juvenile delinquency should avoid relying exclusively on one particular factor such as low academic achievement as an explanation.

The Association between Learning Disabilities and Juvenile Delinquency

The evaluation of a relationship between learning disabilities and juvenile delinquency has often generated significant debate. This debate is primarily due to mixed results regarding the association. Variation among findings is most likely due to methodological issues such as differences in how the term *learning disability* is defined and operationalized. Lombardo and Lombardo (1991) criticized early studies evaluating the relationship between learning disabilities and juvenile delinquency for emphasizing an imaginary link when in fact no empirical evidence supported a cause-and-effect relationship. Furthermore, Lombardo and Lombardo (1991) suggested that methodological issues of previous research included the following: poor sampling techniques, lack of a consistent definition for learning disabilities, and failure to distinguish between correlation research versus cause-and-effect research. In relation to

this critic, Malmgren et al. (1999) conducted a seven-year longitudinal study to evaluate incidents of self-reported and official delinquency among youth with and without learning disabilities. The results of the study suggested that once gender, socioeconomic status, and ethnicity were controlled for, there was no significant direct relationship between learning disabilities and delinquency. Malmgren and associates (1999) suggested that further research was needed to explore earlier research conclusions that learning disabilities were one of the more important *causes* of delinquency. Thus, research should focus on exploring and explaining the possible association between learning disabilities and delinquency instead of attempting to establish a causal relationship.

With that said, a recent study by McNamara and Willoughby (2010) addressed the association between learning disabilities and delinquency by comparing risk-taking behaviors among students with and without learning disabilities (n = 614). The results of the study indicated that adolescents with learning disabilities reported more frequent engagement in certain risk-taking behaviors and acts of delinquency than adolescents without learning disabilities. Furthermore, students with learning disabilities were also more likely to increase their involvement in these behaviors over time. McNamara and Willoughby (2010) concluded that the complexity of interpersonal and intrapersonal variables that individuals with learning disabilities experience may explain why these youth are more likely to engage in risk-taking behaviors and delinquency. Additionally, a study by Chen, Symons, and Reynolds (2011) found that children with learning disabilities were more likely to exhibit behavioral deficits and persisting delinquency into young adulthood than peers without learning disabilities. Chen and associates (2011)

concluded that the presence of a disability alone was a risk factor that could predict juvenile delinquency and adult arrest. Considering these conclusions, it is evident that there is still a need to further investigate the association between learning disabilities and juvenile delinquency. Such research is necessary in understanding both the needs of adolescents with learning disabilities in general and adolescents with learning disabilities confined in juvenile correctional facilities. A vital step in addressing the association between learning disabilities and delinquency is to explore the type of offenses youth are committing (e.g., violent offenses, property offense, drug offenses).

Violent Crime and Property Crime

Extant research has addressed the pattern of offenses committed by adolescents with learning disabilities (Bullis & Yovanoff, 2005; Lang & Kahn, 1986; McNamara & Willoughby, 2010; Shelton, 2006; Svetaz et al., 2000), but this research has produced mixed results. For example, Shelton (2006) found similar criminal histories between juvenile delinquents with and without learning disabilities, with 60% of both groups more likely to have committed violent offenses as compared to property offenses. Conversely, Bullis and Yovanoff (2005) found that juvenile delinquents with disabilities were significantly more likely to have been adjudicated for violent crime than property crime. Since the researchers did not distinguish between specific categories of disabilities, interpreting the implications of this finding of the study for adolescents with learning disabilities is problematic. In addition, this study was conducted among a sample of juvenile delinquents; there was no control group. Thus, these same questions need to be asked of children with learning disabilities among a community-based sample such as school children.

With that said, Lang and Kahn (1986) interviewed special education teachers in order to determine their perceptions of victimization, property crimes, and violent crimes among a sample of students with learning disabilities, mental retardation, and behavior-disorders. The results of this study found that special education teachers reported higher estimates of property crime than violent crime for students with disabilities. Furthermore, the teachers' estimates of students' participation in violent and property crime were not significantly different across specific categories of disabilities (Lang & Kahn, 1986). Yet, this study was limited by a significantly small sample of children with learning disabilities (n = 17) and by restricting estimates of students' delinquent behaviors to teachers' perceptions.

Conversely, a study by Svetaz and colleagues (2000) interviewed a large sample of students both with and without learning disabilities. This study provided evidence that children with learning disabilities were significantly different from peers without learning disabilities in terms of violence involvement. Specifically, Svetaz and associates (2000) revealed that students with learning disabilities, particularly females, were approximately two times more likely to report involvement in violence than peers without learning disabilities. Furthermore, the researchers found that children with learning disabilities who had been a victim or witness to a violent act were roughly 80 times more likely to participate in violence. Similarly, McNamara and Willoughby (2010) found evidence that adolescents with learning disabilities were more likely to be involved in violent behaviors such as acts of direct aggression, gang involvement, and carrying a gun or knife as a weapon, than peers without learning disabilities. However, the study also found that students with learning disabilities were more likely to report committing minor

property offenses than students without learning disabilities. Thus, it appears that patterns of both property crime and violent crime are alarming issues among children with learning disabilities and in need of further examination.

Substance Abuse

Another important aspect of research regarding adolescents with learning disabilities is their engagement in substance abuse. Yet, there is a substantial lack of literature within this area. According to Cosden (2001), many of the risk factors associated with substance abuse have also been linked to learning disabilities (e.g., low self-esteem, behavioral problems, experiences of school failure). A study by Maag, Irvin, Reid, and Vasa (1994) compared substance use patterns of tobacco, alcohol, and marijuana among adolescents with and without learning disabilities. The results of the study indicated that adolescents with learning disabilities had higher rates of both tobacco and marijuana use than peers without learning disabilities. Furthermore, Maag and associates (1994) concluded that psychosocial variables such as self-esteem were not predictors of substance use.

McNamara and Willoughby (2010) also found higher rates of tobacco and marijuana use among youth with learning disabilities than youth without learning disabilities. Additionally, the study found that youth with learning disabilities indicated higher rates of cocaine, stimulants, depressants, narcotics, hallucinogens, and ecstasy than peers without learning disabilities. Equally concerning, Yu, Buka, Fitmaurice, and McCormick (2006) analyzed treatment outcomes for chemically dependent adolescents with and without learning disabilities and found evidence of more negative outcomes for adolescents with learning disabilities. Specifically, youth with learning disabilities were

two times more likely to reuse substances after treatment than youth without learning disabilities.

With that said, it appears that adolescents with learning disabilities may be at a higher risk for substance abuse than peers without learning disabilities. Yet, the research regarding this area is scant and often only examines limited and relatively minor forms of substance use. For example, one particular area of substance use that has not been examined in terms of adolescents with learning disabilities is the misuse of prescription drugs. Such limitations of empirical research must be addressed in order to understand the risks and patterns of substance abuse among these adolescents. Thus, the current study will examine shortcomings of previous literature by addressing substance abuse in a more expansive manner.

Victimization

The final area of research that will be addressed in the current study is victimization among adolescents with learning disabilities. Much of the research on victimization of children with disabilities has focused on the issue of bullying (Woliver, 2009). According to Mishna (2003), bullying is a type of aggression where there is a power imbalance between the perpetrator and the victim. Youth with learning disabilities may be more susceptible to this power imbalance in school due to various factors associated with learning disabilities (e.g., low socioeconomic status, low self-esteem, social skill deficits). Yet, scant research has specifically addressed incidences bullying and children with learning disabilities. Such research is important considering that bullying has become one of the most highly recognized and serious forms of victimization within schools (Lawrence, 2007). The seriousness of bullying is primarily

due to the long-lasting and serious effects it can have on children, both emotionally and physically.

With that said, the limited empirical evidence that is available seems to indicate that adolescents with learning disabilities are vulnerable to bullying, both perpetration and victimization (Estell et al., 2009; Kaukiainen et al., 2002; Mishna, 2003). Estell and colleagues (2009) examined teacher and student perceptions to determine bullying and victimization in terms of special education status. The results of this study indicated that teachers were more likely to report students with disabilities as being both victims and perpetrators of bullying. Peers were more likely to report students with disabilities as being the perpetrators of bullying. Conversely, White and Loeber (2008) found that special education status and poor academic status did not predict the susceptibility of being bullied or to bullying. A limitation of the aforementioned studies is the failure to distinguish between types of disabilities. Thus, it becomes difficult to interpret the applicableness of findings to adolescents with learning disabilities.

It has been suggested that factors such as frustration, aggression, social vulnerability, rejection by peers, and poor social skills may contribute to explanation of bullying perpetration and victimization among youth with learning disabilities (Estell et al., 2009; Kaukiainen et al., 2002). Yet, considering the scant of research regarding learning disabilities and bullying, there is a need for further research to determine the strength and nature of the possible association between learning disabilities and bullying (Mishna, 2003). The current study will attempt to contribute further to this literature by examining perpetration and victimization of bullying among adolescents with learning disabilities.

Prevalence Rates

Extant research appears to support the conclusion that adolescents with learning disabilities experience multiple factors that may increase their susceptibility of delinquent behavior and subsequent contact with the juvenile justice system. In fact, this conclusion could explain findings of empirical research that suggests youth with learning disabilities are overrepresented in juvenile correctional facilities (Cortiella, 2011; Kirk & Reid, 2001; Sedlak & McPherson, 2010). However, prevalence rates of juvenile delinquents with learning disabilities are subject to considerable variation. Specifically, the lack of a consistent definition regarding learning disabilities contributes to difficulties comparing findings among studies (Grigorenko, 2006; Morris & Morris, 2006). Until a consistent definition is established, such variations will most likely continue.

Quinn, Osher, Poirier, Rutherford, and Leone (2005) conducted a national survey of juvenile justice state agencies to determine the prevalence of adolescents with disabilities within juvenile correctional facilities (n = 29). The results of the study indicated that the average prevalence rate of youth with disabilities among states was 33.4%. However, the range of prevalence rates among states ranged from 9.1% to 77.5%. Learning disabilities were the second most prevalent classification (38.6%) found within juvenile correctional facilities. A limitation of this study was the lack of verification regarding states' methods of identifying and classifying juveniles with disabilities. Morris and Morris (2006) suggest that considering the differences in definitions and identification processes, it is possible for an adolescent to be diagnosed differently across states. Thus, it is possible that the actual number of adolescents with learning disabilities could be much higher than the numbers reported in this study.

To that end, similar studies to Quinn and associates (2005) have found significant variation in prevalence rates of adolescents with learning disabilities in specific juvenile facilities (Baltodano, Harris, & Rutherford; 2005; Bullis & Yovanoff, 2005; O'Brien et al., 2007; Sanger, Moore-Brown, Magnuson, & Svoboda, 2001; Shelton, 2006). For example, Bullis and Yovanoff (2005) found that almost half (57.7%) of their sample had a special education disability. Furthermore, juveniles with learning disabilities accounted for almost a quarter (22.4%) of disabilities found within the sample. Shelton (2006) also found a high prevalence (38%) of adolescents with learning disabilities among juvenile delinquents. The diagnostic method used to identify learning disabilities in this study was the DSM-IV. However, this study also combined classifications of reading disorders (76%) and expressive language disorders (4%) with classifications of mild mental retardation (20%) to compose the learning disability group. According to IDEA, the term *specific learning disability* does not include mental retardation (Cortiella, 2011). Thus, these studies provide examples of the issues that can arise when inconsistent definitions are used to classify a learning disability.

Contact with the Juvenile Justice System

Despite variation in prevalence rates and definition concerns, previous research supports the conclusion that a large number of youth with learning disabilities are coming into contact with the juvenile justice system. This official contact can have a number of implications for both children with learning disabilities and the juvenile justice system. For example, Leone et al. (1995) suggest that when an adolescent with a learning disability comes into contact with law enforcement and juvenile courts, characteristics of the child's disability may be misinterpreted or misunderstood as signs of dangerousness.

This misinterpretation increases the probability that the adolescent will be placed in a detention center or correctional facility as opposed to a less restrictive alternative (Leone et al., 1995).

With that said, another implication of official contact with the juvenile justice system is the availability of mandated educational services for children with learning disabilities in juvenile correctional facilities. The Individuals with Disabilities Education Improvement Act (IDEA) requires under federal law that all youth, regardless of their status as public education students or incarcerated students, be guaranteed the right to special education services that are individualized to their specific needs (Gagnon, Barber, Van Loan, & Leone, 2009; Morris & Thompson, 2008; Robinson & Rapport, 1999). Furthermore, proper educational services have been described as essential in promoting successful transitions back into the community for juvenile delinquents with learning disabilities and in ensuring that they do not fall further behind academically (Foley, 2001; Morris & Morris, 2006). However, extant research has indicated that special education services within juvenile correctional facilities are inadequate due to factors such as lack of personnel's awareness regarding disabilities, safety and security issues, inappropriate or insufficient identification processes, and lack of appropriate assessment systems (Grigorenko, 2006; Morris & Morris, 2006; Morris & Thompson, 2008; Robinson & Rapport, 1999; Williams, 2005). Equally concerning, empirical evidence has suggested that recidivism rates are significantly higher for adolescents with disabilities than adolescents without disabilities (Keith & McCray, 2002; Zhang, Barrett, Katsiyannis, & Yoon, 2010; Zhang, Yuan, Katsiyannis, Barrett, & Ju, 2011). It is possible that such patterns of recidivism could partially be related to the lack of services provided to youth

with disabilities by the juvenile justice system (Grigorenko, 2006). A study conducted by Shelton (2006) concluded that only a small portion (20%) of juveniles with learning disabilities received appropriate treatment services. Furthermore, the availability of treatment services decreased with each recidivism incident. Thus, it appears that contact with the juvenile justice system can produce very grim outcomes for youth with learning disabilities

Summary and Limitations of Previous Research

Two conclusions can be made from the literature addressed in this chapter. First, adolescents with learning disabilities experience various forms of deficits and problem behaviors that could result in subsequent delinquent behavior. Second, when adolescents with learning disabilities are not properly identified or provided appropriate services, the characteristics of their disability may be misunderstood or misinterpreted by practitioners in schools and the juvenile justice system. Specifically, the complexity of learning disabilities may contribute to schools and the juvenile justice system experiencing difficulties properly identifying and responding to these juveniles when they display problem behaviors such as delinquency. To elevate such difficulties, a holistic understanding of the relationship between learning disabilities and delinquency is necessary. Thus, the limitations of previous research must be addressed to provide an in-depth exploration of the association these two variables.

Limitations of Previous Research

There are a number of limitations within previous literature regarding learning disabilities and juvenile delinquency that are as follows: inconsistent definitions of learning disabilities, sampling limitations, failure to account for additional relevant

factors, and lack of attention to certain behaviors (e.g., bullying, victimization, prescription drug use, sexting). First, the lack of a consistent definition of *learning disabilities* has yielded significant variation in findings regarding learning disabilities and delinquency, contributing to continued uncertainty regarding the association between the two variables. Second, the majority of research has collected samples from either delinquent populations or special education populations and neglected to examine a community-based, school samples (Baltodano et al., 2005; Bullis & Yovanoff, 2005; Estell et al., 2009; Lang & Kahn, 1986; Malmgren et al., 1999; O'Brien et al., 2007; White & Loeber, 2008). A concern of using such sampling techniques is the differences in identification and assessment that exists between schools and juvenile correctional facilities (Morris & Morris, 2006). For example, limiting samples to delinquent or special education populations could result in the inclusion of youth incorrectly identified as having a learning disability or the exclusion of youth with learning disabilities who have not been properly identified.

Additionally, the majority of previous research has collected samples that failed to include adolescents with learning disabilities within rural areas. The inclusion of rural students is important considering the lack of funding and resources available to rural public schools (Farmer, Hall, Weiss, Petrin, Meece, & Moohr, 2011). Specifically, research has indicated that despite high rates of poverty in rural areas, there has been a systematic oversight in providing funding to public education in these areas (Beeson & Strange, 2003). This lack of funding contributes to difficulty in maintaining teachers, sufficient facilities, and adequate technology in classrooms (Beeson & Strange, 2003). Thus, there is a high probability that adolescents with learning disabilities in these areas

are even less likely to receive appropriate interventions due to the lack of funding for services. The implications of this conclusion are evident when considering empirical research that stresses the importance of appropriate interventions and services for adolescents with learning disabilities (Kirk & Reid, 2001; Woliver, 2009).

The current study will contribute to learning disabilities and juvenile delinquency research by addressing the limitations of previous studies through the use of the following elements: a community-based school sample from rural areas, a diagnosis as well as indicators of learning disabilities, a vast array of delinquent behaviors, and the inclusion of additional relevant factors. For example, this study will use a community-based, school sample from three rural high schools in an attempt to avoid sampling errors of previous research. The use of this community-based sample allows the researcher to include students without learning disabilities, students with learning disabilities who have been identified (e.g., diagnosis), and students who may not have been properly identified (e.g., learning disability indicators). Specifically, indicators of learning disabilities will be included in this study in attempt to identify students who exhibit specific characteristics of a learning disability but have not been formally diagnosed.

Next, the current study will expand the variable of delinquent behavior to include factors such as bullying, prescription drug use, and sexting. Specifically, scant research has addressed adolescents with learning disabilities and perpetration of bullying. To understand patterns of bullying, the current study will examine perpetration of bullying among adolescents with learning disabilities, adolescents indicators of learning disabilities, and adolescents without learning disabilities. Furthermore, the current study will address differences across these three groups in victimization by examining

experiences of being bullied. The variable of delinquent behavior will also be expanded to include an in-depth analysis of substance abuse (e.g., tobacco, alcohol, marijuana, cocaine, ecstasy, LSD, Heroin, crack, prescription drugs). Thus, the current study aims to evaluate patterns of substance abuse to include the use of prescription drugs and steroids, which have yet to be addressed in regards to adolescents with learning disabilities. Similarly, the inclusion of sexting in the current study represents an additional factor of delinquency that previous research has failed to explore in adolescents with learning disabilities. The term *sexting* refers to the sending and receiving of sexual images by minors, typically via cell phones (Lounsbury et al., 2011). Sexting can refer an adolescent sending an explicit image of herself or himself, an adolescent receiving an explicit image directly from the producer of the image, or an adolescent forwarding an explicit image he or she received to other individuals. A major concern of sexting among youth is the creation or distribution of images that meet the criteria of child pornography that could result in criminal charges (Lounsbury et al., 2011). Thus, the current study will explore sexting behaviors among youth with learning disabilities, youth with indicators of learning disabilities, and youth without learning disabilities.

Finally, the current study will address limitations of previous research by accounting for additional factors that evidence has suggested to be relevant to learning disabilities or delinquency (e.g., demographics, depression, social skill deficits). Thus, if a significant relationship is found between learning disabilities and delinquency, the researcher will be able to determine if the relationship holds when accounting for these additional factors. Chapter III will provide an extensive overview of the measurement of the aforementioned variables and exact methodology for the current study.

CHAPTER III

METHODOLOGY

The research design for the present study employed a quantitative analysis of self-reported data. Specifically, a nonexperimental, cross-sectional design was used to assess the association between learning disabilities and delinquency. To explore this association, adolescents were recruited to participate in a survey that addressed diagnosis of learning disabilities, indicators of learning disabilities, participation in delinquent behaviors, incidents of bullying, and additional relevant factors (e.g., demographics, depression, social skills). The following sections provide a detailed description of the participants, instrumentation, procedures, and statistical analyses of the current study, while also addressing limitations.

Participants

A convenience sample was selected from a sampling frame of enrolled students at three rural high schools in a southern state ($n \approx 2,134$). The selected high schools for the present study vary in size from small, medium, to large. The approximate enrollment at each high school during the school year ranges from 390 to 1,190 students. Rural high schools were specifically targeted in order to address the gap in empirical research exploring the association between learning disabilities and juvenile delinquency in these areas (Farmer et al., 2011). It should be noted that the researcher was limited to schools where school administrators approved the study. Additionally, the selection of sites was limited in terms of distance and the primary researcher's ability to travel to each specific site.

With that said, at each site participants, grades 9th through 12th, were recruited through their high school classes. To avoid sampling errors of previous research, the sampling frame for the current study was not restricted to adolescents with special education placement. Instead, all students at the high schools and present in their first-period classes on the day of recruitment had an equal opportunity to participate in the study. This method was chosen to increase the probability that both students with and without special education placement would be included in the sample. The restriction of recruitment to first-period classes was determined by school administrators to ensure the least disturbance of students' regular school day. However, this restriction may also constitute a limitation of the current study. For example, equal opportunity to participate in the study was not provided to students who may have been absent from first-period for various reasons (e.g. sickness, tardiness, skipping class).

Variables and Units of Measurement

The instrument that was used to measure the variables in the current study was a self-report survey composed of 83 items.² The instrumentation was selected to provide participants with the opportunity to express their experiences and perceptions regarding delinquency, bullying, disability status, depression, and social skills deficits. While extant research has generally concluded that self-reported data is reliable, there are threats to validity that must be addressed (Brener, Billy, & Grady, 2003; Elliott & Ageton, 1980; Flisher, Evans, Muller, & Lombard, 2004). One threat to validity in self-reported data is the participants' comprehension and memory skills, which can influence the accuracy of responses (Brener et al., 2003). For example, a participant may misinterpret the meaning of a particular item or may have difficulty remembering details

² See Appendix C for complete instrument and coding.

that are necessary to answer the item properly. Furthermore, the context of items included within the instrument and the environment in which it is administered, can also affect the validity of data. For example, fear of repercussions may cause individuals to be apprehensive in reporting behaviors that are illegal, stigmatized, or laden with moral implications (Brener et al., 2003). A concern regarding validity in the current study is the requirement for youth with learning disabilities to complete a printed survey without any assistance. This requirement raises the possibility that an adolescent with a learning disability may not be able to comprehend the items on the survey. However, extant research has used similar methods, which suggest minimum concern regarding this aspect of the study (Estell et al., 2008; Malmgren et al., 1999; McNamara & Willoughby, 2010).

The current study attempted to minimize threats to validity in several manners. Participants were ensured anonymity and confidentiality by never being asked to provide a name or any other identifying information on the survey. Thus, there was no way to associate any particular survey to any particular participant. Students were also informed that their participation in the study was completely voluntary and they could stop participation at any time without penalty, prejudice, or loss of benefits. Finally, instructions and items included within the survey were presented in a clear and concise manner to maximize participants' comprehension of each item.

Dependent Variables

The dependent variables for the current study were delinquency, bullying, and victimization. All items regarding the dependent variables were measured on a four-point Likert scale indicating the number of times a participant has engaged in or experienced an item over a period of 12 months. The response categories for each item

included never (0), 1 or 2 times (1), 3 or 4 times (2), and 5 or more times (3). Thus, higher scores on each scale represented a higher frequency of behavior (Anderson & Hughes, 2009).

The measurement of delinquency consisted of 20 items regarding violent offenses, property offenses, substance use, prescription drug use, distribution of controlled substances, and sexting. First, the property offense scale was composed of the following five items: “deliberately damaged property not belonging to me;” “taken something from a store without paying for it;” “stolen something worth more than \$50;” “gone into a house or building to steal something;” and “stolen something worth less than \$50” (Anderson & Hughes, 2009, p. 13). Second, the violent offenses scale included the following four items: “gotten into a serious physical fight;” “hurt someone badly enough to need bandages or care from a doctor or nurse;” “taken part in a physical fight where a group of my friends were against another group;” and “used or threatened someone with a weapon” (Anderson & Hughes, 2009, p. 13). Third, the measurement of substance use consisted of the following four items: “I have used alcoholic beverages;” “I have used tobacco products;” “I have used marijuana;” “I have used other illegal drugs besides marijuana.” Prescription drug use was measured by the following three items: “I have used prescription drugs that were not prescribed to me;” “I have used prescription drugs for fun;” and “I have misused my own prescription drugs.” Fourth, the following three items measured the distribution of controlled substances: “have sold marijuana;” “have sold other illegal drugs besides marijuana;” and “have sold prescription drugs.” Finally, the two items that addressed sexting were “sent naked pictures of myself to another person on my phone” and “received naked pictures of another person on my phone.”

In addition to the aforementioned variables, this study also examined the dependent variables bullying and victimization. Specifically, bullying was addressed in terms of perpetration and victimization. Thus, twelve corresponding items measured incidents of bullying victimization and perpetration. These items include “teasing in a mean or hurtful way;” “hit, pushed, or slapped;” “harassed;” “started untrue rumors;” “harassed over the internet;” and “started untrue rumors over the internet.”

Independent Variables

The primary independent variables addressed in this study were diagnosis of a learning disability and indicators of learning disabilities. Participants were asked if they had ever been diagnosed with a learning disability, what specific learning disability they were diagnosed with, and the age of diagnosis. Furthermore, indicators of learning disabilities were included in the present study in an attempt to identify participants who displayed characteristics of a learning disability. Eighteen items were constructed to measure learning disability indicators using Horowitz and Stecker’s Checklist for Learning Disabilities (2007) as a reference. These items included specific indicators of Dyslexia, Dyscalculia, and Dysgraphia such as “have trouble associating letters and sounds;” “have difficulty with the basic addition and subtraction;” and “writing is disorganized.” A five-point Likert scale was used to measure indicators of learning disabilities. Response categories for each item included never (0), very rarely (1), sometimes (2), often (3), and almost always (4).

The instrument for the present study also included several other independent variables in an attempt to account for additional factors relevant to learning disabilities. These factors included demographics, depression, and social skills. Depression was

measured using the following four items: “feel sad or hopeless;” “feel like I am worthless;” “feel like things will not get better in the future;” and “feel depressed.” Items regarding social skills were developed using Horowitz and Stecker’s Checklist for Learning Disabilities (2007) as a reference in order to capture social skill deficits related to learning disabilities. Specifically, social skills were measured by the following five items: “find it difficult to pick up on other people’s moods or feelings;” “difficulty expressing my feelings to others;” “difficulty remaining calm when I get frustrated;” “difficulty expressing my point in conversations;” and “find it hard to fit in with groups of other students.” The variables of depression and social skills were all measured on a five-point Likert scale. Response categories for these items will include strongly disagree (0), disagree (1), neutral (2), agree (3), and strongly agree (4).

Finally, several demographic variables were included within the instrument. These items included gender, age, parents’ marital status, ethnicity, and socioeconomic status. Participants’ socioeconomic status was determined by asking if the lunches they received at school were full price, reduced price, or free. The national guideline for determining students’ eligibility to receive free or reduced price meals is based upon the number of members per household and the family’s annual income. For example, a student from an average household of four would receive free school lunches if his or her family’s annual income does not exceed 30,615 dollars (U.S. Department of Agriculture, 2013). Similarly, a student from an average household of four would receive reduced price lunches if his or her family’s annual income does not exceed 43,568 dollars.

Data Collection Procedures

The present study was broken into two stages during January of 2014. As previously noted, certain procedural aspects were dictated by school administrators in an attempt to ensure the least disturbance to students' regular school day. After discussion with school administrators, it was determined that both stages of the study would take place during the first month students return to school after winter vacation. The researcher provided a letter to the teachers to inform them of the dates for the study and the procedural details for each day.³ The purpose of this letter was to ensure that each teacher was aware of when and how his or her class would be briefly interrupted.

During the first stage of the study, students at each high school were provided with an oral presentation of the study by the primary investigator, letters to their parents, and parent consent forms.⁴ Specifically, the oral presentation informed students of the purpose of the study as well as what participation in the study would entail. Students were informed of confidentiality, anonymity, potential risks that may be experienced, and participants' rights to end participation in the study at any time without penalty, prejudice, or loss of benefits. At the end of the oral presentation, students who were interested in participating in the study were provided with a letter to their parents and a parent consent form. The purpose of the letter to parents was to provide parents or guardians with the same information addressed in the oral presentation to students and to provide informed consent for their child to participate in the study.

Approximately one to two days after oral presentations, students at each high school who wished to participate in the study and whose parents had provided written

³ See Appendix D

⁴ See Appendixes E, F, and G for items.

consent for such participation, were administered the survey. The collaboration with school administrators determined that data collection would be restricted to students' first-period classes to ensure it occurred in a time efficient manner. During this time, participants were read instructions regarding the instrument, and the survey was administered. School administrators instructed that students who elected not to participate in the study or whose parents did not provide written consent were to continue with classroom assignments while the survey was being administered.

In order to ensure that participants' confidentiality was maintained, several procedural safeguards were implemented. First, while the survey was being administered students were seated far enough away from each other to prevent any incidents where another student would be able to view participants' responses. Second, all survey contained a blank cover page to prevent participants' responses from being visible as surveys are being completed. Third, a sealed collection box was provided for surveys to be deposited into by participants upon completion. All collection boxes were gathered by the primary investigator once all participants deposited their surveys.

Statistical Analyses

Once data had been collected, it was then coded and imputed into a statistical analysis computer program, SPSS Version 22, in order to answer the following research questions.

1. What differences in delinquent behaviors exist among adolescents with a diagnosed learning disability, adolescents with indicators of a learning disability who have not been diagnosed, and adolescents without a learning disability?

2. What differences in bullying and victimization exist across these three groups?
3. Does a relationship between learning disabilities or indicators of learning disabilities and delinquency hold when controlling for relevant factors? (e.g. demographics, depression, social skills deficits)

The following sections provide a description of the statistical procedures that were selected to obtain univariate statistics, validation of scales, and multivariate statistics.

Univariate Statistics

Univariate statistics such as descriptives and frequencies were used to describing the data of the current study. Furthermore, these analyses allowed the researcher to screen the data for any potential issues. Descriptives were used to provide the mean, range, and standard deviation of variables measured on the interval level. For variables measured on the nominal level, frequencies were used to determine the exact percentages of the item.

Validation of Scales

Specific scales were created or modified to measure the dependent and independent variables of the current study. Cronbach's alpha was conducted to determine the internal consistency of each individual scale. Generally, alpha levels of .7 or above are accepted as appropriate, while alpha levels falling substantially lower than .7 are considered unreliable (Field, 2013). Thus, this analysis allowed the researcher to ensure that each scale included within the current study produced an acceptable alpha level to allow confidence in its reliability.

Multivariate Statistics

The final statistical analysis that was employed was ordinary least squares (OLS) regression. This statistical analysis allowed the researcher to account for any potential influence of other variables while assessing how each particular independent variable contributes to the explanation of delinquency. Thus, the relationship between learning disabilities and delinquency could be analyzed, while controlling for variables that might confound the exact association. Finally, linear regression allowed the researcher to identify which independent variables appeared to be the most significant to an explanation of delinquency, bullying, and victimization.

Summary

The main objective of current study is to address the association between learning disabilities and delinquency. More specifically, this study attempts to identify the differences among adolescents with and without diagnosis of learning disabilities and/or indicators of learning disabilities. The sampling frame for the current study consisted of high school students from three rural high schools in a southern state ($n \approx 2,134$). Participants were administered a survey composed of 83 items during their first-period classes. Finally, statistical analysis used to interpret the data and address the research questions of the present study included descriptives, frequencies, reliability, and OLS regression. Chapter IV will provide a detailed overview of these statistical analyses.

CHAPTER IV

RESULTS

The purpose of the current study is to evaluate delinquency and victimization among students with self-reported diagnosis of learning disabilities, students with indicators of learning disabilities, and students without learning disabilities. Furthermore, this study aims to determine if a relationship between learning disabilities or indicators of a learning disability holds after controlling for certain variables (e.g., demographics, depression, social skills deficits). This chapter will present the results of the statistical analysis that were employed to address the primary research questions of the study. First, a description of the sample will be provided through the use of univariate statistics, such as descriptives and frequencies. Next, the results regarding the reliability of each scale measuring independent and dependent variables will be evaluated. Determining the reliability of each scale will be accomplished by ensuring that each scale produces a Cronbach's alpha level of .7 or above (Field, 2013). In addition to alpha levels, descriptive statistics for each scale will also be provided. Finally, the results of OLS regression analyses will be used to identify the effects independent variables had on each dependent variable of the study.

Description of the Sample

The sampling frame for the current study was rural students from three high schools in a southern state ($n \approx 2,134$). This initial convenience sample ($n = 563$) yielded a response rate of 26.3%. After evaluation of the data, 15 cases were omitted from the sample due to missing data. Thus, the final sample size was 548 participants. Table 1 provides a description of participants per high school with School A representing the

smallest population of enrolled students and School C representing the largest population of enrolled students. Evaluation of Table 1 demonstrates that, based upon enrollment population, School B produced the highest response rate (53.8%).⁵

Table 1

Description of Participants per High School

School	n	% of school population
A	69	17.6%
B	327	53.8%
C	167	14%
Overall response rate	563	26.3%

Demographics

Univariate statistics, such as descriptives and frequencies, were employed in order to determine the demographic characteristics of the sample. Specifically, demographics characteristics identified within the sample included gender, ethnicity, socioeconomic status (i.e., school lunch type), parental marital status, and age of student at time of survey. As demonstrated in Table 2, the majority of participants were female (58.2%), white (74.7%), received free school lunches (59.1%), and reported parents' marital status as married (47.3%). The age of participants ranged from 13 years to 19 years with a mean age of 15.92 (SD = 1.25).

In addition to basic demographics, frequencies were also employed to determine percentages of adolescents reporting a diagnosis of a learning disability or indicators of a learning disability without a diagnosis (See Table 3). While the majority of participants

⁵ Smaller response rates at School A and School C were primarily the result of school administrators' restrictions on the researcher's access to students.

(91.2%) reported no diagnosis or indications of a learning disability, twenty-two (4%) participants did report a diagnosis of a learning disability.⁶ Participants were also asked to provide the type of learning disability diagnosed if it was applicable. The types of learning disabilities participants had been diagnosed with were as follows: 12 (2.2%) Dyslexia, 2 (0.4%) Dyscalculia, 3 (0.5%) Dysgraphia, and 5 (0.9%) were not sure what type of learning disability they had.

Table 2

Demographics of the Sample

Variable	Category	Frequency	Percentage
Gender	Male	224	40.9%
	Female	319	58.7%
Ethnicity	White	407	74.3%
	Black	107	19.5%
	Hispanic	9	1.6%
	Other	22	4.0%
	Missing	3	0.5%
School Lunch Type	Free	324	59.1%
	Reduced Price	49	8.9%
	Full Price	168	30.7%
	Missing	7	1.3%
Parents' Marital Status	Married	259	47.3%
	Divorced	152	27.7%
	Separated	39	7.1%
	Single (never married)	76	13.9%
	Other	22	4.0%
	Missing	0	

⁶ The percentage of adolescents reporting a diagnosis of a learning disability may seem limited, but research has indicated that students with learning disabilities only represent about 5% of school populations (Cortiella, 2011).

Additionally, 26 participants (4.7%) were identified as having indications of a learning disability. An adolescent was only included within this group if he or she reported *often* or *almost always* on at least four out of six items regarding indicators of dyslexia, dyscalculia, or dysgraphia. Furthermore, adolescents were only included in this group if they did not self-report a diagnosis of a learning disability.⁷ Reliability of the dyslexia, dyscalculia, and dysgraphia scales will be provided in the following section.

Table 3

Description of Groups

Group	Frequency	Percentage
No learning disability	500	91.2%
Diagnosed LD	22	4.0%
Indicators of LD	26	4.7%

Reliability

In order to determine if scales created or modified for the current study were reliable, Cronbach's alpha levels were evaluated. Table 4 presents the results of reliability analyses as well as descriptive statistics for each scale. Descriptive statistics demonstrate that the means for each scale are considerably low. This finding suggests that overall rates of delinquency, victimization, depression, social skills deficits, and indicators of learning disabilities were low among participants.⁸ Additionally, all scales produced a Cronbach's alpha level of .7 or higher. For example, the scale for substance

⁷ It should be noted that the majority of individuals included within the learning disability group reported *often* or *almost always* on at least four out of six items on one subscale (e.g., Dyslexia) as well as one to three items on an additional subscale (e.g., Dyscalculia, Dysgraphia).

⁸ Due to the relatively low levels of delinquency and victimization among the sample, normality of errors is a concern. However, the large sample size of the current study makes this concern minimum (Field, 2013).

use produced the lowest alpha level ($\alpha = .71$), while the scale for depression produced the highest ($\alpha = .93$). Thus, it appears there is internal consistency among the scales created or modified to measure the dependent and independent variables of the current study.

Table 4

Descriptives and Reliability of Scales

Scale	Range	Mean	SD	α
Violence Offenses	0-12	1.24	2.02	.77
Property Offenses	0-13	.9688	1.90	.77
Substance Use	0-12	2.585	2.90	.71
Prescription Drugs	0-9	.4652	1.36	.83
Drug Sell	0-9	.2263	.984	.78
Sexting	0-6	1.57	2.07	.84
Bullying (Perp.)	0-18	1.70	2.50	.74
Bullying (Vic.)	0-18	3.34	4.10	.87
Depression	0-16	3.53	4.37	.93
Social Skills	0-20	7.31	4.43	.74
Dyslexia	0-6	.359	.872	.78
Dyscalculia	0-6	.099	.463	.73
Dysgraphia	0-6	.8432	1.29	.82

Note: n = 548

Ordinary Least Squares (OLS) Regression

After initial analyses, multivariate regressions were conducted to address the specific research questions of the present study. Specifically, OLS regression was utilized to determine if a significant relationship existed between main independent

variables and dependent variables after controlling for relevant factors (i.e., demographics, social skills deficits, and depression). Furthermore, this analysis allowed the researcher to determine if differences existed between adolescents with learning disabilities, adolescents with indicators of a learning disability, and adolescents without a diagnosis or indicators of a learning disability.

Before analyses were conducted, specific variables had to be transformed into nominal dichotomous variables. Specifically, since multivariate regression requires the use of interval level data, variables that were measured on the nominal level were recoded. These variables included socioeconomic status (i.e., school lunch type), ethnicity, and parental marital status (See Table 5).

Table 5

Recoded Variables

Variable	Recode
SES (school lunch type)	0 = free; 1 = paid
Ethnicity	0 = white; 1 = nonwhite
Parental marital status	0 = married; 1 = not married

Table 6 presents the unstandardized coefficients (B), standard errors (S.E.), and standardized coefficients (β) from regression analyses for models one through four. Unstandardized coefficients provide an interpretation for how the outcome variable (i.e., dependent variable) is impacted when there is a one unit change in an independent variable (Field, 2013). Standardized coefficients also provide this information; however, the change is expressed as a standard deviation. Furthermore, standardized coefficients

allow the researcher to determine which independent variables have the highest impact on outcome variables (Field, 2013). Finally, Tables 6 provides the R square (R^2) of each model, which demonstrates the percentage of variance explained by the overall model.⁹

Table 6

Multivariate Regressions for Model 1 - 4

Variable	Model 1			Model 2			Model 3			Model 4		
	Violent Offenses			Property Offenses			Substance Use			Prescript. Drugs		
	B	S.E.	β	B	S.E.	β	B	S.E.	β	B	S.E.	β
Age	.018	.017	.045	.032	.013	.107*	.124	.024	.214**	.037	.015	.103*
Gender	.290	.044	.283**	.086	.034	.112*	.209	.063	.142**	.016	.040	.017
SES	-.083	.045	-.080	-.011	.034	-.014	-.056	.065	-.038	-.084	.041	.091*
Ethnicity	.066	.051	.057	.025	.039	.028	-.199	.073	-.119**	-.094	.046	-.090*
Parental M.S.	.067	.043	.066	.078	.033	.102*	.089	.062	.062	.035	.039	.038
Depression	.058	.024	.126*	.078	.018	.224**	.158	.034	.239**	.098	.022	.237**
Social skills	-.025	.029	-.043	.022	.022	.052	-.042	.041	-.051	.016	.026	.031
LD diagnosed	.167	.107	.065	-.061	.081	-.032	-.042	.152	-.011	.068	.097	.029
LD indicators	.227	.099	.096*	.045	.075	.025	.037	.141	.011	.039	.090	.018
	$R^2 = .115$			$R^2 = .098$			$R^2 = .123$			$R^2 = .100$		

* $p < .05$ ** $p < .01$

Model 1: Violent Offenses

Model 1 assesses diagnosis of a learning disability and indicators of a learning disability effects on engaging in violent offenses while controlling for additional variables (See Table 6). The model was significant ($F(9, 523) = 7.579, p < .01$), indicating that the amount of variance explain by the model is greater than the model error. Specifically, the percentage of variability explained by Model 1 was 11.5% ($R^2 = .115$). This finding suggests that an estimated 88.5% of the variance was not explained by the model. Three variables were statistically significant in Model 1: gender ($t(523) =$

⁹ The majority of regression models explained a relatively low amount of variance regarding the outcome variable. Thus, caution should be used when interpreting the implications of results.

6.551, $p < .01$), depression ($t(523) = 2.418$, $p < .05$), and learning disability indicators ($t(523) = 2.294$, $p < .05$).

Unstandardized coefficients were used to determine the change that occurs within the outcome variable with a one unit change in the independent variables. The use of unstandardized coefficients allows independent variables to be interpreted in their own metrics (Field, 2013). Specifically, Model 1 indicates that males' participation in violent offenses was .290 units higher than females. For learning disabilities indicators, participation in violent offense was .227 units higher for students who reported specific indicators of a learning disability than students who did not. Model 1 also demonstrates that for each unit increase in depression, students' participation in violent offenses increased .058 units.

Standardized coefficients also allows for the researcher to determine which independent variable had the highest impact on the dependent variable. According to Model 1, gender ($\beta = .283$) had the highest impact on students' participation in violent offenses. Furthermore, depression ($\beta = .126$) had the second highest impact followed by learning disabilities indicators ($\beta = .096$).

Model 2: Property Offenses

Model 2 provides the results regarding the effects diagnosis of a learning disability and indicators of a learning disability had on the dependent variable of property offenses after controlling for additional variables (See Table 6). Model 2 was statistically significant ($F(523) = 6.291$, $p < .01$) with the percentage of variability explained being 9.8% ($R^2 = .098$). This finding suggests that an estimated 90.2% of the variance was not explained by the model. Furthermore, four control variables had a significant effect on

students' participation in property offenses: age ($t(523) = 2.541, p < .05$), gender ($t(523) = 2.556, p < .05$), parental marital status ($t(523) = 2.372, p < .05$), and depression ($t(523) = 4.259, p < .01$). However, neither diagnosis of a learning disability nor indicators of a learning disability displayed a significant effect on property offenses. According to Model 2, the variable that had the highest impact on students' participation in property offenses was depression ($\beta = .224$). The variable that had the second highest impact on students' participation in property offenses was gender ($\beta = .112$) followed by age ($\beta = .107$) and parental marital status ($\beta = .102$).

In regard to unstandardized coefficients, Model 2 indicates that for the variable gender, males' engagement in property offenses was .086 higher than females.

Furthermore, students who reported that their parents were not married reported an engagement in property offenses that was .078 units higher than students whose parents were married. Model 2 also indicates that for each unit increase in age, students' participation in property offenses increases .032 units. Finally, Model 2 demonstrates that for each standard unit in depression, students' participation in property offenses increased .078 units.

Model 3: Substance Use

Model 3 displays the effect diagnosis of a learning disability or indicators of a learning disability had on substance use once all additional variables were controlled (See Table 6). This model was also statistically significant ($F(523) = 8.168, p < .01$), explaining 12.3% ($R^2 = .123$) of the variance. Thus, an estimated 87.7% of the variance was not explained by the model. In Model 3, four variables were statistically significant: age ($t(523) = 5.181, p < .01$), gender ($t(523) = 3.301, p < .01$), ethnicity ($t(523) = -$

2.728, $p < .01$), and depression ($t(523) = 4.615, P < .01$). Once again, neither diagnosis of a learning disability nor indicators of a learning disability were statistically significant in explaining students' substance use. Furthermore, evaluation of standardized coefficients indicates that the variable that had the highest impact on students' substance use was depression ($\beta = .239$). The variable that had the second highest impact was age ($\beta = .214$) followed by gender ($\beta = .142$) and ethnicity ($\beta = -.119$).

For the categorical variable gender, the unstandardized coefficient indicates that males' engagement in substance use was .209 units above females. Similarly, ethnicity indicates that nonwhites' engagement in substance use was .199 units below whites. Model 3 further demonstrates that with each unit increase in age, students' substance use increased .124 units. Moreover, with each unit increase in depression, students' substance use increased .158 units.

Model 4: Prescription Drug Use

The fourth OLS regression analysis that was conducted evaluated the impact diagnosis of a learning disability or indicators of a learning disability had on students' prescription drug use after controlling for all other variables (See Table 6). The model was statistically significant ($F(523) = 6.471, p < .001$) with the model explaining 10% ($R^2 = .100$) of the variance students' prescription drug use was explained by the relationship with the independent variables included in the model. This finding means that an estimated 90% of the variance in students' prescription drug use was not explained by the model. Model 4 demonstrates that while diagnosis of learning disabilities and indicators of learning disabilities were not statistically significant, four additional independent variables were: age ($t(523) = 2.453, p < .05$), socioeconomic

status ($t(523) = -2.042, p < .05$), ethnicity ($t(523) = -2.029, p < .05$), and depression ($t(523) = 4.517, p < .001$). Specifically, the variable that had the highest impact on students' prescription drug use was depression ($\beta = .237$). The variable that had the second highest impact was age ($\beta = .103$) followed by socioeconomic status ($\beta = -.091$) and ethnicity ($\beta = -.090$).

Table 6 displays the standardized and unstandardized coefficients for Model 4. The unstandardized coefficients show that for the categorical variable socioeconomic status, students' prescription drug use was .084 units below that of students who received free school lunches. Similarly, nonwhite students' prescription drug use was .094 units below whites. Model 4 also indicates that for each unit increase in age, students' prescription drug use increases .037 units. Finally, for each unit increase in depressions, students' prescription drug use increased .098 units.

Model 5: Distribution of Controlled Substances

Table 7 presents the unstandardized coefficients (B), standard errors (S.E.), standardized coefficients (β), and R square (R^2) from regression analyses for models four through eight. As reflected in Table 7, Model 5 demonstrates the effect diagnosis of a learning disability or indicators of a learning disability had on students' distribution of controlled substances while controlling for all other variables (See Table 7). The model was significant ($F(523) = 4.256, p < .05$) and indicated that 6.8% ($R^2 = .068$) of the variance in students' engagement in the distribution of controlled substances was explained by the variables included in the model. Thus, an estimated 93.2% of the variance was not explained by the model. Furthermore, Model 5 demonstrates that while diagnosis of a learning disability did not have a statistically significant effect on students'

distribution of controlled substances, indicators of a learning disability did have a significant effect ($t(523) = 2.061, p < .05$). Two additional variables were also significant: gender ($t(523) = 3.352, p < .01$) and ethnicity ($t(523) = 2.523, p < .05$). Evaluation of the standardized coefficients for Model 5 indicate that the variable that had the highest impact on students' distribution of controlled substances was gender ($\beta = .149$). The variable that had the second highest impact on dependent variable was ethnicity ($\beta = .114$) followed by indicators of a learning disability ($\beta = .088$).

Table 7

Multivariate Regression for Models 5 - 8

Variable	Model 5			Model 6			Model 7			Model 8		
	Dist. of Cont. Sub.			Sexting			Bullying Perp.			Bullying Vic.		
	B	S.E.	β	B	S.E.	β	B	S.E.	β	B	S.E.	β
Age	.019	.011	.073	.081	.035	.098*	.003	.014	-.008	-.019	.021	-.034
Gender	.099	.030	.149**	.326	.092	.155**	.076	.037	.089*	-.081	.056	-.058
SES	-.007	.030	-.010	-.082	.094	-.039	-.007	.038	-.008	-.007	.058	-.005
Ethnicity	.086	.034	.114*	.177	.106	.074	.111	.043	.116*	-.016	.065	-.010
Parental M.S.	.054	.029	.082	-.025	.089	-.012	.006	.036	.007	.051	.055	.037
Depression	.023	.016	.076	.259	.050	.273**	.051	.020	.135*	.203	.031	.326**
Social skills	-.032	.019	-.087	-.032	.059	-.027	.060	.024	.128*	.097	.036	.125**
LD diagnosed	.053	.071	.032	-.107	.221	-.020	-.017	.089	-.008	.425	.136	.122**
LD indicators	.136	.066	.088*	.263	.205	.054	.267	.083	.136**	.119	.126	.037
	$R^2 = .068$			$R^2 = .094$			$R^2 = .084$			$R^2 = .220$		

* $p < .05$ ** $p < .01$

Unstandardized coefficients provided for Model 5 display that males' engagement in the distribution of controlled substances was .099 units higher than females.

Furthermore, nonwhites' engagement in the distribution of controlled substances was .086 units higher than whites. Finally, students with indicators of a learning disability

had an engagement in the distribution of controlled substances that was .136 units higher than students without indicators.

Model 6: Sexting

Model 6 displays the effect diagnosis of a learning disability or indicators of a learning disability had on students' engagement in sexting after controlling for all other variables (See Table 7). The model was statistically significant ($F(523) = 6.064, p < .01$), and 9.4% ($R^2 = .094$) of the variance in students' engagement in sexting was explained by the variables included within the model. This finding indicates that an estimated 90.6% of the variance in students' sexting behavior was not explained by the model. Furthermore, neither diagnosis nor indicators of a learning disability were statistically significant. However, the additional variables were significant: age ($t(523) = 2.333, p < .05$), gender ($t(523) = 3.552, p < .01$), and depression ($t(523) = 5.189, p < .01$). Model 6 demonstrates that depression ($\beta = .273$) had the highest impact on students' engagement in sexting. The variable that had the second highest impact was gender ($\beta = .155$) followed by age ($\beta = .098$).

According to the unstandardized coefficients, males engaged in sexting were .326 units higher than females. Model 6 further expresses that for each unit increase in age, students' engagement in sexting increased .081 units. Finally, with each unit increase in depression, students' sexting behaviors increased .259 units.

Model 7: Bullying (Perpetration)

Model 7 demonstrates the effect diagnosis of a learning disability and indicators of a learning disability had on students' perpetration of bullying while controlling for all other variables (See Table 7). The model was statistically significant ($F(523) = 5.357, p$

< .01), and 8.4 % ($R^2 = .084$) of the variance in students' perpetration of bullying was explained by the independent variables included within the model. Therefore, an estimated 91.6% of the variance was not explained by the model. Observation of Model 7 demonstrates that while diagnosis of a learning disability was not statistically significant, indicators of a learning disability were significant ($t(523) = 3.219, p < .01$). Additionally, the following four independent variables were statistically significant: gender ($t(523) = 2.034, p < .05$), ethnicity ($t(523) = 2.595, p < .01$), depression ($t(523) = 2.553, p < .05$), and social skills deficits ($t(523) = 2.506, p < .05$). The variable that had the highest impact on students' perpetration of bullying was indicators of a learning disability ($\beta = .136$). The variable that had the second highest impact was depression ($\beta = .135$) followed by social skills deficits ($\beta = .128$), ethnicity ($\beta = .116$), and gender ($\beta = .089$).

Unstandardized coefficients indicate that students with indicators of a learning disability had an involvement in the perpetration of bullying that was .267 units higher than students without indicators of a learning disability. Furthermore, nonwhite students' involvement in the perpetration of bullying was .111 units higher than whites. Model 7 also demonstrates that males' engagement in the perpetration of bullying was .076 units higher than females. Additionally, for each standard unit in depression, students' involvement in the perpetration in bullying increased .051 units. Finally, with each unit increase in social skills deficits, students' engagement in the perpetration of bullying increased .097 units.

Model 8: Bullying (Victimization)

The final OLS regression analysis that was conducted was to determine the effect diagnosis of a learning disability or indicators of a learning disability had on students' experiences of being bullied once all other variables were taken into account (See Table 7). Model 8 was statistically significant ($F(523) = 16.240, p < .01$), and 22% ($R^2 = .220$) of the variance in students' reported bullying victimization was explained by the model. Thus, Model 8 was the strongest of all the models with only an estimated 78% of the variance not explained. Furthermore, bullying victimization was the only dependent variable in which a statistically significant relationship emerged with diagnosis of a learning disability ($t(523) = 3.121, p < .01$) once all other variables were taken into account. Depression ($t(523) = 6.634, p < .01$) and social skills deficits were also statistically significant. The variable that had the highest impact on experiences of being bullied was depression ($\beta = .326$). Social skills deficits had the second highest impact on the dependent variable ($\beta = .125$) followed by diagnosis of a learning disability ($\beta = .122$).

The unstandardized coefficients in Model 8 demonstrate that students who reported a diagnosis of a learning disability also reported incidents of being bullied .425 units higher than students who did not have a diagnosed learning disability. Additionally, unstandardized coefficients indicate that for each unit increase in depression, students' bullying victimization increased .203 units. Finally, for each unit increase in social skills deficits, students' bullying victimization increased .097 units.

In summary, the purpose of the statistical analyses presented in this chapter was to address the three primary research questions that guided the current study. This chapter

presented the results of a quantitative analysis of rural students' self-reported disability status, delinquency, and victimization in regards to bullying (n = 548). Specifically, univariate statistics, reliability, and OLS regression were utilized to address the three research questions that guided the study. It should be noted that the amount of variance explained by the majority of models was relatively low; thus, results should be interpreted with caution. Chapter V will provide an in-depth discussion of the current study's findings as they relate to existing literature as well as potential policy implications.

CHAPTER IV

DISCUSSION AND CONCLUSION

The purpose of the present study was to examine the relationship between learning disabilities, delinquent behavior, and bullying victimization among rural high school students. Specifically, this study sought to expand upon previous literature by including a wide range delinquent behavior as well as addressing bullying in terms of perpetration and victimization. The sample for this study included three groups of adolescents with distinct characteristics, which are as follows: self-reported diagnoses of a learning disability, indicators of a learning disability without a diagnosis, and no learning disability diagnosis or indicators. Thus, the current study represented one of the most comprehensive studies to date regarding learning disabilities, delinquency, and victimization among rural adolescents. This chapter provides a discussion of findings in relation to the existing literature as well as potential policy implications. Finally, the limitations of the current study and suggestions for future research will also be addressed.

There were three primary research questions which guided the current study.

These research questions are as follows:

1. What differences in delinquent behaviors exist among adolescents with a diagnosed learning disability, adolescents with indicators of a learning disability who have not been diagnosed, and adolescents without a learning disability?
2. What differences in bullying and victimization exist across these three groups?

3. Does a relationship between learning disabilities or indicators of learning disabilities and delinquency hold when controlling for relevant factors? (e.g. demographics, depression, social skills deficits)

The use of univariate statistics allowed the researcher to determine the demographics of the sample as well as the percentage of students who self-reported a diagnosed learning disability ($n = 22$), indicators of a learning disability ($n = 26$), or no learning disability ($n = 500$). Descriptives also allowed the researcher to observe that the overall means for delinquency and bully victimization were relatively low across the sample. Furthermore, reliability analyses allowed the researcher to determine if all scales created or modified for the present study produced a Cronbach's alpha level that suggested confidence in the reliability of the scale. Once all initial analyses were conducted, multivariate regression analyses were employed to address each specific research question of the study.

To answer the first research question of the study, regression analyses demonstrated that adolescents with self-reported diagnosed learning disabilities were not statistically different from adolescents without learning disabilities in participation in delinquent behaviors (i.e., violent offenses, property offenses, substance use, prescription drug use, distribution of controlled substances, and sexting, bullying). However, adolescents with self-reported indicators of a learning disability did demonstrate levels of engagement in certain delinquent behaviors that were significantly different than their peers without learning disabilities. Specifically, adolescents with indicators of a learning disability reported higher engagement in violent offenses ($b = .227$) and distribution of controlled substances ($b = .136$).

Multivariate analyses also revealed differences across the three groups in regard to being a perpetrator of bullying as well as being a victim of bullying. Interestingly, self-reported diagnosis of a learning disability was not significant with the perpetration of bullying; however, it was significant with bullying victimization ($t(523) = 3.121, p < .01$). This finding indicates that students with a diagnosed learning disability reported higher rates of being bullied ($b = .425$) than their peers without learning disabilities. Conversely, self-reported indicators of a learning disability were not statistically significant with bullying victimization; yet, it was significant with the perpetration of bullying. The results of OLS regression demonstrate that adolescents with indicators of a learning disability had higher rates of being a perpetrator of bullying ($b = .267$) than their peers without learning disabilities.

Finally, additional relevant factors (i.e., demographics, depression, and social skills deficits) were included within the multivariate regression analyses in order to address the third research question of the study. The analyses indicated that an association between self-reported delinquency and diagnoses of a learning disability did not hold after controlling for additional variables. However, an association between self-reported indicators of a learning disability and certain delinquent behavior did hold after accounting for all other factors. OLS regression demonstrated a significant association between indicators of a learning disability and violent offenses ($t(523) = 2.294, p < .05$) as well as distribution of controlled substances ($t(523) = 2.061, p < .05$).

Discussion and Policy Implications

The overall the findings of the current study suggested that there was not a significant relationship between self-reported diagnosis of a learning disability and

engagement in delinquent behaviors once the influence of additional relevant factors was controlled (i.e., demographics, depression, and social skills deficits). This finding emphasizes the importance of considering additional factors that may confound the true association between self-reported diagnosis of a learning disabilities and self-reported delinquency. Lombardo and Lombardo (1991) argued that one of the key methodological flaws of early studies was the failure to distinguish between correlation research and cause-and-effect research. In response to this critic, Malmgren et al. (1999) evaluated the association between self-reported diagnoses of learning disabilities and delinquent behavior, while controlling for gender, socioeconomic status, and ethnicity. Similar to the findings of the present study, Malmgren and associates (1999) found that once demographics were controlled for there was not a statistically significant relationship between the two variables. Thus, it has been argued that the relationship between learning disabilities and delinquency may be explained by the confounding effects of additional variables such as demographics (Lawrence, 2007; Malmgren et al., 1999). The findings of the current study further support this argument.

With that said, this research also presents the argument that in addition to general demographics, factors such as depression and social skills must also be taken into consideration. For example, many scholars have argued that social skills deficits may contribute to adolescents with learning disabilities experiencing difficulties in maintaining relationships with peers and teachers (Osher et al., 2002; Woliver, 2009). In turn, such difficulties may lead to these adolescents experiencing feelings of inferiority, frustration, and low self-esteem that contribute to problematic internalizing and

externalizing behaviors (Bender & Wall, 1994; Greenham, 1999; Kirk & Reid, 2001; Osher et al., 2002; Woliver, 2009).

While the aforementioned argument has generally be used to explained *why* adolescents with learning disabilities may engage in delinquent behavior, few studies have included social skill deficits or depression as control variables when assessing the relationship between learning disabilities and delinquency. This lack of consideration is noteworthy since all adolescents with learning disabilities may not experience social skills deficits in the same manner and the severity of deficits may be depended upon child receiving the proper intervention services (Woliver, 2009). Additionally, this consideration is vital since lacking social skills or experiencing depression may also be related to delinquency independently of learning disabilities. Thus, the results of this study support the argument that it is not the diagnosis of a learning disability itself that increases a students' risk of becoming delinquent, but rather the factors associated with the learning disability that may explain a students' engagement in delinquent behaviors.

The second primary finding of the present study is the existence of a statistically significant relationship between self-reported learning disability indicators and certain types of self-reported delinquent behaviors. This relationship continued to hold even once additional relevant factors were controlled. More specifically, adolescents who did not report a diagnosis of a learning disability but did report specific indicators also displayed higher rates of violent offenses, distribution of controlled substances, and perpetration of bullying. It is possible that the lack of identification and treatment services contributed to these adolescents experiencing frustration, which the adolescent then attempted to alleviate through the use of problematic externalizing behaviors.

Extant research has supported this deduction, suggesting that the lack of identification and support increases the risk an adolescent with a learning disability will experience frustration that amplifies problem behaviors (Kirk & Reid, 2001; Woliver, 2009).

That being said, the majority of delinquent behaviors reported by adolescents with indicators of learning disabilities in the current study were related to violence and fighting. Specifically, all but one variable measuring violent offenses was related to involvement in physical altercations. Furthermore, bullying perpetration was measured in regards to harassing another student, teasing another student in a mean or hurtful way, and hitting, pushing, or slapping another student.

Another interesting aspect of current findings is that adolescents who reported indicators of a learning disability seem to be exhibiting this type violent of behavior, but adolescents with self-reported diagnosis did not. As previously noted, it is likely that this difference is related to the lack of identification and intervention. Extant literature has suggested that adolescents with learning disabilities experience deficits in attention, comprehension, impulsivity, social perceptions, and social relationships (Brier, 1994; Robinson & Rapport, 1999; Woliver, 2009). These adolescents also appear to have a lower threshold for frustration, which may lead to a reliance on problematic externalizing behaviors to alleviate undesirable feelings of frustration and inferiority (Bender & Wall, 1994; Greenham, 1999; Osher et al., 2002; Woliver, 2009). These feelings of frustration may be further amplified if an adolescent does not receive the appropriate services he or she requires, placing increased strain on the youth.

Agnew's General Strain Theory (1992) may offer some explanation for the findings within the current study regarding the differences between adolescents with

indicators of a learning disability and adolescents with a diagnosis. Specifically, Agnew's strain theory suggest when individuals encounters negative situations that he or she is unable to escape from, the individual experiences a vast array of undesirable emotions such as depression, fear, or anger (Vold et al., 2002). An example of a negative situation is when an individual experiences relationships in which he or she is not treated as he or she wants to be treated. Agnew argued that adolescents often experience these types of relationships at school where they are unable to escape from the unpleasant situation. This type of strain may cause an adolescent to participate in delinquent behavior or drug use as a method of either retaliating or escaping from negative relationships (Vold et al., 2002).

Applying Agnew's strain theory to the findings of the current study would suggest that adolescents with self-reported indicators of a learning disability experience negative relationships in school from which they are unable to escape. For example, the deficits of a learning disability are often misinterpreted by the adolescents' peers and teachers, which can lead to social isolation of the child (Groce, 2004). It is possible that the lack of proper identification increases likelihood the deficits of a learning disability will be misinterpreted by others. Thus, the adolescent may choose to engage in delinquent behavior as a method of retaliation for treatment he or she receives from others in school (Vold et al., 2002). This conclusion supports the findings of the current study, which suggest adolescents who reported specific indicators of a learning disability also reported higher rates of engagement in violent behavior and bullying than their peers. Specifically, these students may use physical and verbal aggression as a method of retaliation against perceived mistreatment by their teachers and peers.

Contrary to the aforementioned findings, the present study also found that adolescents with a self-reported diagnosed learning disability did not engage in higher rates of delinquency or perpetration of bullying. This finding suggests that these adolescents are not attempting to retaliate against or escape from negative relationships at school. It is possible that being diagnosed with a learning disability reduces the likelihood that teachers and peers will misinterpret the deficits experienced by the adolescent. Furthermore, adolescents with a diagnosed learning disability would receive intervention services that may help alleviate feelings of frustration. Factors such as these may explain why these students did not also display the same rates of verbal and physical violence as adolescents with indicators of a learning disability.

An additional difference that emerged between adolescents with self-reported diagnosed learning disability and adolescents with self-reported indicators was in regard to being a victim of bullying. Specifically, the current study found that students with self-reported diagnoses of a learning disability experienced higher rates of bullying victimization, while those with indicators did not. Since adolescents who reported diagnosis of a learning disability did not engage in higher rates of delinquency, Agnew's strain theory may not apply. However, the social model of disability theory may explain why these individuals reported higher rates of being bullied than their peers. Specifically, the social model argues that the very term *disability* is a social construct that stigmatizes an individual (Barnes et al., 1999). This stigmatization contributes to individuals with disabilities experiencing societal expectations regarding their behaviors and capabilities that are independent from individuals' actual disability. The end result is the social oppression and exclusion of these individuals (Barnes et al., 1999). Thus,

students with a self-reported diagnosis of a learning disability may be stigmatized and labeled in negative terms (e.g., dumb, stupid, slow). This stigmatization contributes to peers expecting these adolescents to behave accordingly to their label. This phenomenon increases the risk that adolescents with learning disabilities will be seen as social outcast by peers, making them more susceptible to bullying (Woliver, 2009).

To that end, the results of present study indicate that there is a significant difference in delinquency and victimization between rural students with self-reported diagnoses of learning disabilities, indicators of a learning disability, and without a learning disability. More specifically, findings suggest that the lack of identification and intervention for adolescents with indicators of a learning disability may contribute to feelings of frustration and strain that lead to acts of physical and verbal aggression. However, not placing the label of *disability* may also protect these children from experience stigmatization and expectations to conform to peers' perceptions of what the term *learning disability* means. This label in turn may protect these students from becoming victims of bullying. Thus, it appears there are both positive and negative aspects to a student being identified as having a learning disability as well as not being identified.

Policy Implications

There are two primary policy implications regarding the findings of this thesis. First, evidence that adolescents who reported specific indicators of a learning disability are engaging in higher rates of violent and aggressive behaviors suggests that there is a critical need to reassess identification processes in rural areas. The nature of learning disabilities is considerably complex. Specifically, the variation in the manifestation and

the deficits exhibited makes each child with a learning disability unique (Woliver, 2009). Factors such as these, combined with the inconsistencies in identification and assessment processes in public schools, increase the probability that children with learning disabilities are not being properly identified. Thus, in a sense, some children with learning disabilities may be *slipping through the cracks* of public education and the results can be detrimental. The results of this study support the need for a sophisticated and uniformed identification process of adolescents with learning disabilities. Such policies are necessary in order to prevent these adolescents from potentially cycling through the juvenile and criminal justice systems.

The second policy implication that this study offers is the need to reduce the stigmatization that children with disabilities experience in rural areas. The findings of this study indicate that adolescents who reported a diagnosed learning disability were more often the victim of bullying than their peers. Considering the same was not true for adolescents who reported indicators of a learning disability, it appears that the label of *learning disability* may make these children more susceptible to victimization. Existing literature has supported this argument indicating that children with learning disabilities often experience prejudice, social isolation, and stigma making them more likely to be teased and bullied than their peers (Barnes et al., 1999; Groce, 2004; Woliver, 2009). To prevent such victimization of children with learning disabilities, a conscious effort must be made to remove the stigma attached to the term *disability*. This goal can be accomplished by increasing the awareness and education of both teachers and students alike. It is possible that with the creation bullying prevention models and specialized

training of teachers the negative labels society has placed on individuals with disabilities can be combated and overcome.

Limitations and Future Research

This thesis represents an exploratory analysis of learning disabilities and delinquency among rural adolescents; however, there are limitations to the study that must be addressed. One such limitation is the use of self-reporting data. The use of self-reporting data introduces threats to validity considering that the accuracy of responses is dependent upon participants' comprehension, memory, and willingness to answer sensitive questions (Brener et al., 2003). Additionally, this study relied on students self-reporting a diagnosis of a learning disability. While an official clinical diagnosis would have been ideal, it was beyond the scope of this thesis to accomplish such a task. Future research should triangulate self-report data with official data (e.g., clinical diagnoses, criminal records). This technique would allow for a more holistic and reliable analysis of learning disabilities and delinquency among rural high school students.

A second limitation to the current study is the limited sample size. Specifically, the sample of adolescents with self-reported diagnosis of learning disabilities and indicators of a learning disability was relatively small, each representing an estimated 4% of the sample. It should be noted that students with learning disabilities only represent roughly 5% of public school populations (Cortiella, 2011). Considering the small percentage these students represent in public school populations, the sample included within the current study is fairly representative. However, small sample sizes could raise complications regarding statistical analyses (Field, 2013). Thus, future research should consider collecting a nationally representative sample of adolescents in rural

communities. This type of sampling frame would allow for a larger sample of adolescents with learning disabilities as well as adolescents with indicators of learning disabilities and possibly alleviate complications regarding statistical analyses.

Generalizability is also a concern of the present study. As previously noted, this thesis represents an exploratory analysis. Thus, the researcher was restricted in terms of what schools could be included in the study. This limitation resulted in three rural schools from a southern state serving as the sampling frame for the study. In order for the results to be generalizable to a larger population, future research is needed to expand the sampling frame to wider geographical area. Once again, a nationally representative sample of rural high school students would accomplish this task and increase the generalizability of results.

Finally, additional suggestions for future research include the need for further evaluation of differences between adolescents with diagnosed and undiagnosed learning disabilities. The results of the current study indicate that there may be detrimental effects regarding failing to identify a child with a learning disability as well as placing the stigmatizing label of *disability* on a child. Future research should explore the possibility of including a qualitative evaluation of learning disabilities. Specifically, techniques such as interviewing children with learning disabilities would allow children the opportunity to express how they do or do not feel their disability impacts them. In-depth interviews would also allow children to express their opinions regarding the effects the stigmatizing label *disability* has on them. Further evaluation of these effects could potentially yield vital evidence regarding delinquency and victimization among adolescents with learning disabilities. Furthermore, this research could be instrumental in

providing support for the creation of policies that would improve the experiences of adolescents with learning disabilities in schools.

Conclusion

Previous research that has addressed the association between learning disabilities and delinquency has often been riddled with methodological flaws and mixed results (Brier, 1989; Larson, 1988; Lawrence, 2007). This issue is primarily due to the complex nature of learning disabilities. Considering that youth with learning disabilities are overrepresented within juvenile correctional facilities (14% - 70%), there is a critical need for research that addresses the gaps in the existing literature (Morris & Morris, 2006; Rutherford et al., 2002). The present study attempted to contribute to accomplishing this goal. Specifically, this thesis represented an exploratory analysis of self-reported learning disability diagnoses, learning disability indicators, delinquency, and victimization among rural adolescents.

The findings of this study indicate that there was not a statically significant association between self-reported diagnoses of a learning disability and delinquency as a whole. However, self-reported indicators of a learning disability were statistically significant with certain types of delinquent behavior (i.e., violent offense, distribution of controlled substances, and perpetration of bullying). Differences between adolescents who reported a diagnosis of a learning disability and adolescents who reported indicators of a learning disability also emerged in experiences of bullying victimization. The results of multivariate regression indicated that diagnoses of learning disability was significantly related being a victim of bullying; however, indicators of a learning disability was not. These differences in delinquency and victimization among students with self-reported

diagnoses of learning disability and indicators of learning disability raise critical questions regarding the identification and labeling of these adolescents. In order to address such questions, future research that expands upon the present study is needed.

In closing, extant research has demonstrated that adolescents with learning disabilities encounter many factors that may place them at an increased risk of victimization and delinquency. The current study partially supports this hypothesis in regards to certain types of delinquent behavior. Furthermore, findings suggest that the experiences of adolescents with learning disabilities who report being diagnosed and who report being undiagnosed may be significantly different. This discrepancy raises concern regarding stigmatization of these children. Specifically, there is a need to address the manner in which these children are labeled and the consequences that label may have. A conscious effort must be made to educate society that these children have both weaknesses and strengths. Thus, these children should be evaluated holistically in regards to weaknesses *as well as* strengths and not strictly in terms of being *disabled* (Woliver, 2009). If this cannot be achieved, then these children will continue to encounter negative experiences within schools and possibly be destined to cycle through the juvenile and criminal justice systems.

APPENDIX A

DEFINITIONS OF SPECIFIC LEARNING DISABILITIES

Learning Disability	Manifestation
Dyslexia: language and reading disability	Refers to difficulties with specific language skills, particularly reading. May contribute to difficulties spelling, writing, and pronouncing words.
Dyscalculia: arithmetic and math disability	Refers to a wide range of difficulties involving math. May vary from person to person and can affect individuals differently throughout their life.
Dysgraphia: writing disability	Refers to difficulties expressing thoughts in writing and graphing. May contribute to poor spelling and poor handwriting.
Auditory and Visual Processing Disorder:	Refers to difficulties understanding and using verbal or writing language regardless of having normal hearing and vision.
Nonverbal Learning Disorders:	Refers to difficulties with nonverbal cues. May contribute to misinterpreting body language, experiencing poor coordination, and being clumsy.

Sources: Woliver, 2009; Cortiella, 2011; The National Center for Learning Disabilities: www.ncl.org

APPENDIX B

INSTITUTIONAL REVIEW BOARD APPROVAL LETTER



INSTITUTIONAL REVIEW BOARD
118 College Drive #5147 | Hattiesburg, MS 39406-0001
Phone: 601.266.6820 | Fax: 601.266.4377 | www.usm.edu/irb

NOTICE OF COMMITTEE ACTION

The project has been reviewed by The University of Southern Mississippi Institutional Review Board in accordance with Federal Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services (45 CFR Part 46), and university guidelines to ensure adherence to the following criteria:

- The risks to subjects are minimized.
- The risks to subjects are reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered regarding risks to subjects must be reported immediately, but not later than 10 days following the event. This should be reported to the IRB Office via the "Adverse Effect Report Form".
- If approved, the maximum period of approval is limited to twelve months.
Projects that exceed this period must submit an application for renewal or continuation.

PROTOCOL NUMBER: **13111801**
PROJECT TITLE: **School, Disability Status, and Delinquency: An Examination of Delinquency Among Rural Adolescents**
PROJECT TYPE: **New Project**
RESEARCHER(S): **Miriam Brooks**
COLLEGE/DIVISION: **College of Science and Technology**
DEPARTMENT: **School of Criminal Justice**
FUNDING AGENCY/SPONSOR: **N/A**
IRB COMMITTEE ACTION: **Expedited Review Approval**
PERIOD OF APPROVAL: **12/04/2013 to 12/03/2014**

Lawrence A. Hosman, Ph.D.
Institutional Review Board

APPENDIX C

STUDENT SURVEY AND CODE BOOK

SECTION 1: Please check your responses to the following questions. Please remember, do not include any identifying information on this survey (e.g., your name)

<p>1. Have you ever been diagnosed with a learning disability?</p> <p>(1) <input type="checkbox"/> Yes (0) <input type="checkbox"/> No (Please skip to question #2 if you answered “No”)</p> <p>→ 1a. If “Yes”, what learning disability were you diagnosed with? (<u>Check</u> all that apply)</p> <p>(1) <input type="checkbox"/> Dyslexia (difficulties with reading)</p> <p>(2) <input type="checkbox"/> Dyscalculia (difficulties with math)</p> <p>(3) <input type="checkbox"/> Dysgraphia (difficulties with writing)</p> <p>(4) <input type="checkbox"/> ADD or ADHD</p> <p>(5) <input type="checkbox"/> Not sure</p> <p>(6) <input type="checkbox"/> Other: _____</p> <p>→ 1b: How old were you when you were first diagnosed with a learning disability?</p> <p>_____ years</p> <p>(0) <input type="checkbox"/> Not sure</p>
<p>2. Are you in special education classes?</p> <p>(1) <input type="checkbox"/> Yes (2) <input type="checkbox"/> No (Please skip to question #3 if you answered “No”)</p> <p>→ 2a. If “Yes”, why are you in these classes?</p> <p>A: _____</p>

SECTION 2: Please check the answer for the following questions that best applies to you.

	Never	Very Rarely	Sometimes	Often	Almost Always
3. I confuse similar-looking numbers and letters.	(0) <input type="checkbox"/>	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>
4. I confuse similar-looking words (beard/bread).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. I reverse the letter order in words (saw/was).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Never	Very Rarely	Sometimes	Often	Almost Always
6. I guess at unfamiliar words instead of sounding them out when reading.	(0) <input type="checkbox"/>	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>
7. I have trouble associating letters and sounds.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. I have significant difficulty reading.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. I find simple counting to be a challenge.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. I have difficulty with basic addition and subtraction of numbers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. I have difficulty counting by 5s and 10s.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. I have difficulty telling time.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. I have difficulty with simple multiplication of numbers (4 x 5, 6 x 6).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. I find it hard to count rapidly.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. My writing is messy.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. I find it hard to think of ideas for writing papers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. I copy notes incorrectly.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. I find it hard to proofread my own work.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. I find it hard to prepare outlines for writing assignments.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. My writing is disorganized.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SECTION 3: Please check how many times you have done the following things in the past 12 months.

	Never	1 or 2 times	3 or 4 times	5 or more times
21. I have gotten into a serious physical fight.	(0) <input type="checkbox"/>	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>
22. I have hurt someone badly enough that they needed bandages or care from a doctor or nurse.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23. I have taken part in a physical fight where a group of my friends were against another group.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24. I have used or threaten someone with a weapon.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25. I have deliberately damaged property that didn't belong to me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
26. I have taken something from a store without paying for it.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27. I have stolen something worth more than \$50.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28. I have gone into a house or building to steal something.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
29. I have stolen something worth less than \$50.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SECTION 4: Please check how many times you have used the following substances in the past 12 months.

	Never	1 or 2 times	3 or 4 times	5 or more times
30. I have used alcoholic beverages (beer, wine, or liquor).	(0) <input type="checkbox"/>	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>

	Never	1 or 2 times	3 or 4 times	5 or more times
31. I have used tobacco products (chewing tobacco, cigarettes, or cigars).	(0) <input type="checkbox"/>	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>
32. I have used marijuana.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
33. I have used other illegal drugs besides marijuana (cocaine, ecstasy, LSD, Heroin, or crack).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
34. I have used prescription drugs that were not prescribed to me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
35. I have used prescription drugs for fun.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
36. I have misused my own prescription drugs.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
37. I have used steroids.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SECTION 5: Please check how many times you have done the following things in the past 12 months.

	Never	1 or 2 times	3 or 4 times	5 or more times
38. I have <i>sold</i> marijuana.	(0) <input type="checkbox"/>	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>
39. I have <i>sold</i> other illegal drugs besides marijuana (cocaine, ecstasy, LSD, Heroin, or crack).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
40. I have <i>sold</i> prescription drugs.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
41. I have sent naked pictures of myself to another person from my phone.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
42. I have received naked pictures of another person on my phone.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
43. I have forwarded naked pictures of someone else to another person.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Never	1 or 2 times	3 or 4 times	5 or more times
44. I have teased another student in a mean or hurtful way.	(0) <input type="checkbox"/>	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>
45. I have hit, pushed, or slapped another student.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
46. I have harassed another student.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
47. I have started untrue rumors about another student.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
48. I have harassed another student over the internet (Facebook, Twitter).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
49. I have spread untrue rumors about another student over the internet (Facebook, Twitter).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
50. I have <i>been</i> teased by another student in a mean or hurtful way.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
51. I have <i>been</i> hit, pushed, or slapped by another student.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
52. I have <i>been</i> harassed by another student.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
53. I have <i>had</i> untrue rumors started about me by another student.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
54. I have <i>been</i> harassed by another student over the internet (Facebook, Twitter, email).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
55. I have <i>had</i> untrue rumors started about me by another student over the internet (Facebook, Twitter, email).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SECTION 6: Please check the answer for the following questions that best represents your beliefs.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
56. Most people treat individuals with learning disabilities differently.	(0) <input type="checkbox"/>	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>
57. Individuals with learning disabilities cannot succeed in school.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
58. My grades in school greatly affect how my teachers think about me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
59. My grades in school greatly affect how my classmates think about me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
60. My grades in school greatly affect how I think about myself.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
61. People think that I am smart.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
62. People think that I am stupid.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
63. I feel sad or hopeless.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
64. I feel like I am worthless.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
65. I feel like things will not get better in the future.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
66. I feel depressed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
67. I find it difficult to pick up on other people's moods or feelings.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
68. I have difficulty expressing my feelings to others.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
69. I have difficulty remaining calm when I get frustrated.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
70. I have difficulty expressing my point in conversations.	(0) <input type="checkbox"/>	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>
71. I find it hard to fit in with groups of other students.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SECTION 7: Please check your answers to the following questions.

<p>72. Have you ever been arrested?</p> <p>(1) <input type="checkbox"/> Yes</p> <p>(0) <input type="checkbox"/> No</p>
<p>73. Have you ever been convicted/adjudicated for a crime?</p> <p>(1) <input type="checkbox"/> Yes</p> <p>(0) <input type="checkbox"/> No</p>
<p>74. What grades do you typically receive in school?</p> <p>(0) <input type="checkbox"/> Mostly A's</p> <p>(1) <input type="checkbox"/> Mostly B's</p> <p>(2) <input type="checkbox"/> Mostly C's</p> <p>(3) <input type="checkbox"/> Mostly D's</p> <p>(4) <input type="checkbox"/> Mostly F's</p>
<p>75. Select the answer that you feel best describes you:</p> <p>(0) <input type="checkbox"/> I have a high level of intelligence</p> <p>(1) <input type="checkbox"/> I have a moderate level of intelligence</p> <p>(2) <input type="checkbox"/> I have an average level of intelligence</p> <p>(3) <input type="checkbox"/> I have a below average level of intelligence</p>
<p>76. Do you take classes at the Vo-Tech?</p> <p>(1) <input type="checkbox"/> Yes</p> <p>(0) <input type="checkbox"/> No</p>
<p>77. Have you ever been held back or repeated a grade?</p> <p>(1) <input type="checkbox"/> Yes</p> <p>(0) <input type="checkbox"/> No</p> <p>(2) <input type="checkbox"/> Not sure</p>

78. Select the answer that you feel best describes you:

- (0) I have high self-esteem
- (1) I have average self-esteem
- (2) I have low self-esteem

79. Are your parents:

- (3) Single (never married)
- (0) Married
- (2) Separated
- (1) Divorced
- (4) Other: _____

80. What is your gender?

- (1) Male
- (0) Female

81. What type of lunches do you receive at school?

- (2) Full price
- (1) Reduced price
- (0) Free

82. What is your ethnicity?

- (0) White
- (1) Black
- (3) Hispanic
- (4) Other _____

83. How old are you?

_____ years.

APPENDIX D

LETTER TO THE TEACHERS

Dear Teachers:

My name is Miriam Brooks. I am a graduate student at The University of Southern Mississippi. To better understand the needs of students in rural areas, I am conducting a research project at your high school. The purpose of this research is to explore the association between learning difficulties and problem behaviors in adolescents. I am asking you for your assistance with this project.

I will be coming to the high school on [REDACTED] to tell students about the research project and ask if they are interested in participating by completing a survey. On this day, I also will pass out letters to the parents and consent forms to the students who are interested during first period classes. This presentation to your students should only take approximately five minutes. On [REDACTED], students who have returned a signed parent consent form will be administered a survey. The survey will take approximately 20-25 minutes to complete.

I am very excited about being able to come into your high school to conduct this research. I greatly appreciate all of you taking the time out of your schedules to help me with this study. If you have any questions, please feel free to contact me at miriam.brooks@eagles.usm.edu or my advisor, Dr. Mary Evans, at (601) 266-5660.

Sincerely,

Miriam Brooks
Graduate Assistant
School of Criminal Justice
The University of Southern Mississippi

APPENDIX E

ORAL PRESENTATION

Hello, my name is Miriam Brooks, and I am a graduate assistant within the School of Criminal Justice at The University of Southern Mississippi. To better understand the needs of students in rural areas, I am conducting research at your high school. The purpose of this research is to explore learning difficulties and problem behaviors among high school students.

If you choose to participate in this study, you will be asked to complete a survey during school hours. Most students should be able to complete the survey within 20-25 minutes. You will be asked to answer questions about difficulties you may or may not have experienced in school such as: diagnosis of learning disabilities and difficulties with math, reading, or writing. You will also be asked to answer questions about your behaviors over the past 12 months such as: illegal activities, underage drinking, and bullying.

Participation in this study is completely voluntary and confidential. You will never be asked to provide a name or any other form of identification that would connect you to any particular survey. If at any time while participating in the survey you feel that you do not wish to continue, you can stop answering questions immediately without penalty, prejudice, or loss of benefits.

Minimum discomfort may occur due to the fact that you will be asked questions about your personal behavior and success in school. If at any time during the survey you feel that you do not wish to continue answering questions, you may stop immediately without any penalty, prejudice, or loss of benefits.

If you are interested in participating in this research project, please take a consent form home to your parents. There is also a letter to your parents that will inform them of what the study will entail. You will only be allowed to participate in this study if your parents sign indicating that they consent to your participation.

Are there any questions regarding participation in this study?

If you have any additional questions, please feel free to contact me at miriam.brooks@eagles.usm.edu.

APPENDIX F

LETTER TO THE PARENTS

Dear Parents/Guardians of the Students,

My name is Miriam Brooks, and I am a graduate assistant within the School of Criminal Justice at The University of Southern Mississippi. To better understand the needs of students in rural areas, I am conducting research at your child's high school. The purpose of this research is to explore the association between learning difficulties and problem behaviors in adolescents.

If your child is permitted to participate in this study, he or she will be asked to complete a survey at the high school during school hours. Most students should be able to complete the survey within 20-25 minutes. Your child will be asked to answer questions about difficulties they may or may not have experienced in school such as: diagnosis of a learning disability and difficulties with math, reading, or writing. Your child will also be asked to answer questions about his or her behaviors over the past 12 months such as: delinquency (e.g., underage drinking) and victimization (e.g., bullying).

The survey is completely voluntary and confidential. The student will never be asked to provide a name or any other form of identification that would connect him or her to any particular survey. If at any time while participating in the survey your child feels that he or she does not wish to continue, he or she can stop answering questions immediately without any penalty, prejudice, or loss of benefits.

For your convenience, a parent consent form has been provided with this letter for your review. If your child wishes to participate in this project, then your signature will be required on this form to indicate your consent for his or her participation. If you have any questions regarding this research project, please feel free to contact me at miriam.brooks@eagles.usm.edu or Dr. Mary Evans at (601) 266-5660.

This project has been reviewed by the Human Subjects Protection Review Committee, which ensures that research projects involving human subjects follow federal regulations. Any questions or concerns about rights as a research subject should be directed to the chair of the Institutional Review Board, The University of Southern Mississippi, 118 College Drive #5116, Hattiesburg, MS 39406-0001, (601) 266-5997.

Thank you for your time and consideration of this request.

Sincerely,

Miriam Brooks
Graduate Assistant
School of Criminal Justice
The University of Southern Mississippi

APPENDIX G
CONSENT FORM

Participant's name _____

Consent is hereby given to participate in the research project entitled "School, Disability Status, and Delinquency: An Examination of Delinquency among Rural Adolescents." All procedures and their purpose were explained in a letter by Miriam Brooks. Information was given regarding all benefits, risks, inconveniences, or discomforts that might be expected.

The opportunity to ask questions has been given through contacting the researcher through the contact information provided below. Participation in the project is completely voluntary, and participants may withdraw at any time without penalty, prejudice, or loss of benefits. All personal information is strictly confidential, and no names will be disclosed. Any new information that develops during the project will be provided if that information may affect the willingness to continue participation in the project.

Questions concerning the research, at any time during or after the project, should be directed to Miriam Brooks at miriam.brooks@eagles.usm.edu or Dr. Mary Evans at (601) 266-5660. This project and consent form has been reviewed by the Human Subjects Protection Review Committee, which ensures that research projects involving human subjects follow federal regulations. Any question or concerns about rights as a research participant should be directed to the Chair of the Institutional Review Board, The University of Southern Mississippi, 118 College Drive #5116, Hattiesburg, MS 39406-0001, (601) 266-5997.

Signature of Minor Research Participant

Date

Signature of Parent/Guardian

Date

Signature of Primary Researcher

Date

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