RISK FACTORS FOR DELINQUENCY AMONG ADOLESCENT MALES WITH
EMOTIONAL/BEHAVIORAL DISORDERS, LEARNING DISABILITIES
AND THEIR NONDISABLED PEERS: A COMPARISON

Dissertation

Presented to the Graduate Council of the
University of North Texas in Partial
Fulfillment of the Requirements

For the Degree of

DOCTOR OF PHILOSOPHY

By


Denton, Texas

May, 1997
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Recent research in juvenile justice has focused on identifying precursors of delinquency, which are referred to as "risk factors." These are biological or psychosocial conditions that increase the probability of an individual developing problem behaviors. Delinquency prevention and intervention programs are adopting a risk-focused approach which attempts to reduce targeted youth's exposure to risk factors.

Limited attention has been paid to investigating whether commonly accepted risk factors are equally relevant across various subtypes of juvenile offenders. Two subgroups of offenders deserving of special attention by virtue of their extremely high prevalence rates in the juvenile justice system are those with emotional/behavioral disorders (EBD) and those with learning disabilities (LD). The purpose of this study was to determine the relevance of specific individually-, family-, and school-based risk factors for delinquency across three specific groups of juvenile offenders: (a) those with EBD, (b) those with LD, and (c) those who did not qualify as disabled under the definition of disability used in the Individuals with Disabilities Education Act (IDEA).

Individual risk factors that were measured included aggressive/acting-out behaviors, irresponsible/inattentive behaviors, fearful/anxious behaviors, social withdrawn
behaviors, age at first arrest and history of substance use. School-based risk factors examined were students' reading and math scores and attitude towards and involvement in school. Attachment to family, parental discipline style, and level of supervision provided by parents were the family-based risk factors examined.

Discriminant analysis procedures indicated that juvenile offenders with EBD, juvenile offenders with LD, and nondisabled offenders differed significantly in their demonstration of aggressive/acting-out behaviors, irresponsible/inattentive behaviors and fearful/anxious behaviors. In contrast, no significant differences were found across family-, and school-based risk factors. This implies that until research demonstrates the existence of unique risk factors or a difference in the magnitude of risk factors experienced by juvenile offenders with EBD and LD, it would be premature to develop and implement differential delinquency prevention and intervention programming for these subgroups of offenders.
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CHAPTER I

INTRODUCTION TO THE STUDY

Background

Much of the last thirty years of research in juvenile delinquency has focused on identifying precursors of juvenile delinquency, which are referred to as "risk factors." Risk factors can be defined as biological or psychosocial conditions that increase the probability of an individual developing problem behaviors (Hawkins, Catalano, & Miller, 1992; Werner & Smith, 1992). Risk factors for crime and violence have been identified as existing on many domains; within the communities where children and youth are being reared, within the family, peer group, and school of affected youth and within the individual themselves (American Psychological Association, 1993; Dryfoos, 1990; Hawkins et al., 1992; Tolan & Guerra, 1994). Many delinquency prevention and early intervention programs have adopted a risk-focused approach which emphasizes the reduction of known risk factors for targeted youth while simultaneously enhancing their protective factors (Lehman, Hawkins, & Catalano, 1994; Office of Juvenile Justice & Delinquency Prevention, 1995a). Protective factors can be defined as factors that buffer the effects of exposure to risk and reduce the probability of the development of behavioral problems even in the face of risk (Hawkins et al., 1992; Werner & Smith, 1992).
Individually-based risk factors that have been found to predispose individuals to delinquency include various emotional, cognitive and behavioral characteristics of children and youth. Examples of these characteristics include impulsivity, aggression, oppositional behavior, and hyperactivity (Loeber, Stouthamer-Loeber, Van Kammen, & Farrington, 1991; Moffitt, 1990; White et al., 1994). Lower intellectual functioning has consistently emerged as a risk factor for delinquency. On average, delinquents have been found to score eight points lower on standardized intelligence tests than nondelinquents (Hirschi & Hindelang, 1977; Lynam, Moffitt, & Stouthamer-Loeber, 1993; West & Farrington, 1973).

Drug and alcohol use represents another key risk factor for delinquency. Over 65% of youth who use alcohol and other drugs are also delinquent. In addition, increased use of alcohol and other drugs is associated with an increase in delinquency involvement; however, the reverse is not true. Increase in delinquent activities has not been found to have significant impact on the rate of substance abuse (Huizinga, Loeber, & Thornberry, 1993; Van Kammen, Loeber, & Stouthamer-Loeber, 1991).

Quality of family life has been found to have a significant effect on the development of delinquent behavior in children and youth. Two of the strongest family-based predictors of delinquency include limited supervision and monitoring of children by parents (Hirschi, 1969; Larzelere & Patterson, 1990; McCord, 1988; Smith & Krohn, 1995) and overly harsh or inconsistent discipline approaches in the home (Farrington, 1991; Hawkins & Lishner, 1987; Huizinga et al., 1993; Patterson & Dishion, 1985).

Lack of attachment to their family serves as a strong predictor of delinquency.
Delinquents overwhelmingly come from families where there is limited involvement in the child’s life and where the parents are distant and unattached (Hawkins & Lishner, 1987; Scholte, 1992; Snyder & Huntley, 1990). Other familial-based risk factors that have received support in the literature include favorable parental attitude towards involvement in criminal activities and substance abuse (Fagan & Wexler, 1987; Hawkins & Weis, 1985).

Schools are traditionally accepted as key institutions for the socialization of the young. However, research has identified some risk factors within schools which may propel youth on a path to delinquency. These school-based factors include low school achievement, and lack of commitment to and involvement in school (Hawkins & Lishner, 1987; Huizinga et al., 1993). It is hypothesized that when individuals experience school failure, they cease to be attached to teachers and schools and become more involved with delinquent peers who engage in activities that do not adhere to the values espoused by schools.

The community where the child is being reared and the child’s peer group represent key domains where risk factors for delinquency can be found. Association with peers who engage in deviant behaviors has proven to be one of the most stable predictors of delinquency (Barnes & Welte, 1986; Hawkins et al., 1992; Farrington, 1991). Community factors that have been found to play a key role in increasing the risk of a child becoming delinquent include extreme poverty, high unemployment, local norms that support crime and/or the use of alcohol and other drugs, and the ready availability of firearms, and/or drugs within a community (Farrington et al., 1990; Sampson, 1986).
The aforementioned risk factors for delinquency are universally accepted as evidenced by their frequency of reference in the literature. Before developing and implementing comprehensive delinquency prevention and intervention programs based on these generalized set of risk factors, it is imperative that the relevance of these risk factors across various subtypes of offenders be examined. Thus far, the emphasis has been on identifying risk factors for juvenile delinquents in general with no direct attention being given to specific subtypes within this population. Children and youth who have been identified as having emotional/behavioral disorders (EBD), and/or learning disabilities (LD), represent two such significant subgroups. Yet, the possibility that offenders with EBD and/or LD may have experienced unique risk factors on their pathway to delinquency has not been explored. For example, the three most comprehensive ongoing longitudinal studies investigating the causes and correlates of juvenile delinquency in Pittsburgh, PA, Rochester, NY, and Denver, CO do not disaggregate their data with regard to offenders with EBD and/or LD (D. Huizinga, personal communication, October 31, 1996; R. Loeber, personal communication, October 22, 1996). It remains unclear whether the risk factor model that is currently being accepted by the juvenile justice system applies only to youth who are not EBD and/or LD, or is applicable across diverse populations.

This lack of attention to individuals with EBD and/or LD is especially disturbing when one considers the overrepresentation of these youth in the juvenile justice system. Otto, Greenstein, Johnson, and Friedman's 1992 review of epidemiological studies of juvenile offender populations reported estimates of juvenile offenders with conduct
disorders as ranging from 50% - 90%, incidences of attention deficit disorders were reported as being up to 46%, while anxiety disorders were reported as ranging from 6% - 41%. The Office of Juvenile Justice and Delinquency Prevention’s (OJJDP), “Conditions of Confinement Study” (1995b) examined the perception of public and private detention centers and training school administrators with regard to the numbers of youth with EBD and LD detained in their facilities. These administrators indicated that approximately 50% appeared to have emotional problems, while an estimated 45% had evidence of specific learning disabilities. Casey & Keilitz’s (1990) meta-analysis of 310 incidence studies found an average prevalence estimate of 35.6% for juvenile offenders with LD.

Clearly, youth with EBD and/or LD are present in large numbers in the delinquent population. Research that examines the applicability of commonly accepted general risk factors for delinquency to these specific subtypes of juvenile offenders is essential. Such research could help to address the question of whether we should subgroup offenders according to comorbidity. Research that fails to distinguish delinquent subgroups on the basis of comorbidity may obscure important findings about unique pathways in the development of delinquent behavior. Designing effective prevention and intervention programming is dependent upon the accurate identification of risk factors for all types of juvenile offenders.

Purpose

The purpose of this study is to determine the relevance of specific individually-, family-, and school-based risk factors for delinquency across three specific groups of juvenile offenders: (a) those with EBD, (b) those with LD, and (c) those who may be
considered as nondisabled. Individually-based risk factors to be examined include aggressive/acting out behaviors, irresponsible/inattentive behaviors, fearful/anxious behaviors, social withdrawal behaviors, age at first arrest, and use of alcohol and other drugs. Family-based risk factors to be explored include level of parental monitoring and supervision, parental discipline style, and level of attachment to and involvement in the family. The school-based risk factors of reading achievement, math achievement, and attachment to and involvement in school will also be investigated.

Significance

This study has significance at both the policy-making and practitioner levels. Policymakers are under constant pressure to provide differential programming for juvenile offenders based on different subtypes including those with EBD and/or LD. Before deciding if differential programming is needed, it first must be determined if all delinquents, regardless of disabilities, follow similar pathways in the development of delinquent behavior. If juvenile offenders with EBD and/or LD exhibit unique risk factors, then further research is warranted to investigate these specific factors and to assist in the development of effective programming that is responsive to their distinct needs.

At the practitioner level, educators, mental health professionals, law enforcement, and correctional professionals come into contact with offenders with EBD and/or LD daily. Clarification is needed on the differences and similarities in the developmental pathways to delinquency experienced by offenders with EBD, offenders with LD and nondisabled offenders. This information will assist practitioners in designing effective
programming. Given that prevention and intervention programs are currently espousing a risk-focussed approach (Lehman et al., 1994; Office of Juvenile Justice and Delinquency Prevention, 1995a), it is imperative that the risk factors which are applicable for all or specific types of juvenile offenders be established.

Limitations

Three immediate limitations to this study are evident. The narrow regional area from which subjects were drawn represents one of the constraints. However, the fact that the state where the data was accrued uses the federal definitions of EBD and LD which are also in use in most states serves to ameliorate some of the potential regional bias. The use of self-reported data of behavior and attitudes for many of the risk factors also presents a potential problem. However, evidence exists that suggests that self-report data in delinquency studies provides data that have acceptable reliability and validity standards (Hindelang, Hirschi, & Weis, 1979). A third limitation is the cross-sectional nature of the data. Details about risk factors encountered by study participants are from one time period in their lives -- just before they were incarcerated. Clearly, longitudinal studies that investigate the development of behavior over a longer period of time provide more details. However, cross-sectional data can serve as an important first step in attempting to distinguish between risk factors that are relevant for the three groups under study. If the cross-sectional data suggest that differences in risk factors between the three groups exist, then a more detailed investigation using longitudinal type studies will be recommended for the future.
Definition of Terms

1. **Delinquent**: Legal term indicating that a child/youth has been adjudicated by the courts and found to have engaged in acts that would be criminal if committed by adults (Lundman, 1984).

2. **Emotional/Behavioral Disorder**: The term means exhibiting one or more of the following characteristics over a long period of time and to a marked degree which adversely affects educational performance: (a) an inability to learn which cannot be explained by intellectual, sensory, or health factors; (b) an inability to build or maintain satisfactory interpersonal relationships with peers and teachers; (c) inappropriate types of behaviors or feelings under normal conditions; (d) a general pervasive mood of unhappiness or depression; or (e) a tendency to develop physical symptoms, pains, or fears associated with personal or school problems. The term includes children who are schizophrenic or autistic. The term does not include children who are socially maladjusted, unless it is determined that they are seriously emotionally disturbed (Federal Register, August, 1977).

3. **Learning Disability**: A disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, which may manifest itself in an imperfect ability to listen, think, speak, read, write, spell, or to do mathematical calculations. The term includes such conditions as perceptual disabilities, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia. The term does not include children who have learning problems which are primarily the result of visual, hearing, or motor handicaps, of mental retardation, or of environmental, cultural,
or economic disadvantage (Federal Register, August, 1977).

4. **Nondisabled offender**: Any juvenile offender who does not qualify as disabled according to the eleven disability categories identified by the Individuals with Disabilities Education Act (1990). These eleven categories include those with mental retardation, hearing impairments including deafness, speech or language impairments, visual impairments including blindness, serious emotional disturbance, orthopedic impairments, autism, traumatic brain injury, other health impairments, or specific learning disabilities.

5. **Protective factor**: Factors that buffer the effects of exposure to risk and reduce the probability of the development of behavioral problems even in the face of risk (Hawkins et al., 1992; Werner & Smith, 1992).

6. **Risk factor**: Biological or psychosocial conditions that increase the probability of an individual developing problem behaviors (Hawkins et al., 1992; Werner & Smith, 1992).
CHAPTER II

REVIEW OF LITERATURE

An essential first step in conducting any research study is to examine the existing literature base on the topic. Searches were conducted of Sociological Abstracts, Psychological Abstracts, ERIC, National Criminal Justice Reference Service, and the Criminal Justice Periodical Index to identify studies that had already been conducted looking at similar issues. Terms used in this examination of databases included “predictors of delinquency,” “risk factors for delinquency,” “emotional/behavioral disorder and delinquency,” and “learning disabilities and delinquency.” The time period from 1955-1996 was examined.

This literature review is organized in the following way: (a) overview of the individually-based risk factors that have been identified as being causes and correlates of juvenile delinquency, (b) overview of the family-based risk factors associated with juvenile delinquency, (c) presentation of the school-based risk factors that serve as precursors to delinquency, (d) discussion of the prevalence of offenders with disabilities in the juvenile justice system, (e) examination of the hypothesized link between delinquency and emotional/behavioral disorders (EBD), and (f) exploration of the relationship between delinquency and learning disabilities (LD).
Introduction

Juvenile delinquency in the United States comprises a significant societal problem. In 1994, law enforcement agencies made over 2.7 million arrests of persons under age 18 (Snyder, Sickmund, & Poe-Yamagata, 1996). Since the 1980s, much of the research in the field of juvenile justice has focussed on attempting to identify precursors of juvenile delinquency, which are referred to as “risk factors.” Risk factors can be defined as biological and/or psychosocial conditions that increase the probability of an individual developing problem behaviors including delinquent behavior, violence, school drop-out, and abuse of alcohol and other drugs (Hawkins, Catalano, & Miller, 1992; Werner & Smith, 1992). These risk factors exist in many domains: within the communities where children and youth are being reared, within the family, peer group, and school of affected youth and within the individuals themselves (American Psychological Association, 1993; Dryfoos, 1990; Hawkins et al., 1992; Tolan & Guerra, 1994). Efforts have also been made to identify “protective factors.” Protective factors can be defined as factors that buffer the effects of exposure to risk and inhibit the development of behavior problems even in the face of risk (Hawkins et al., 1992; Werner & Smith, 1992).

Primary prevention of delinquency rests on the principle of identifying individuals who are at-risk for delinquent activity before this behavior occurs and either removing the risk factor or strengthening an individual’s resistance to the risk factor. Mulvey, Arthur, & Repucci (1993) argue that the impact of the primary prevention approach is determined by the accuracy with which risk factors are identified.
Delinquency prevention and intervention programs funded at the federal and state levels have been encouraged to adopt a "risk-focussed" approach which is based on the premise that to prevent a problem from occurring, we need to identify factors that increase the risk of the problem development and work to reduce these known risks (Lehman, Hawkins, & Catalano, 1994; Office of Juvenile Justice and Delinquency Prevention, 1995a).

Involvement in delinquent behaviors can be conceptualized as the outcome correlates of transactional processes between at-risk traits in the personality of the child being exposed to risky child rearing practices and risky conditions in the child’s environment. Genetic, constitutional, and environmental factors as well as individual learning history, and specific situational events have all been found to impact the occurrence/nonoccurrence of delinquent behaviors (Dryfoos, 1990; Hawkins et al., 1992; Scholte, 1992). There is increasing recognition that adolescents who are involved with the juvenile justice system have serious multiple problems including alcohol and other drug use, school failure, and violent behaviors (Dembo, LaVoie, Schmeidler, & Washburn, 1987).

Three ongoing studies -- Rochester, NY, Denver, CO, and Pittsburgh, PA -- that began in 1987, have been lauded as milestones in criminological research pertaining to the causes and correlates of juvenile delinquency. Each project is following a selected cohort of children and youth over time in an attempt to identify those social conditions, personal characteristics, social interactions, and developmental processes which are causally linked to the initiation, maintenance, and termination of problem behaviors.
including delinquency and drug use (Huizinga, Loeber, & Thornberry, 1993). The Denver study (Huizinga et al., 1993) is tracking approximately 1,500 children/youth (both males and females), and obtaining data by interviewing the subjects and their caretakers annually. Ages of study participants ranged between 7 and 15 at the onset of the study. The Pittsburgh study (Loeber, 1990) is tracking approximately 1500 boys who were in first, fourth, or seventh grade at the beginning of the study. The boys themselves, their parents, and teachers are being interviewed on a biannual basis. Approximately 1500 male and female seventh and eight graders are being followed in the Rochester study (Thornberry, Lizotte, Krohn, Farnworth, & Jang, 1991). Interviews are conducted with the youth and their primary caretakers every six months. Each of these studies has verified the existence of a multitude of biological, psychological, and social risk factors that explain why some youth engage in delinquency and other problem behaviors.

Huizinga, Esbensen, & Weiher (1991) argue that underlying causes of delinquent behaviors may work differently for different subsets of individuals. The question of whether juvenile offenders with EBD and/or LD represent subsets for whom the identified risk factors work differently has not received any attention to-date. Participants in the risk factor research have primarily been nondisabled offenders. Even when students with EBD and/or LD were among the sample, they were not treated as a unique group; their data were merged within the overall group report. This is surprising when one considers the fact that individuals with EBD and/or LD comprise a significant part of the juvenile offender population.

This failure to consider juvenile offenders with EBD and/or LD as specific
categories within the delinquent population is also evident in the three largest ongoing longitudinal studies investigating the causes and correlates of juvenile delinquency which are being conducted in Pittsburgh, Rochester, and Denver. As previously mentioned, these studies have not disaggregated their data with regard to offenders with disabilities (D. Huizinga, personal communication, October 31, 1996; R. Loeber, personal communication, October 22, 1996). The prevalence of youth with disabilities in their samples is not addressed, nor is the possibility that offenders with disabilities may have experienced unique risk factors on their pathway to delinquency. Thus, it is unclear whether the risk factor model that is currently being accepted by the juvenile justice system applies only to nondisabled offenders, or is applicable across diverse population.

Individually-based risk factors.

A variety of individually-based risk factors that appear to be related to the development and maintenance of delinquent behavior have been consistently identified in the literature. These individual factors can be categorized into three broad areas: (a) emotional, cognitive, and behavioral functioning of the child/adolescent, (b) physical and/or sexual abuse of the child/adolescent and (c) a history of alcohol and other drug use by the delinquent.

Physical aggression, oppositional behavior, attention deficits, hyperactivity, and disruptive behaviors have all emerged as key characteristics of children and youth who engage in delinquent behaviors (Loeber, Stouthamer-Loeber, Van Kammen, & Farrington, 1991; Moffitt, 1990). According to White et al., (1994), impulsivity has been identified as a characteristic that predisposes individuals to delinquency when measured
both cross-sectionally and across time. It is thought to produce a direct effect by
interfering with children's ability to control their behavior and to consider the
consequences of their actions. Indirectly, impulsivity plays a role by having a negative
impact on children's success in school. Low self-esteem and a predominantly external
locus of control constitute key characteristics among delinquents (Block, Block, &
Keyes, 1988; Scholte, 1992). Many of the aforementioned characteristics are key
elements used by psychiatrists when making a diagnosis of conduct disorders; therefore,
it is no surprise that conduct disorder has been identified as being a significant precursor
of delinquency and/or adult antisocial personality (Huizinga et al., 1993; Moffitt, 1990).

There is growing consensus in the literature regarding the stability of antisocial
behavior in children (e.g., Loeber, 1982; Loeber et al., 1991; Moffitt, 1990; White,
Moffitt, Robins, & Silva, 1990). Early onset (prior to the age of 12) of antisocial
behaviors has been found to be the most stable predictor of serious, varied, and frequent
offending in later years.

The fact that low intelligence acts as a significant risk factor in the development
of delinquent behavior is one of the most robust findings in the juvenile justice field.
Delinquents on average score eight points lower on standardized intelligence tests than
nondelinquents (Hirschi & Hindelang, 1977; Kandel et al., 1988; Lynam, Moffitt, &
This fact holds true even when other variables including socio-economic status, race, and
years of formal schooling are controlled (Kandel et al., 1988; Moffitt & Silva, 1988).

Three explanations for the link between intelligence and delinquency have been
offered: (a) low intelligence leads to delinquency, (b) delinquency may cause low intelligence, and (c) there may be a third variable which causes the link between intelligence and delinquency which would cause this relationship to be spurious in nature. An example of this third variable could be differential detection and detainment by law enforcement of individuals with low intelligence, which would result in the officially reported delinquent intelligence scores not being representative of the intelligence level of delinquents in general (Lynam et al., 1993; Moffitt & Silva, 1988). The differential detection argument was investigated by Moffitt & Silva (1988) who studied the intelligence scores of official delinquents in the system, self-reported delinquents who have not been caught, and nondelinquents. They found that the intelligence level of both the official and non-arrested delinquents were similar and each were lower than the nondelinquents. Thus, the differential detection claim appears to have limited support in the literature.

In their studies exploring the nature of the relationship between intelligence and delinquency, Lynam et al. (1993) have found that it runs in the direction of low intelligence causing delinquency. Low intelligence was found to have both indirect and direct effects. Direct effects were attributed to neuropsychological abilities to attend, to form goals and to self-monitor. In addition, low intelligence indirectly exerted an effect on delinquency through school failure. This indirect effect has proven especially significant for African-American youth.

Substantial evidence exists that child abuse and neglect are correlated with risk factors and, thereby, increase the risk of delinquent behavior (Dembo et al., 1987;
Huizinga et al., 1993). While evidence supports child abuse as a correlate of delinquency, it remains inconclusive as to whether it is a cause (Hawkins & Lishner, 1987).

The relationship between substance abuse and delinquency has been examined by many researchers (Dembo et al., 1987; Huizinga et al., 1993; Van Kammen, Loeber, & Stouthamer-Loeber, 1991). A large numbers of drug users participate in delinquent activities, while many delinquents also use alcohol and other drugs. Attempts have been made to clarify the direction of this relationship. The fact that drug use appears to precede delinquency was illustrated by Huizinga et al., (1993) who showed that fewer than 40% of delinquents are using alcohol or other drugs, however, over 65% of children/youth who use alcohol and other drugs are involved in delinquent behavior. In addition, they found that increases in drug use by youth resulted in a corresponding increase in delinquency, however the reverse was not true. When children/youth participated in more delinquent activities, their use of alcohol and other drugs did not necessarily increase. Evidence exists that early initiation into any type of drug use has been found to increase the likelihood of subsequent involvement in delinquent acts (Dembo et al., 1987; Van Kammen, et al., 1991).

**Family-based risk factors.**

Family factors have been found to be a key part of the complex set of risk factors for delinquency. Both retrospective and longitudinal studies have demonstrated that a variety of family-based variables affect delinquency. Considerable documentation exists illustrating the importance of family life for preventing delinquency and other childhood
problems (Fagan & Wexler, 1987; Huizinga et al., 1991; Huizinga et al. 1993; Loeber et al., 1991; Patterson & Stouthamer-Loeber, 1984; Smith & Krohn, 1995; Thornberry et al., 1991). These findings lend some support to the social control theory of delinquency which argues that all individuals are naturally inclined to behave in an antisocial manner, but various social controls including attachment to family schools, and churches bring about conformity instead (Hirschi, 1969). Poor supervision of children/youth has been associated with involvement in delinquency especially at its initiation stage. Children whose parents provide close and constant supervision tend to be less involved in delinquent activities. On the contrary, families of delinquents have been found to have limited awareness of their child's activities, peer associates and whereabouts (Hirschi, 1969; McCord, 1988; Patterson & Stouthamer-Loeber, 1984; Smith & Krohn, 1995; Snyder & Huntley, 1990). Limited parental monitoring and supervision of children has also been associated with parent, teacher, peer, and self-reported aggression, dishonesty, truancy, and delinquency (Patterson & Dishion, 1985; Snyder & Huntley, 1990).

Family management practices have a significant effect on children's engagement in delinquent behaviors. Ineffective discipline practices that use either excessively harsh, severe, and inconsistent discipline, or weak discipline epitomized by a lack of clear expectations are each associated with increased involvement in delinquency (Farrington, 1991; Hawkins & Lishner, 1987; Huizinga et al., 1993; Kandel & Andrews, 1987; Lehman et al., 1994; McCord, 1988; Patterson & Dishion, 1985; Patterson & Stouthamer-Loeber, 1984; Smith & Krohn, 1995; Snyder & Huntley, 1990). Scholte
(1992) demonstrated that being reared in a home that uses child-rearing practices which are nonresponsive, nondemocratic or permissive serves as consistent predictors of delinquency.

Attachment of youth to their family has been identified as a prerequisite to preventing problem behaviors. Youth who are emotionally bonded to their parents are unlikely candidates for delinquency (Hawkins & Lishner, 1987; Scholte, 1992; Snyder & Huntley, 1990). According to Thornberry et al., (1991), data collected in the Denver Youth Study provides evidence of a bidirectional relationship between delinquency and bonding with parents. Low parental attachment was found to result in delinquency which subsequently widened the emotional bond between parent and child. Lack of attachment to parents proved to be an especially important risk factor for delinquency up until age 15/16. By mid-adolescence, the nature of the relationship had become unidirectional with involvement in delinquency having a negative impact on attachment to parents, but the reverse no longer being true. Emotional bonding to parents no longer had the power to reduce delinquent activities. By the time a child is in tenth grade, poor attachment to parents can be viewed as an effect of delinquency, rather than a cause.

While family monitoring and supervision, discipline styles, and attachment have consistently been strong predictors of delinquency, other family-based risk factors have also been identified. Parental attitudes to and involvement in drugs and crime influence the behavior and attitudes of their children. Children who are excused for breaking the law are more likely to develop problems with juvenile delinquency (Hawkins & Weis,
Family involvement in high risk behaviors, including crime and substance abuse and their attitude towards these behaviors, have high empirical correlation with delinquency measures. (Bohman, 1978; Fagan & Wexler, 1987; Haggerty, Wells, Jenson, Catalano, & Hawkins, 1989). Children whose parents do not have strong beliefs about the wrongness of delinquent behavior tend to have a pro-delinquent attitude (Huizinga et al., 1991).

Conflict in the family has also been associated with increased risk for delinquency. Delinquents are more likely than nondelinquents to have been reared in families with high rates of conflict (Fagan & Wexler, 1987; Haggerty et al., 1989; Huizinga et al., 1993; Patterson & Stouthamer-Loeber, 1984). Domestic violence in a family greatly increases the likelihood that children and youth will engage in violence themselves (Tolan & Guerra, 1994).

Considerable research has focussed on whether the structure of a family has an impact on delinquency. While one study (Dornbusch et al., 1985) was able to demonstrate an association between family structure and adolescent delinquency, this has been the exception rather than the norm. Free (1991), in a review of all studies investigating a possible link between family structure and delinquency, found that overall there is no solid evidence of a relationship between these two variables. Typically, family processes including supervision, discipline, family conflict attachment, and involvement have proven to be much stronger predictors of delinquent behavior than family structure (Smith & Krohn, 1995).
School-based risk factors.

The role of the school in preventing delinquency has been addressed indirectly through the effect on school performance of individually-based risk factors including low intelligence, impulsivity, or hyperactivity. In each of these cases, it is argued that the individually-based risk factors contribute to school failure which in turn leads to delinquency. Thus, school failure is viewed as a mediating variable in between these personal factors and delinquency (Lynam et al., 1993; White et al., 1994).

In addition to their role as mediating variables, school factors have been demonstrated as presenting specific risk factors for delinquency. This is a view espoused by the social control theory of delinquency (Hirschi, 1969) which argues that a student’s natural tendency towards deviant behavior is kept in check because of their attachment to school. This attachment to school results in students having a commitment to school, involvement in school activities, and belief in the values subscribed to at school, all of which guide a young person to conform instead of becoming involved in delinquency.

Low commitment to and involvement in school, and academic failure have consistently emerged as predictors of delinquency, (Haggerty et al., 1989; Hawkins & Lishner, 1987; Huizinga et al., 1993; Lehman et al., 1994; Lynam et al., 1993). Commitment to school and delinquent behavior have been found to have a mutually reinforcing causal relationship over time. According to Thornberry et al. (1991), low commitment to school results in increased involvement in delinquency and delinquency in turn results in low commitment to school. School failure has emerged as one of the strongest correlates of delinquency. Juvenile delinquents tend to have a history of low
educational achievement which usually begins in the late elementary grades (Haggerty et al., 1989; Hawkins & Lishner, 1987; Huizinga et al., 1993).

In addition to those risk factors that are individually-, family, and school-based, there are peer-based and community-based risk factors which significantly increase the possibility that an individual may become involved in delinquency. Young people who associate with peers who engage in delinquent behaviors are much more likely to engage in similar behaviors. This association is one of the most consistent predictors identified by research. Even young people from well-managed families, who do not experience other risk factors, have a greater likelihood of becoming delinquent if the peers with whom they associate engage in antisocial behaviors (Barnes & Welte, 1986; Hawkins et al., 1992; Elliott, Huizinga & Menard, 1989; Farrington, 1991; Loeber et al., 1991).

Community-based and peer-based risk factors.

The final domain where risk factors for delinquency have been consistently identified is that of the community where the child is living. Availability of drugs and firearms have been positively correlated with increased delinquency in communities (Alexander, Massey, Gibbs, & Altekruse, 1985). In addition, residing in a community where there are norms favoring crime and substance abuse serve as a risk factor for increased engagement in delinquent activities. Higher rates of juvenile delinquency occur in neighborhoods where people have limited attachment to the community. The neighborhood disorganization that occurs in these communities makes it more difficult for schools, churches, and families to pass on prosocial values and norms to their young (Herting & Guest, 1985; Sampson, 1986). According to Farrington et al. (1990), children
and youth who grow up in communities where there is extreme poverty, poor living conditions, and high unemployment are at increased risk for becoming involved in delinquency.

Clearly, there is consensus in the literature regarding risk factors for delinquency. However, the relevance of these general risk factors to offenders with disabilities still needs to be clarified. Limited information is available to document the relevance of these risk factors for juvenile offenders with EBD and/or LD (Fink, 1990). It is imperative that the risk factors identified for the delinquent population at large are examined in relation to these particular subgroups. The remainder of this literature review will provide a rationale for the investigation of whether or not the universally accepted risk factors pertain to offenders with EBD and/or LD by discussing the prevalence of these students in the offender population, and the hypothesized links between EBD and delinquency and LD and delinquency.

Prevalence of Juvenile Offenders with EBD and/or LD

Estimates of the prevalence of persons with disabilities in any human services program tend to be affected by sociopolitical variables. This holds true within the juvenile justice system where the estimates of juvenile delinquents with disabilities ranges from 0% to almost 100% depending on the definition used (Fink, 1990; Nelson, Rutherford, & Wolford, 1987). Mesinger (1986) illustrates this situation when he writes that "since the 1950s, views in the literature have ranged from nearly all delinquents are normal (a sociologist's perspective), to nearly all delinquents are deviant (a psychologist's perspective), to nearly all delinquents have a learning disability (a special
Surveys conducted have verified the overrepresentation of individuals with disabilities in the juvenile justice system. Morgan's survey (1979) found that 42% of incarcerated youth in facilities nationwide had disabilities. Rutherford, Nelson, & Wolford's results (1985) revealed an estimated 28% of all delinquents to have disabilities. The estimates of the number of delinquents who have learning disabilities ranges from 9% (Bullock & Reilly, 1979) to 36.5% (Broder, Dunivant, Smith, & Sutton, 1981). The prevalence of delinquents with EBD has been estimated to average at about 16% (Morgan, 1979). A meta-analysis of 310 incidence studies reported by Casey & Keilitz (1990) demonstrated that an average of 35.6% of juvenile offenders have learning disabilities.

Emotional/Behavioral Disorders and Juvenile Delinquency

Out of all the disability conditions, determining the number of offenders with EBD is the most challenging due to the vague nature of the EBD definition (Coffey, 1994). The definition of EBD came from the fields of special education and mental health. It is not commonly used in the correctional field (Gilliam & Scott, 1987). Quay (1979) identified four major patterns of EBD: (a) conduct disorders, (b) anxiety-withdrawal, (c) inattentive, and (d) socialized aggression. Over the last ten years, there has been substantial argument over whether or not to change the federal definition as it stands to allow individuals with social maladjustment to be included under the E/BD umbrella (Forness & Knitzer, 1992; McIntyre, 1993: Weinberg & Weinberg, 1990).

While the definitional debate continues to wage, youth with EBD by virtue of
their unique characteristics, exist in high numbers in the juvenile justice system. These students manifest various problems of inappropriate behavior, faulty thinking, excessive variations in moods, and developmental lags in social/emotional maturity, all of which are likely to bring them to the attention of law enforcement authorities (Gilliam & Scott, 1987). As might be expected, conduct disorder is the most common diagnosis among youth with mental illness in the juvenile justice system. Prevalence rates range from 50% to 90%, and it is safe to assume that at least one-fifth and perhaps as many as 60% of youth in the juvenile justice system have a conduct disorder (Otto et al., 1992). This is hardly surprising when one considers behavioral characteristics frequently displayed by individuals with conduct disorder — fighting, assaultive, temper tantrums, defiant, destructiveness, disruptive, bullying, arguing, and dishonesty (Quay, 1979). Attention deficit disorder and attention deficit hyperactivity disorder have also been identified at high rates — 19% to 46%. The susceptibility theory appears to have relevance for the EBD population as well as the LD group. Youth with EBD typically possess certain characteristics (e.g., aggression, impulsivity, lack of self-control, external locus of control) which make them more susceptible to engaging in delinquent behaviors. Many of these characteristics appear as individually-based risk factors in risk factor research.

Learning Disabilities and Delinquency

Although prevalence estimates vary, it is widely accepted that youth with LD are disproportionately represented in the juvenile justice system. Professionals in both the criminal justice and education fields appear convinced that there is a strong relationship between LD and delinquency (Elliott & Voss, 1974; Keilitz & Miller, 1985; Murray,
1976; Rutherford et al., 1985). Three theories attempting to explain the link between LD and delinquency predominate.

School failure theory argues that having a learning disability results in academic failure, which leads to delinquent behavior (Murray, 1976; Post, 1981). This supports the social control theory of delinquency whereby the school is viewed as a social institution that helps control a child's natural tendency towards delinquent behavior (Hirschi, 1969). This theory hypothesizes that students who are successful in school form an attachment to the school and accept and believe the values transmitted there. However, students with LD do not form this social bond with the school, do not accept the values transmitted by the school, and engage in deviant behavior instead. If this hypothesized relationship exists, then juvenile offenders with LD should show evidence of being exposed to the school-based risk factors, namely low achievement, and lack of school involvement and/or attachment.

The susceptibility theory claims that children with learning disabilities have certain cognitive and personality characteristics which predispose them to commit crime (Murray, 1976; Post, 1981; Reilly & Bullock, 1979). Examples of these characteristics include impulsivity, poor perception of social cues, hyperactivity, and inability to anticipate consequences of future actions. If this hypothesized relationship exists, then juvenile offenders with LD should exhibit many of the individually-based risk factors that research has identified for the delinquent population at large.

A final theory -- the differential treatment theory -- suggests that youth with learning disabilities are treated more harshly by the juvenile justice system (Broder et al.,
1981; Dunivant, 1982; Keilitz & Dunivant, 1987). The theory argues that youth with LD are arrested, detained, and incarcerated more frequently than offenders who do not have a learning disability. Murray (1976) found that the probability of adjudication was 222% greater for a youth with LD.

The Office of Juvenile Justice and Delinquency Prevention (OJJDP), sponsored a study to examine the relevance of each of these theories regarding the relationship between learning disabilities and delinquency. The “LD/Juvenile Delinquency” study was conducted by the National Center for State Courts between 1976-1983. Both cross-sectional and longitudinal data were used to explore these theories. Both sets of data supported the fact that youth with LD were more likely to engage in delinquent behaviors. Results of this study supported the school failure theory, the susceptibility theory, and differential treatment with regard to arrest and adjudication. However, limited evidence was found to support the argument that youth with L/D are incarcerated at higher rates.

While the prevalence rate of juvenile offenders with EBD and/or LD and the relationship between their disabilities and delinquency is far from clear, even the most conservative studies have verified that these specific groups of adolescents comprise a significant proportion of juvenile delinquents. As such, they deserve representation in the research examining risk factors for delinquency. If students with EBD and/or LD are at greater risk for delinquency than are non-special education students, then special education may have a critical role to play in prevention and intervention programming. If offenders with disabilities do not differ significantly from nondisabled offenders on
known risk factors, then special education students should at least be considered in
general delinquency prevention and intervention programming.
CHAPTER III

METHODOLOGY AND PROCEDURES

The purpose of this study was to determine the relevance of specific individually-, family-, and school-based risk factors for delinquency across three specific groups of juvenile offenders: offenders who have been identified as having an emotional/behavioral disorder (EBD), offenders who have a learning disability (LD), and nondisabled offenders. This chapter discusses the methodology for the study under the headings of (a) research questions, (b) subject selection, (c) instrumentation, (d) data collection, and (e) data analysis.

Research Questions

The review of literature has demonstrated that consensus has been reached regarding general risk factors that appear to increase the chances of an individual’s involvement in delinquent behaviors. However, the applicability of these risk factors for specific subgroups of offenders has yet to be established. This study explored the possibility that juvenile offenders who have been identified as EBD and those who have been identified as having LD may experience unique risk factors on their pathway to delinquency. The risk factors that are universally accepted for delinquency in general may not be relevant for these particular groups of offenders. The exploratory nature of the study dictated the use of research questions (Sproull, 1988). Three research questions, each accompanied by corollaries, were used to direct this investigation.
Research Question #1

Do juvenile offenders with EBD and juvenile offenders with LD demonstrate individually-based risk factors for delinquency that can discriminate them from their nondisabled delinquent peers?

Corollary 1A: Does the age at first arrest differ for these three groups?

Corollary 1B: Does the substance abuse history differ for these three groups?

Corollary 1C: Is there a difference in the aggressive and acting-out behavioral patterns exhibited by these three groups?

Corollary 1D: Is there a difference in the socially withdrawn behavior exhibited by these three groups?

Corollary 1E: Is there a difference in the irresponsible/inattentive behaviors exhibited by these three groups?

Corollary 1F: Is there a difference in the fearful/anxious behaviors exhibited by these three groups?

Research Question #2

Do juvenile offenders with EBD and juvenile offenders with LD demonstrate family-based risk factors for delinquency that can discriminate them from their nondisabled delinquent peers?

Corollary 2A: Is there a difference in the level of parental monitoring and supervision received by members of these three groups?
Corollary 2B: Is there a difference in the attachment level to parents exhibited by members of these three groups?

Corollary 2C: Is there a difference in the disciplinary procedures used by parents of members of these three groups?

Research Question #3

Do juvenile offenders with EBD and juvenile offenders with LD demonstrate school-based risk factors for delinquency that can discriminate them from their nondisabled delinquent peers?

Corollary 3A: Is there a difference in the math achievement scores of individuals in these three groups?

Corollary 3B: Is there a difference in the reading achievement scores of individuals in these three groups?

Corollary 3C: Is there a difference in the attachment to and involvement in school demonstrated by members of these three groups?

Setting

Subjects for the study were juvenile offenders who were incarcerated in Hillcrest State School in Salem, Oregon. Hillcrest is part of the Oregon State Training School system. All subjects had been adjudicated and placed in the facility by the courts. At the time of the study there were 373 juveniles -- 314 males and 59 females -- incarcerated at Hillcrest. Their ages ranged from 13-18 years old. Most of the population at Hillcrest (75%) are there due to having committed person to person offenses. The remaining 25% are repeat property offenders. The ethnic breakdown of the delinquents housed at
Hillcrest is 10% African-American, 10% Hispanic, 3% Asian, 1% Native American, and 76% Caucasian. Forty percent of the male population, 125 students, at Hillcrest have disabilities. Forty-six percent (N = 58) of the population with disabilities have a diagnosis of EBD, while 54% (N = 67) have an LD diagnosis. The average length of stay at this facility is approximately five months.

**Subject Selection**

Permission to conduct this investigation was obtained from the Director of Correctional Education for the State of Oregon and the Assistant Director of Hillcrest. The study was also approved by the Institutional Review Board at the University of North Texas (See Appendix A). Three random groups of student participants were selected. Fifty juvenile offenders who had been identified as having EBD formed the first group. This sample of 50 subjects were randomly selected out of a population of 58 that included all males incarcerated who had been identified as having EBD. The second group was comprised of 50 juvenile offenders who had been identified as having LD. This group was randomly selected out of a population which included 67 males who had been identified as having LD. The final group consisted of 50 juvenile offenders who had not been identified as having a disability according to the Individuals with Disabilities Education Act (1990) guidelines. A total of 189 male students were eligible for selection in this group.

In order to protect the confidentiality of students, the Assistant Director of the facility compiled a list that identifies three distinct groups of students at Hillcrest -- all male students with EBD, all male students with LD, and all nondisabled male students.
He then assigned a code number to each of the students. A master list of the students eligible to be selected for each of the three groups with their assigned code number and names was kept by the Assistant Director. The researcher received a list that identified subjects who were eligible for selection in each of the three groups by assigned code number only. She did not have access to students’ names. A random table of numbers was used to select subjects for each of the three groups using the coded lists. Female subjects were not eligible to participate in this study, due to their low prevalence rates at Hillcrest.

**Instrumentation**

Record review, results of the **Behavior Dimensions Rating Scale (BDRS)** (Bullock & Wilson, 1989), and an individualized student questionnaire were used to collect the data. The only standardized score that was recorded from students’ records was their scores on the math and reading sections of the **California Achievement Tests (CAT)** (McGrawHill, 1985). Psychometric properties of the BDRS, CAT, and individualized student questionnaire are discussed below.

**BDRS**

The **BDRS** (Bullock & Wilson, 1989) was developed to study the patterns of behaviors demonstrated by subjects with EBD. The BDRS consists of 43 pairs of bipolar descriptions, each specifically defined in the manual to avoid misinterpretation. The rater chooses a position on a 7-point continuum that best typifies the behavior exhibited by the student. The BDRS has an easy-to-use one-page format that can be completed and scored in less than 30-minutes.
The BDRS was normed using an ethnically and geographically representative national sample. Students with and without disabilities were included in the norming sample. Additionally, research has shown response patterns of ratings of special education students, regular education students, and correctional education students to be factorially equivalent. This finding shows that the instrument can be used in correctional settings with a greater degree of confidence than instruments not specifically validated for use in these settings (Campbell, Bullock, & Wilson, 1989).

The BDRS is composed of four subscales: aggressive/acting out behaviors, irresponsible/inattentive behaviors, socially withdrawn behaviors, and fearful/anxious behaviors. Test-retest reliability coefficients range from .82 for the socially withdrawn subscale to .91 for the instrument as a whole. The content validity of the BDRS was established through research projects and an expert review process. Construct validity was verified through the use of both exploratory and confirmatory factor analysis.

CAT

The CAT (McGraw-Hill, 1985) is a set of norm-referenced tests used to assess skill development in seven content areas in grades K-12. The tests include measures in reading, mathematics, spelling, language, study skills, science, and social studies. Norming samples were stratified on the basis of geographic region, community type, district size, and socio-economic status. Internal consistency reliability coefficients average at .80 which is acceptable. Data on validity of the CAT demonstrates its high correlation with the Test of Cognitive Skills, a test of learning aptitude (Salvia & Ysseldyke, 1988).
Student Questionnaire.

All study participants were asked to complete a 35-item questionnaire (See Appendix B). Eleven of these items explored the individuals' attitude towards and involvement in school, while 6-items focused on the type of monitoring and supervision that was provided in participants' homes. The discipline approach used in the individuals' homes was the focus of 11-items, and the level of attachment to their family felt by each of the study participants was examined in the final 7 items.

The items on the questionnaire and the scoring procedures were adapted from the Denver Youth Survey (Huizinga, Esbensen, & Weiher, 1991). This study is an ongoing longitudinal study of the development of problem behavior among children and youth. A focus of the study is to identify the combination of biological, economic, social, and psychological factors that explain why some youth become involved in delinquent activities, while others in similar circumstances do not. The survey is part of the Office of Juvenile Justice and Delinquency Prevention's Program of Research on the Causes and Correlates of Delinquency. The survey involves annual data collection from a probability sample of five different birth cohorts and their parents from areas of Denver, CO that are high risk for delinquency. Subjects consist of 802 boys and 728 girls. At the point of the first annual survey covering 1987, the subjects were 7, 9, 11, 13, and 15 years of age. Psychometric information for questionnaire items was obtained from Denver Youth Survey project staff (Anne Weiher, personal communication, November 19, 1996). This information is based on the fifth wave of data that was collected in 1992. The questionnaire was normed on a population of 1257 boys and girls who were from
areas of Denver, CO that are high-risk for delinquency. Ages of the subjects ranged from 12-20 years old.

Alpha reliability coefficients for the items on the questionnaire range from .52 to .79. The items exploring attachment to and involvement in school have a reliability of .78. Parental monitoring items were found to have a reliability index of .52. The items that discuss the discipline methods used have an alpha reliability measure of .58, and the family attachment items demonstrated a reliability index of .79. Content validity for these items was established through research projects and an expert review process. These items have also been used with some modifications in the longitudinal studies in Rochester, NY, and Pittsburgh, PA (D. Huizinga, personal communication, October 31, 1996).

Data Collection

Data were collected on-site by the researcher between December 9, 1996 and December 21, 1996. Data collection required records review, collection of teacher-completed BDRS for each student, and administration of the questionnaire. Table 1 delineates the risk factors that were measured for each participant and the source of these measures. It is followed by a detailed description of the procedures utilized when reviewing records and administering the individual student questionnaires.
### Table 1

**Risk Factors and Methods of Measurement**

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>Measurement Method</th>
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<tbody>
<tr>
<td><strong>Basic Demographic Measures</strong></td>
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<tr>
<td>Current age</td>
<td>Facility intake records</td>
</tr>
<tr>
<td>Ethnicity</td>
<td>Facility intake records</td>
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<tr>
<td>Socio-economic status</td>
<td>Facility intake records</td>
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<tr>
<td>Offense for which youth is currently incarcerated</td>
<td>Facility intake records</td>
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<tr>
<td>Living arrangement prior to incarceration</td>
<td>Facility intake records</td>
</tr>
<tr>
<td><strong>Individual Factors</strong></td>
<td></td>
</tr>
<tr>
<td>Age at first arrest</td>
<td>Facility intake records</td>
</tr>
<tr>
<td>Substance abuse history</td>
<td>Facility intake records</td>
</tr>
<tr>
<td>Aggressive/acting-out behaviors</td>
<td>Teacher-Completed BDRS</td>
</tr>
<tr>
<td>Irresponsible/inattentive behaviors</td>
<td>Teacher-Completed BDRS</td>
</tr>
<tr>
<td>Fearful/anxious behaviors</td>
<td>Teacher-Completed BDRS</td>
</tr>
<tr>
<td>Social withdrawal behaviors</td>
<td>Teacher-Completed BDRS</td>
</tr>
<tr>
<td><strong>Family Factors</strong></td>
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<tr>
<td>Attachment to parents</td>
<td>Questionnaire</td>
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<tr>
<td>Parental monitoring and supervision</td>
<td>Questionnaire</td>
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<tr>
<td>Parents' discipline approach</td>
<td>Questionnaire</td>
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Table 1 (continued)

**Risk Factors and Methods of Measurement**

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>Measurement Method</th>
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<tbody>
<tr>
<td>School Factors</td>
<td></td>
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<tr>
<td>Math achievement</td>
<td>Facility intake records</td>
</tr>
<tr>
<td>Reading achievement</td>
<td>Facility intake records</td>
</tr>
<tr>
<td>Attachment to and involvement in school</td>
<td>Questionnaire</td>
</tr>
</tbody>
</table>

**Records Review**

Participant records were reviewed in the central administration office on-site at Hillcrest. Pertinent information on specific risk factors was recorded on the documentation form developed by the researcher (See Appendix C). Demographic data recorded included: (a) ethnicity, (b) offense for which the individual is currently incarcerated, and (c) date of birth. Risk factors that were measured using data obtained through records review includes: (a) history of substance abuse, (b) reading and math achievement scores, (c) age at first arrest, and (d) living arrangements prior to being placed in Hillcrest. To allow for an analysis of student characteristics based on general socioeconomic status, zip codes were recorded for comparison to the most current US Census data.
BDRS

Teachers whose students had been randomly selected as study participants using the coded lists were contacted by the Assistant Director of the facility and asked to complete a BDRS student protocol for each participating student. Student protocols for the BDRS, and rater manuals which include definitions of the bipolar terms on the rating form were distributed to teachers when the researcher arrived on-site on December 9, 1996. The completed ratings forms were collected from the teachers by the researcher during the two-week data collection period at Hillcrest. Indices of aggressive/acting out behaviors, irresponsible/inattentive behaviors, socially withdrawn behaviors, and fearful/anxious behaviors were obtained from the teacher-completed BDRS student protocols.

Questionnaire

Each participant in the study was asked to complete a 35-item questionnaire that collected data about each individual's attachment to and involvement in school, the level of supervision and monitoring provided by the family, the discipline style used by the parents, and the level of attachment to the parents. An analysis of the readability of the questionnaire using the Flesch-Kincaid Grade level package that is a part of the WordPerfect 6.1 program (Novell Applications Group, 1995) showed that it was written at approximately a fourth grade reading level. Questionnaires were administered by the researcher to students in groups of 2-10. Teachers were requested to identify students who needed the questionnaire read to them or needed their answers recorded for them, and the researcher made appropriate modifications for the eleven students who were identified.
Data Analysis

The primary research question posed in this study relates to whether juvenile offenders with EBD, juvenile offenders with LD, and nondisabled juvenile offenders can be discriminated based on measures of specific risk factors for delinquency. It was decided that a multivariate analysis was the most logical approach because univariate measures of analyzing such data would unnecessarily increase analysis-wise alpha levels (Cliff, 1987) and effect the level of statistical significance (Pedhazur & Schmelkin, 1991). In addition, univariate methods do not allow for consideration of the interactive nature of the variables being studied (Dillon & Goldstein, 1984; Pedhazur & Schmelkin, 1991). All statistical analyses were performed using the Statistical Package for the Social Sciences (SPSS: Norusis, 1994).

Discriminant analysis techniques were used to analyze the data. This is a procedure for identifying the relationship between a qualitative criterion variable and quantitative predictor variables. The qualitative criterion variable in this study is group membership and it has three levels: membership in the juvenile offenders with EBD group, membership in the juvenile offenders with LD group, and membership in the nondisabled offender group. The predictor variables are the study participants’ scores on each of the risk factors measured in the study. Discriminant analysis procedures allows for the identification of boundaries between groups of objects and individuals. These boundaries are defined in terms of those variables which distinguish or discriminate objects or individuals in respective criterion groups. It is an adaptation of regression analysis that is designed for use when the criterion variables are qualitative in nature.
Fisher (1936) developed discriminant analysis to enable researchers to classify subjects into one of two groups. The procedure was later elaborated upon by Rao (1952), to allow it to be used with more than two groups. If the nominal-level criterion variable has three or more constituent categories, multiple discriminant functional analysis is used (Kachigan, 1986). This approach was selected as this study had a nominal level criterion variable of group membership with three categories. Students were assigned to one of three a priori defined groups: juvenile offenders with EBD, juvenile offenders with LD, and juvenile offenders who had not been identified as having a disability. The predictor variables (scores on specific risk factors) were analyzed to determine if the groups could be discriminated between based on their observed scores. Classification of subjects into groups based on the discriminating abilities of the predictor variables was the final outcome of discriminant analysis procedures. Classification procedures make fewer statistical demands than do inferential methodologies and most requirements (except for consideration of outliers and homogeneity of variance-covariance matrices) are relaxed (Tabachnick & Fidell, 1995).

Multivariate normality is not a problem with discriminant analysis (Dillon & Goldstein, 1984). Cliff (1987) states that assurances of normality are usually not considered to be very important. Since it is not feasible to test the normality of all linear combinations produced by a discriminant analysis (Tabachnick & Fidell, 1995), data were plotted and checked for the presence of outliers and skewness. Skewed distributions do not pose a threat to statistical soundness of discriminant analysis, but
outliers do. In addition, a sample size that produces df > 20 in the univariate analysis ensures robustness to violations of multivariate normality if the sample sizes are equal (Tabachnick & Fidell, 1995).

An additional underlying assumption of discriminant analysis that needs to be checked is the homogeneity of variance-covariance. However, a generalization of a Monte Carlo test of robustness supports the adequacy of equal sample sizes in ensuring homogeneity of variance-covariance (Hakstian, Roed, & Lind, 1979). This study satisfies the assumption by having 50 subjects in each of the three criterion groups.

Several steps are involved in conducting a multiple discriminant analysis. First, SPSS (1994) analyses the overall differences between groups based on Wilks Lambda. Wilks Lambda is a canonical discriminant function which indicates measure of association (Pedhazur & Schmelkin, 1991), and the proportion of variance of the dependent criterion variable (group membership in this study) that would not be accounted for by the independent predictor variables (risk factors in this study). A small Lambda demonstrates high variability between the two groups and little within group variability. A Lambda of one reveals that the groups do not differ (Kachigan, 1986).

If the Wilks Lambda Test is significant and indicates that the mean vectors associated with the criterion groups are not identical, the second step is to determine the accuracy of classification results. This can be done using the discriminant function prediction equations which appear on the computer printout (Kachigan, 1986). Multiple discriminant analysis calls for the development of the number of criterion groups less one predictor equation (Tatsuoka, 1970). In the case of this study, there are three criterion
groups, so two prediction equations were established. The first discriminant function equation attempts to distinguish the members of one group from the other two groups. The second discriminant function equation then attempts to distinguish members of the remaining two groups. The assignment of individuals to groups is based on the distance of individual's scores on the predictor variables from the centroid of each group. Individuals are placed in groups to whose centroid they are closest. These equations assign a weight to each of the predictor variables.
CHAPTER IV

RESULTS AND DISCUSSION

The purpose of this study was to determine the relevance of specific individually-, family-, and school-based risk factors for delinquency across three specific groups of juvenile offenders: (a) those with emotional/behavioral disorders (EBD), (b) those with learning disabilities (LD), and (c) those who may be considered as nondisabled.

Individual-based risk factors that were compared across the three groups included: (a) aggressive/acting out behaviors, (b) irresponsible/inattentive behaviors, (c) fearful/anxious behaviors, (d) social withdrawn behaviors, (e) age at first arrest, and (f) history of substance abuse. The first four items (items a to d) were measured using the Behavior Dimensions Rating Scale (BDRS), while age at first arrest and history of substance abuse were obtained through records review conducted by the researcher. Family-based risk factors that were compared included attachment to family, level of supervision provided by family, and family discipline approach. Each of the family-based variables were assessed using a questionnaire. School-based risk factors that were investigated included reading and math performance, and attitude towards and involvement in school. Reading and math achievement were measured using scores obtained on the California Achievement Test (CAT), while attitude towards and involvement in school was measured using a questionnaire. The findings of the study are presented as follows: (a) description of subjects, (b) tests of assumptions, (c) overall findings of significance, and (d) summary of findings.
Description of Subjects

Subjects for the study were juvenile offenders who are incarcerated in Hillcrest State School in Salem, Oregon. Hillcrest is part of the Oregon State Training School system. All subjects had been adjudicated and placed in the facility by the courts. At the time of the study, 373 juveniles -- 314 males and 59 females -- were incarcerated at Hillcrest. For the purpose of this study a random sample of 50 male students out of the 58 males housed at Hillcrest who had been found eligible to receive services as EBD was selected. The second group was comprised of a random sample of 50 male students with LD out of a total LD population of 67. A final group of 50 male students who had not been identified as either EBD or LD were randomly selected from a pool of 189 students. Complete information was secured for all subjects and visual inspection of plotted variables revealed no outliers, so all subjects were included in the discriminant analyses.

Demographic information including ethnicity, living environment, current age, socio-economic status, and offense for which the subject was currently incarcerated are depicted in Table 2.

An inspection of Table 2 demonstrates the similarities and differences in demographics between the three groups. An analysis of ethnic composition reveals all three groups had close to an equal number of African-American students. The NONDISABLED group had more Asian representation than either of the other two groups, while the EBD group had slightly less Hispanic representation. There was a lower number of Caucasians in the NONDISABLED sample. The LD sample had fewer Native-Americans represented than either of the other two groups.
Table 2

Demographic Information

<table>
<thead>
<tr>
<th></th>
<th>NON DISABLED</th>
<th>EBD</th>
<th>LD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ethnicity</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>African-American</td>
<td>5</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Asian</td>
<td>6</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Caucasian</td>
<td>26</td>
<td>35</td>
<td>33</td>
</tr>
<tr>
<td>Hispanic</td>
<td>10</td>
<td>7</td>
<td>10</td>
</tr>
<tr>
<td>Native-American</td>
<td>3</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td><strong>Living Arrangements</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Both parents</td>
<td>5</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Mother only</td>
<td>19</td>
<td>9</td>
<td>14</td>
</tr>
<tr>
<td>Father only</td>
<td>1</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Mother &amp; Stepfather</td>
<td>12</td>
<td>15</td>
<td>13</td>
</tr>
<tr>
<td>Father &amp; Stepmother</td>
<td>1</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Relatives</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Alone</td>
<td>4</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>Placement</td>
<td>5</td>
<td>13</td>
<td>1</td>
</tr>
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</table>

*(table continues)*
<table>
<thead>
<tr>
<th>Group</th>
<th>NON DISABLED</th>
<th>EBD</th>
<th>LD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Age</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13 years</td>
<td>3</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>14 years</td>
<td>5</td>
<td>13</td>
<td>14</td>
</tr>
<tr>
<td>15 years</td>
<td>11</td>
<td>15</td>
<td>11</td>
</tr>
<tr>
<td>16 years</td>
<td>18</td>
<td>16</td>
<td>12</td>
</tr>
<tr>
<td>17 years</td>
<td>13</td>
<td>3</td>
<td>12</td>
</tr>
<tr>
<td>Annual Family Income</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$ 5,000 - 9,999</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>$ 10,000 - 14,999</td>
<td>1</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>$ 15,000 - 24,999</td>
<td>23</td>
<td>31</td>
<td>33</td>
</tr>
<tr>
<td>$ 25,000 - 34,999</td>
<td>21</td>
<td>11</td>
<td>14</td>
</tr>
<tr>
<td>$ 35,000 - 49,999</td>
<td>2</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>$ 50,000 - 74,999</td>
<td>1</td>
<td>1</td>
<td>0</td>
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</table>
Table 2 (continued)

Demographic Information

<table>
<thead>
<tr>
<th>Group</th>
<th>NON DISABLED</th>
<th>EBD</th>
<th>LD</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Offense for Which Currently Incarcerated</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Arson</td>
<td>1</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Sexual Offense</td>
<td>7</td>
<td>21</td>
<td>16</td>
</tr>
<tr>
<td>Theft</td>
<td>24</td>
<td>17</td>
<td>20</td>
</tr>
<tr>
<td>Assault</td>
<td>8</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Murder</td>
<td>10</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Drug-related</td>
<td>0</td>
<td>3</td>
<td>0</td>
</tr>
</tbody>
</table>

With regard to living arrangements a similarly small number of students in each group, approximately 10% had resided with both of their biological parents prior to being incarcerated at Hillcrest. Thirty-eight percent of the NONDISABLED group had been living with their mother only, compared to 18% of the EBD group and 28% of the LD group. Smaller numbers of students had been residing with their father only, 2% of the NONDISABLED group, 2% of the EBD group, and 6% of the LD group. The numbers of students who had resided with their mother and a stepfather were relatively close for each
of the groups, 24% of the NONDISABLED group, 30% of the EBD group, and 26% of the LD group. Living with their father and a stepmother was not a frequently occurring situation, with only 2% of the NONDISABLED group, 8% of the EBD group, and 4% of the LD group falling into this category. A small number of students, approximately 8%, in each of the groups had lived with relatives prior to being placed at Hillcrest. Some dispersion existed among the number of students in each group who had been living in placement immediately prior to coming to Hillcrest. Placement was defined as being in a group home, foster home, or residential treatment center. This was not a common situation for the LD group with only 2% of that sample having come to Hillcrest from placement. Ten percent of the NONDISABLED group had lived in placement immediately prior to incarceration while 26% of the EBD sample had come to Hillcrest directly from placement.

Ages of students in each of the three groups ranged from 13 to 17 years. The LD and EBD samples had more 14 year olds than the NONDISABLED group, while the EBD group had lower representation among 17 year olds. The average ages of the subjects were similar: NONDISABLED $\bar{x} = 15.6$; EBD $\bar{x} = 15.1$; and LD $\bar{x} = 15.4$.

The majority of subjects in the EBD (62%) and LD (66%) groups resided in families that had an annual income between $15,000 and $24,000. Forty-six percent of the NONDISABLED sample fit into this category. An annual income of between $25,000 and $34,999 was available for 42% of the NONDISABLED group, 22% of the EBD group, and 28% of the LD group. A fairly even number of students had family annual incomes that fell close to the poverty level including 6% of the NONDISABLED
sample, 2% of the EBD sample and 6% of the LD sample. On the other end of the scale, there was a larger number of students from the EBD sample (12%) whose annual income was greater than $35,000. Eight percent of the students in the LD sample fell into this category while only 4% of the NONDISABLED group did. The average annual family income of the subjects was similar with the mean income of the NONDISABLED sample being $28,439, the mean age of the LD sample being $26,539, and the mean income of the EBD sample being $28,879.

An examination of the reasons why students in each of the groups were currently incarcerated revealed some differences between the groups. Students in the EBD sample were more likely to be incarcerated due to sexual offenses (42%) compared to 30% of the LD group and 14% of the NONDISABLED group. Theft was the most frequently occurring offense in the overall sample with 48% of the NONDISABLED group, 34% of the EBD group, and 42% of the LD sample having been adjudicated for theft. Students in the NONDISABLED sample were more likely to have been incarcerated for murder (20%) compared to 2% of the EBD group and 6% of the LD group. Assault was the reason for incarceration for 16% of the NONDISABLED group, 10% of the EBD group and 20% of the LD group. Other offenses including arson and drug-related incidents were represented by extremely low incidence rates among the sample.

To examine whether the descriptive variables were significantly different among the three groups, an analysis of difference for these variables was conducted. Table 3 presents the statistical results of the analysis of difference for descriptive information.

Table 3 indicates that the three groups did vary significantly in regards to their
current age and the offense for which they were currently incarcerated. The other
descriptive statistics were not found to be statistically significant between the three
groups.

Table 3

Differences by Group on Descriptive Data

<table>
<thead>
<tr>
<th>Variables</th>
<th>Wilks’ Lambda</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethnicity</td>
<td>.99561</td>
<td>.3241</td>
<td>.7237</td>
</tr>
<tr>
<td>Living Arrangements</td>
<td>.98104</td>
<td>1.420</td>
<td>.2448</td>
</tr>
<tr>
<td>Current Age</td>
<td>.95407</td>
<td>3.538</td>
<td>.0316*</td>
</tr>
<tr>
<td>Annual Family Income</td>
<td>.97327</td>
<td>2.018</td>
<td>.1365</td>
</tr>
<tr>
<td>Current Offense</td>
<td>.94467</td>
<td>4.305</td>
<td>.0152*</td>
</tr>
</tbody>
</table>

Note. df = (2, 147); * significance p<.05.

Tests of Assumptions

Before conducting a discriminant analysis, the data were analyzed to check the
emphasize that it is not uncommon for the assumptions of normality and homogeneity to
be violated in the field of behavioral sciences. Further, it has been stated that normality
is not a critical consideration when conducting a discriminant analysis (Cliff, 1987;
Dillon & Goldstein, 1984). However, data were plotted and visually examined for
outliers which may threaten the statistical soundness of the analysis. The lack of outliers and the equal samples sizes in each group allowed the assumption of multivariate normality to be met (Tabachnick & Fidell, 1995).

An additional assumption underlying the use of the discriminant analysis technique is the assumption of homogeneity of variance-covariance. Typically, the Statistical Package for the Social Sciences (SPSS) uses a Box’s M test to check this assumption. However, Tabachnick & Fidell (1995) describe this technique as overly sensitive and suggest that it be ignored. The Box’s M test failed to support the presence of homogeneity of variance-covariance. However, the adequacy of equal sample sizes has been cited as a valid indicator of homogeneity (Hakstian, Roed, & Lind, 1979) and the study satisfied this condition.

Further, the initial statistics produced were examined for threats of singularity. Singularity occurs when several of the independent variables are multicollinear with \( r = .90 \) or higher. Multicollinearity is a threat to analysis as it may cause statistical instability (Tabachnick & Fidell 1995). An examination of the pooled within-groups correlation matrix was conducted to check for singularity and multicollinearity. The conservative estimate suggested by Tabachnick & Fidell (1995) of .70 was used as the criteria. Of the 21 possible correlations, 1 had \( r > .70 \) and none had \( r > .90 \). In addition, SPSS discriminant analysis protects itself from statistical instability that results from multicollinearity by rejecting variables that attempt to enter below the minimum tolerance level (Norusis, 1994). By default, SPSS sets the minimum tolerance level at .001.
Overall Findings of Significance

A thorough analysis of the data accrued on the 150 subjects was conducted using SPSS (Norusis, 1994). The first discriminant analysis examined whether the three groups could be differentiated based on the individual risk factors of aggressive/acting-out behaviors, irresponsible/inattentive behaviors, anxious behaviors, socially withdrawn behaviors, history of substance abuse, and age at first arrest. Table 4 presents the overall findings.

Examination of Table 4 reveals the presence of significant differences between the three groups on the first discriminant function. The second discriminant function is nonsignificant. Following a significant discriminant function the next task is to attempt to classify group members. The subject classification outcomes based on the discriminant analysis are presented in Table 5.

Table 4

<table>
<thead>
<tr>
<th>Fcn</th>
<th>Eigenvalue</th>
<th>Canonical Correlation</th>
<th>After Fcn</th>
<th>Wilks' Lambda</th>
<th>Chi Square</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0.976890</td>
<td>0.976890</td>
<td>32.807</td>
<td>12</td>
<td>.0010*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>0.2167</td>
<td>0.4220</td>
<td>1</td>
<td>96.9950</td>
<td>4.468</td>
<td>5</td>
<td>.4841*</td>
</tr>
<tr>
<td>2</td>
<td>0.0314</td>
<td>0.1745</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* p< .05.
Table 5

Classification Results for Individually-Based Risk Factors

<table>
<thead>
<tr>
<th>Actual Group</th>
<th>No. of Cases</th>
<th>Predicted Group Membership</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>NONDISABLED</td>
<td>50</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td></td>
<td>60.0%</td>
</tr>
<tr>
<td>EBD</td>
<td>50</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td></td>
<td>30%</td>
</tr>
<tr>
<td>LD</td>
<td>50</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td></td>
<td>30%</td>
</tr>
</tbody>
</table>

PERCENT OF "GROUPED" CASES CORRECTLY CLASSIFIED: 48%

Given the scores on the measures of individually-based risk factors, group membership was only 48% predictable. This fails to reach the 50% correct classification that is expected by chance alone. While differences exist between groups on the individually-based risk factors measured, these differences do not account for sufficient variance among the groups to permit accurate classification of subjects into their respective groups. The low size of the Eigenvalue (.2167) for the significant discriminant function confirms the problems with discriminating between groups based on the risk factors measured. A high Eigenvalue (close to 1.00) is associated with good functions required for accurate discrimination (Norusis, 1994). In addition, the canonical correlations ($r = .4220$ and .1745) which measure the degree of association between the
discriminant scores and the group are very low. According to this analysis there is a small correlation between scores and group membership. The Wilks' Lambda value represents the proportion of the total variance in the discriminant scores that cannot be attributable to differences among the groups. Small values of Lambda indicate high variability between groups and little variability within groups. The Wilks' Lambda values in this analysis (.976890 and .969950) are extremely high indicating that approximately 97% of the total variance between the groups cannot be attributed to differences among the groups.

Therefore the answer to the research question, “Do juvenile offenders with EBD and juvenile offenders with LD demonstrate individually-based risk factors for delinquency that discriminates them from their NONDISABLED delinquent peers?” is positive. The three groups were discriminated based on measures of individually-based risk factors, however these differences did not account for sufficient variance between groups to permit accurate classification of subjects into their respective groups.

Corollaries to this overall question asked whether the three groups differed when each of the individually-based risk factors were examined in isolation. Table 6 presents results of the univariate analysis of variance that was conducted as part of the discriminant analysis.
Table 6

Differences By Group on Individually-Based Risk Factors

<table>
<thead>
<tr>
<th>Variable</th>
<th>Wilk’s Lambda</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aggressive/acting-out</td>
<td>.86676</td>
<td>11.2984</td>
<td>.0000*</td>
</tr>
<tr>
<td>Irresponsible/inattentive</td>
<td>.94967</td>
<td>3.8950</td>
<td>.0225*</td>
</tr>
<tr>
<td>Fearful/anxious</td>
<td>.88365</td>
<td>9.6777</td>
<td>.0001*</td>
</tr>
<tr>
<td>Social withdrawal behaviors</td>
<td>.98244</td>
<td>1.3135</td>
<td>.2720</td>
</tr>
<tr>
<td>History of substance use</td>
<td>.99924</td>
<td>.0562</td>
<td>.9454</td>
</tr>
<tr>
<td>Age at first arrest</td>
<td>.99022</td>
<td>.7256</td>
<td>.4858</td>
</tr>
</tbody>
</table>

Note. df = (2, 147); * significance p<.05

The information presented in Table 6 shows that the groups differed on three of the individually-based risk factors, aggressive/acting-out behaviors, irresponsible/inattentive behaviors, and fearful/anxious behaviors. Further examination revealed that juvenile offenders with EBD demonstrated more aggressive/acting-out behaviors than their NONDISABLED and LD peers. This group’s mean score of 65 on the aggressive/acting-out subscale of the BDRS places them in the “problem range” and at the 93rd percentile. The LD sample’s mean score of 60 on this variable which placed them in the “problem range” and at the 84th percentile also differentiated them from their NONDISABLED peers. The NONDISABLED group’s mean score on the
aggressive/acting-out subscale of the BDRS was 55 which indicated that they were not displaying signs of aggressive/acting out behaviors in school.

The three groups can also be seen to differ in their degree of fearful/anxious behaviors as seen in Table 6. Both the EBD and LD groups exhibited more fearful/anxious behaviors than their NONDISABLED peers. The mean score for fearful/anxious behaviors obtained by the EBD and LD samples on the BDRS were 63 and 60 respectively. Both of these scores fell within the “problem range.”

Conversely, the NONDISABLED group’s mean score for fearful/anxious behaviors was 54 which falls within the “normal range” and indicates no behavioral difficulties in this area. The mean scores of each of the groups on the socially withdrawn behaviors subscale were not significantly different. The NONDISABLED mean score was 54, the EBD mean score was 56, and the LD mean score was 57, all of which fell within the “normal range”.

Demonstration of irresponsible/inattentive behaviors was another area where the groups differed. Both the EBD and LD group mean scores for this subscale were 60 which indicates that this is a problem area for them. In contrast, the NONDISABLED group’s mean score of 54 on this subscale places them in the “normal range.”

As can be seen in Table 6 there are no significant differences among the three groups in regards to history of substance abuse and age at first arrest. A closer examination of the measures of these variables indicates that similarly high numbers of students in each group were using alcohol, tobacco, and other drugs (ATOD). Table 7 presents the numbers of students from each group who were using ATOD on a regular
basis. For the purposes of this study "regular basis" was defined as minimal weekly use.

The most common "other drugs" used by members of all three groups were marijuana and crank.

Table 7

Percentage of Alcohol, Tobacco and Other Drug Use Among Groups

<table>
<thead>
<tr>
<th></th>
<th>NON DISABLED</th>
<th>EBD</th>
<th>LD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tobacco only</td>
<td>12%</td>
<td>14%</td>
<td>6%</td>
</tr>
<tr>
<td>Other drugs only</td>
<td>2%</td>
<td>0%</td>
<td>2%</td>
</tr>
<tr>
<td>Alcohol only</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Tobacco &amp; alcohol</td>
<td>4%</td>
<td>2%</td>
<td>6%</td>
</tr>
<tr>
<td>Tobacco &amp; other drugs</td>
<td>10%</td>
<td>12%</td>
<td>18%</td>
</tr>
<tr>
<td>Alcohol &amp; other drugs</td>
<td>4%</td>
<td>6%</td>
<td>10%</td>
</tr>
<tr>
<td>Tobacco, alcohol, &amp; other drugs</td>
<td>52%</td>
<td>46%</td>
<td>40%</td>
</tr>
<tr>
<td>No substance use</td>
<td>16%</td>
<td>20%</td>
<td>16%</td>
</tr>
</tbody>
</table>

While age at first arrest was not significantly different among all three groups, the ages of first arrest for most subjects was very young. Thirty percent of the NONDISABLED group were arrested at 10 years of age or younger as were 18% of the EBD group and 16% of the LD group. The age when a large number of the members of each group were arrested was 12-13 years old. Fifty percent of the NONDISABLED
sample were first arrested at this age, while 60% of the EBD sample and 48% of the LD sample were 12-13 years old when first arrested.

Although members of each of the three groups can be seen to have experienced these individually-based risk factors, the magnitude of these differences did not allow the correct classification of the study subjects into their three respective groups.

A second discriminant analysis procedure examined whether the three groups could be differentiated based on the family-based risk factors of level of supervision and monitoring provided by parents, discipline approach used by parents, and degree of attachment to and involvement in the family. Each of these factors were measured using the student questionnaire. Table 8 presents the overall findings.

Examination of Table 8 reveals the three groups were not significantly different in relation to the family-based risk factors that were assessed. In light of these findings, it is not surprising that the percentage of subjects who were correctly classified in groups was only 40% which is 10% less than what usually happens just by chance.

Table 8

Discriminant Functions for Family-Based Risk Factors

<table>
<thead>
<tr>
<th>Fcn</th>
<th>Eigenvalue</th>
<th>Canonical Correlation</th>
<th>After Wilks' Lambda</th>
<th>Chi Square</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td></td>
<td>.932431</td>
<td>10.214</td>
<td>6</td>
<td></td>
<td>.1159</td>
</tr>
<tr>
<td>1</td>
<td>.0595</td>
<td>.2370</td>
<td>1</td>
<td>.987931</td>
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<td>.4121</td>
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<tr>
<td>2</td>
<td>.0122</td>
<td>.1099</td>
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</tbody>
</table>
Therefore, the answer to the research question, “Do juvenile offenders with EBD and juvenile offenders with LD demonstrate family-based risk factors for delinquency that are different from those experienced by their NONDISABLED delinquent peers?” is negative.

Corollaries to this overall question asked whether the three groups differed when each of the family-based risk factors were examined in isolation. Table 9 presents results of the univariate analysis of variance that was conducted as part of the discriminant analysis.

As can be seen from the data presented in Table 9, the three groups did not differ significantly on any of the family-based risk factors. Closer examination of the data related to the family-based risk factors demonstrates that each of the three groups fell into the problem areas for each of these three measures. The mean score for the NONDISABLED, EBD and LD groups on the family attachment measure was 23, 24, and 24 respectively which represents limited attachment to and involvement in family life. Scores on the level of family supervision and monitoring for all three groups were similarly grouped: NONDISABLED \( \bar{x} = 13 \), EBD \( \bar{x} = 13 \) and LD \( \bar{x} = 12 \). These scores indicate that members of all three groups were not subject to consistent supervision and/or monitoring by their parents. According to these results monitoring and supervision was provided on a sporadic basis only.
Table 9

Differences By Group on Family-Based Risk Factors

<table>
<thead>
<tr>
<th>Variable</th>
<th>Wilk’s Lambda</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family attachment</td>
<td>.97764</td>
<td>1.6808</td>
<td>.1898</td>
</tr>
<tr>
<td>Parental discipline style</td>
<td>.96447</td>
<td>2.7076</td>
<td>.0700</td>
</tr>
<tr>
<td>Parental supervision &amp;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>monitoring</td>
<td>.99226</td>
<td>.5737</td>
<td>.5647</td>
</tr>
</tbody>
</table>

Finally, the family discipline style of all three groups was found to be equally inconsistent across groups. Over 90% of the members of each group reported that they were often able to talk their parents out of a planned punishment, and that their parents punished them at one time for doing something and not at the other time for doing the same thing. Approximately 85% of subjects in each of the three groups indicated that their parents used a lax discipline style, not applying consequences for inappropriate behavior and/or ignoring all problem behaviors. Seventy-five percent of subjects in each of the three groups reported that their parents used a harsh discipline style including ‘slapping, spanking or hitting them with something’ and “locking them out of the house.” Overall, subjects in each group experienced similar low levels of parental supervision,
had low levels of attachment to their families, and were subjected to inconsistent, harsh and/or lax discipline styles.

A final discriminant analysis procedure investigated whether the three groups could be differentiated based on the school-based risk factors of math and reading achievement as measured by scores on the CAT and school attitude and involvement as measured by a questionnaire. Table 10 presents the overall findings.

Examination of Table 10 reveals the three groups were not significantly different in relation to the school-based risk factors that were measured. In light of these findings, it is not surprising that the percentage of subjects who could be correctly classified into their group based on the school-based risk factors was only 40% which is 10% less than what usually happens just by chance.

Table 10

<table>
<thead>
<tr>
<th>Fcn</th>
<th>Eigenvalue</th>
<th>Canonical Correlation After Fcn</th>
<th>Wilks' Lambda</th>
<th>Chi Square</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td></td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td>.3714</td>
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<tr>
<td>1</td>
<td>.0340</td>
<td>.1812</td>
<td>.989066</td>
<td>1.605</td>
<td>2</td>
<td>.4482</td>
</tr>
<tr>
<td>2</td>
<td>.0111</td>
<td>.1046</td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Therefore, the answer to the research question, "Do juvenile offenders with EBD and juvenile offenders with LD demonstrate school-based risk factors for delinquency
that are different from those experienced by their NONDISABLED delinquent peers?" is negative.

Corollaries to this overall question asked whether the three groups differed when each of the school-based risk factors were examined in isolation. Table 11 presents results of the univariate analysis of variance that was conducted as part of the discriminant analysis.

Table 11

<table>
<thead>
<tr>
<th>Differences By Group on School-Based Risk Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable</td>
</tr>
<tr>
<td>---------------------------------</td>
</tr>
<tr>
<td>Math Achievement</td>
</tr>
<tr>
<td>Reading Achievement</td>
</tr>
<tr>
<td>School Involvement</td>
</tr>
</tbody>
</table>

As can be seen from the data presented in Table 11 the three groups did not differ significantly on any of the school-based risk factors. Closer examination of the data related to the school-based risk factors demonstrates that each of the three groups were experiencing similar problems in each of these areas. Each of the groups were achieving below grade level in both reading and math. The mean actual grade levels of members in each of the groups was 10.2 for the NONDISABLED group, and 9.7 for both the EBD and LD groups. The mean grade equivalent reading scores for the groups were 6.6 for the NONDISABLED group, 6.4 for the EBD group, and 5.8 for the LD group, each
group performing an average of three years below their mean grade level. Math achievement scores were even lower with the NONDISABLED group scoring an average grade level of 5.8, the EBD group scoring an average grade level of 5.8, and the LD group scoring an average grade level of 4.6. Each group were on average four years below their average grade level.

Scores on the questionnaire reflecting attitude towards and involvement in school were close for the three groups, 31 for the NONDISABLED group, 29 for the EBD group, and 31 for the LD group. These scores reflect limited involvement of students in their school. While the data confirmed that reading and math achievement, and involvement in school are problem areas for juvenile delinquents, there was not enough variability in scores on these risk factors to permit accurate classification of subjects into their respective groups.

Summary of Findings

The answers to the research questions and related corollaries are as follows:

Research Question #1: Do juvenile offenders with EBD and juvenile offenders with LD demonstrate individually-based risk factors for delinquency that can discriminate them from their NONDISABLED delinquent peers?

Answer: Yes, juvenile offenders with EBD, juvenile offenders with LD and their NONDISABLED peers can be discriminated between based on individually-based risk factors for delinquency. However these differences did not explain enough of the variance between groups to permit accurate classification of subjects into their respective groups.
Corollary 1A: Does the age at first arrest differ for these three groups?

Answer: No, the age of first arrest was not significantly different between the three groups.

Corollary 1B: Does the substance abuse history differ for these three groups?

Answer: No, the differences in history of substance abuse were not significantly different for the three groups.

Corollary 1C: Is there a difference in the aggressive/acting-out behavioral patterns exhibited by these three groups?

Answer: Yes, juvenile offenders with EBD demonstrated significantly higher rates of aggressive/acting-out behaviors than the LD and NONDISABLED groups. The LD group's rates of aggressive/acting-out behaviors while lower than the EBD group were significantly higher than the NONDISABLED group.

Corollary 1D: Is there a difference in the irresponsible/inattentive behaviors exhibited by these three groups?

Answer: Yes, both the LD and EBD groups' scores on the irresponsible/inattentive behaviors subscale were significantly higher than the NONDISABLED group's score.

Corollary 1E: Is there a difference in the fearful/anxious behaviors exhibited by these three groups?

Answer: Yes, both the EBD and LD groups exhibited rates of fearful/anxious behaviors that were significantly higher than those recorded for the NONDISABLED group. There was no significant difference in the scores of the EBD and LD subjects on this subscale.

Corollary 1F: Is there a difference in the socially withdrawn behavior exhibited by these
three groups?

**Answer:** No, the three groups do not differ significantly in their display of socially withdrawn behaviors.

**Research Question #2:** Do juvenile offenders with EBD and juvenile offenders with LD demonstrate family-based risk factors for delinquency that can discriminate them from their NONDISABLED delinquent peers?

**Answer:** No, juvenile offenders with EBD and juvenile offenders with LD do not demonstrate family-based risk factors for delinquency that can discriminate them from their NONDISABLED delinquent peers.

**Corollary 2A:** Is there a difference in the level of parental monitoring and supervision received by members of these three groups?

**Answer:** No, there is no significant difference in the level of parental monitoring and supervision received by members of these three groups.

**Corollary 2B:** Is there a difference in the attachment level to parents exhibited by members of these three groups?

**Answer:** No, there is no significant difference in the attachment to parents exhibited by members of these three groups.

**Corollary 2C:** Is there a difference in the disciplinary procedures used by parents of members of these three groups?

**Answer:** No, there is no significant difference in the disciplinary procedures used by parents of members of these three groups.

**Research Question #3:** Do juvenile offenders with EBD and juvenile offenders with LD
demonstrate school-based risk factors for delinquency that discriminate them from their NONDISABLED delinquent peers?

**Answer:** No, juvenile offenders with EBD and juvenile offenders with LD do not demonstrate school-based risk factors for delinquency that can discriminate them from their NONDISABLED delinquent peers.

**Corollary 3A:** Is there a difference in the math achievement scores of individuals in these three groups?

**Answer:** No, there is no significant difference in the math achievement scores of members of these three groups.

**Corollary 3B:** Is there a difference in the reading achievement scores of individuals in these three groups?

**Answer:** No, there is no significant difference in the reading achievement scores of members of these three groups.

**Corollary 3C:** Is there a difference in the attachment to and involvement in school demonstrated by members of these three groups?

**Answer:** No, there is no significant difference in the attachment to and involvement in school demonstrated by members of these three groups.
CHAPTER V

SUMMARY, IMPLICATIONS AND RECOMMENDATIONS

While a substantial amount of research exists (e.g., American Psychological Association, 1993; Dryfoos, 1990; Hawkins, Catalano, & Miller, 1992; Tolan & Guerra, 1994) documenting risk factors that increase the probability that an individual will become involved in delinquent behavior, no research has been conducted that validates the relevance of these commonly accepted risk factors across specific subtypes of juvenile offenders including those with emotional/behavioral disorders (EBD) and learning disabilities (LD). The lack of research in this area is especially disturbing when one considers the overrepresentation of these youth in the juvenile justice system. It has been found that approximately 50% of juvenile offenders have EBD while an estimated 40% have LD (Casey & Keilitz, 1990; Office of Juvenile Justice and Delinquency Prevention, 1995; Otto, Greenstein, Johnson, & Friedman, 1992).

The purpose of this study was to begin to address this gap in the research by examining the relevance of specific individually-, family-, and school-based risk factors for delinquency across three specific groups of juvenile offenders: (a) those with EBD, (b) those with LD, and (c) those who may be considered as nondisabled (NONDISABLED). Individually-based risk factors that were compared across the three groups included: (a) aggressive/acting-out behaviors, (b) irresponsible/inattentive behaviors, (c) fearful/anxious behaviors, (d) social withdrawal behaviors, (e) age at first
arrest, and (f) history of substance use. The Behavior Dimensions Rating Scale (BDRS), was used to obtain scores for aggressive/acting-out behaviors, irresponsible/inattentive behaviors, fearful/anxious behaviors and socially withdrawn behaviors. This scale was chosen because of its' adequate psychometric properties and the fact that it was specifically validated for use in correctional settings. Age at first arrest and history of substance abuse were obtained through records review conducted by the researcher.

Family-based risk factors that were compared included attachment to family, level of supervision provided by parents, and parental discipline approach. Each of these family-based variables were measured using a questionnaire. Items on the questionnaire and scoring procedures were adapted from the Denver Youth Study (Huizinga, Esbensen, & Weiher, 1991). The questionnaire has acceptable reliability and validity properties and has been normed on a population of 1257 boys and girls in Denver, CO, who were considered at high-risk for delinquency.

School-based risk factors investigated included reading and math performance, and attitude towards and involvement in school. Reading and math achievement was measured by recording scores obtained on the California Achievement Test (CAT) from school records. The CAT has adequate psychometric properties to support its use in this situation. Attitude towards and involvement in school was measured using items from the Denver Youth Study questionnaire previously described.

Due to the absence of prior research, an exploratory design incorporating a research question with related corollaries was chosen. This section discusses the results of the study, presents implications, and suggests directions for future research.
Results of the Study

Before discussing the results of the study, cautionary considerations need to be reiterated. First, research is generalizable only to the extent that the sample characteristics accurately represent characteristics of the population being studied. To the extent that the subjects in this research study differ from subjects in other geographically located regions, discretion should be used when interpreting the results. It is especially critical that prior to attempts to generalize study results to other populations, the definition of LD and EBD in the areas should be compared.

Secondly, the cross-sectional nature of the data collected represents a limitation of this study. While the results represent an important first step in attempting to distinguish the relevance of specific risk factors for the three groups under study, the developmental nature of risk factors suggests that additional longitudinal research could provide additional information.

The study demonstrated that juvenile offenders with EBD, juvenile offenders with LD, and NONDISABLED offenders were significantly different across individually-based risk factors. In contrast, no significant differences were found across family-, and school-based risk factors.

Individually-based risk factors of (a) aggressive/acting-out behaviors, (b) irresponsible/inattentive behaviors, (c) fearful/anxious behaviors, (d) social withdrawal, (e) age at first arrest, and (f) history of substance abuse when put together into a discriminant function demonstrated significant differences and discriminating abilities. However, the proportion of variance explained by the individually-based
factors measured was so low that only a 48% correct classification of subjects into their respective groups could be reached. This is less than the 50% correct classification rate expected by chance alone.

An examination of each of these risk factors in isolation demonstrated that there were significant group differences in three of the six risk factors measured: aggressive/acting-out behaviors, irresponsible/inattentive behaviors, and fearful/anxious behaviors. Juvenile offenders with EBD exhibited higher rates of aggressive/acting-out behaviors than their LD and NONDISABLED peers. Subjects with LD, in turn, were found to have higher incidences of aggressive/acting out behaviors than their NONDISABLED peers.

Both the EBD and LD groups experienced significantly higher degrees of fearful/anxious behaviors than their NONDISABLED peers. This also held true for the measure of irresponsible/inattentive behaviors with the EBD and LD subjects exhibiting significant behavioral problems in this area compared to the NONDISABLED group who scored in the “normal range.”

While age at first arrest was not significantly different across groups, this study confirmed previous research demonstrating that early onset of problem behaviors is a risk factor evident among delinquents. Eighty percent of the NONDISABLED group were first arrested at 13 years of age or younger as were 64% of the LD group and 78% of the EBD group. All three groups demonstrated equally high rates of alcohol, tobacco, and other drug use. Eighty-four percent of the NONDISABLED and LD groups and 80% of the EBD group were found to have used alcohol, tobacco, and other drugs.
Differences in family-based risk factors were not found between the three groups. Data analyzed confirmed that juvenile offenders receive limited supervision and monitoring from their parents, are subject to inconsistent discipline that tends to be either overly harsh or lax, and do not demonstrate high levels of attachment to their parents. The mean scores obtained by members of each of the three groups on these measures did not accurately discriminate between members of the three groups.

The final risk factor domain explored in this study was school-based risk factors. Students from all three groups exhibited problems in reading and math achievement, and attitude towards and involvement in school. On average, each of the groups were performing approximately three years below grade level in reading and four years below grade level in math. Subjects in all three groups reported limited involvement in school activities. While results of the study confirm that low school achievement, and low involvement in school are risk factors for delinquency, these school-based risk factors did not differ in magnitude between the three groups.

Implications

The finding that juvenile offenders with EBD, juvenile offenders with LD, and their NONDISABLED peers can be discriminated between based on measures of aggressive/acting-out behaviors, irresponsible/inattentive behaviors, and fearful/anxious behaviors has practical implications. It would appear that a focus on the provision of anger management training, self-control skills, and interpersonal/problem-solving skills for juvenile offenders with EBD and LD is warranted.

Juvenile justice policy-makers, and practitioners at federal, state, and local levels
are under increased pressure to develop and implement differential delinquency prevention and intervention programming for juvenile offenders with EBD and those with LD. This study demonstrates that in general juvenile offenders with EBD and juvenile offenders with LD are experiencing and being exposed to similar risk factors in equal magnitude as their NONDISABLED peers. These results imply that the risk-focused delinquency prevention and intervention programs that have been developed for use with the general delinquent population (e.g. mentoring programs, family strengthening initiatives, intensive supervision programs, training in anger management) have equal relevance for juvenile offenders with EBD and LD. Until such a time as research can demonstrate the existence of unique risk factors or a difference in the magnitude of the risk factors experienced by these specific subtypes of offenders, it would appear premature to develop and implement differential delinquency prevention and intervention programming.

Recommendations for Future Research

Findings of this study suggest the need to further investigate the belief that juvenile offenders with EBD and those with LD are different and require specialized delinquency prevention and intervention programming. Exploration of whether all juvenile offenders qualify as having a disability under the broader sociologically-based definition of disability appears warranted.

Given the developmental nature of risk factors for delinquency longitudinal studies that examine whether juvenile offenders with EBD and LD differ from their NONDISABLED peers at various stages in their pathway to delinquency would be
valuable. It is critical that additional studies focusing on this area include female juvenile offenders in their sample.

Finally, differences between the magnitude of risk factors experienced by juveniles who had been incarcerated for sexual offenses and those who had been incarcerated for other types of offenses were noted by the researcher. This trend should be further investigated.
November 11, 1996

Ms. Ann Fitzsimons-Lovett  
PO Box 13857  
Programs in Special Education  
University of North Texas  
Denton, TX 76203-6857

Dear Ms. Fitzsimons-Lovett:

I am pleased to inform you that your research project “Risk factors for delinquency among students with learning disabilities and/or emotional/behavioral disorders has been approved. 150 students from Hillcrest and MacLaren State Schools may be randomly selected to participate in your study.

Please contact Dr. Patrick McArthur, the assistant director, of the facility at (503) 986-0486 to set up the logistics of the study. In order to protect the confidentiality of our students, Dr. McArthur will assign a code number to study participants. In addition, he has agreed to administer the questionnaire for you, and to remove all personal identifying information on these individuals’ records prior to your record review. Please send us a copy of an informed consent for each student to read and sign before participating in the study.

I also request that you send a copy of your final report to me upon completion. Please contact me if I can be of further assistance.

Sincerely,

David Montesano  
Special Education Director of  
State of OR Juvenile Corrections Education Programs
Dear Ms. Fitzsimons-Lovett:

As permitted by federal law and regulations governing the use of human subjects in research projects (45 CFR 46), I have conducted an expedited review of your proposed project titled "Risk Factors for Delinquency Among Students with Learning Disabilities and/or Emotional/Behavioral Disorders." The risks inherent in this research are minimal, and the potential benefits to the subjects greatly outweigh those risks. The submitted protocol and informed consent form are hereby approved for the use of human subjects on this project.

Considering that your research involves several classes of particularly vulnerable subjects (i.e., learning and/or emotional/behaviorally challenged minors), I ask that you and any assistants on this project adhere strictly to the confidentiality and other safeguards you have designed into your project.

The UNT IRB must re-review this project prior to any modifications you make in the approved project. Please contact me if you wish to make such changes or need additional information.

Sincerely,

Mark Elder
Chairman
Institutional Review Board

ME em

cc. IRB Members
APPENDIX B

STUDENT QUESTIONNAIRE
RISK FACTORS FOR DELINQUENCY YOUTH QUESTIONNAIRE

Questions #1-11 are trying to find out what kind of school experiences you had before coming to this facility. Please answer these questions about the last school you attended before coming here. Read the statements, if you strongly agree with the statement, circle number 5, if you agree with the statement, circle number 4, if you don't agree or disagree with the statement, circle number 3, if you disagree with the statement, circle number 2, if you strongly disagree with the statement, circle number 1.

Strongly Agree Agree Neither Agree nor Disagree Disagree Strongly Disagree

1. I often feel like nobody at school cares about me. 5 4 3 2 1
2. Teachers don't ask me to work on special classroom projects. 5 4 3 2 1
3. Even though there are lots of students around, I often feel lonely at school. 5 4 3 2 1
4. Teachers don't call on me in class even when I raise my hands. 5 4 3 2 1
5. I don't feel as if I really belong in school. 5 4 3 2 1
6. Homework is a waste of time. 5 4 3 2 1
7. I try hard in school. 5 4 3 2 1
8. In general, I like school. 5 4 3 2 1
9. I don't care what teachers think of me. 5 4 3 2 1
10. Grades are very important to me. 5 4 3 2 1
11. I usually finish my homework. 5 4 3 2 1

Questions #12-27 have to do with the kinds of things you may or may not have done with your family before coming to this facility. Parent means mother figure and/or father figure - whichever you lived with and were responsible to during the year before you were placed in this facility.

Often Sometimes Never

12. How often do your parents talk with you about what you actually did during the day? 3 2 1
13. How often do your parents talk with you about how things are going in school? 3 2 1
14. Do you leave a note for your parents or call them about where you are going if they are not at home? 3 2 1
15. Do your parents know who you are with when you are away from home? 3 2 1
16. Do you know how to get in touch with your parents if they are not at home? 3 2 1
17. Do your parents find time to listen to you when you want to talk to them? | Often | Sometimes | Never |
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

18. If your parents had planned some kind of punishment for you, how often can you talk them out of it? | 3 | 2 | 1 |

19. How often do your parents punish you for something and at other times not punish you for the same thing? | 3 | 2 | 1 |

20. If you do something that you are not allowed to do or that your parents don't like, how often do your parents...

a. Take away a privilege or your pocket money? | 3 | 2 | 1 |
b. Send you out of the room? | 3 | 2 | 1 |
c. Yell at you or scold you | 3 | 2 | 1 |
d. Calmly discuss what happened? | 3 | 2 | 1 |
e. Ignore it or not pay attention to it? | 3 | 2 | 1 |
f. Slap or spank you, or hit you with something? | 3 | 2 | 1 |
g. Tell you to get out or lock you out of the house for a while? | 3 | 2 | 1 |
h. Ground you? | 3 | 2 | 1 |
i. Send you to your room? | 3 | 2 | 1 |

21. I enjoy talking over my plans with my parents | Strongly Agree | Agree | Neither Agree nor Disagree | Disagree | Strongly Disagree |
| 5 | 4 | 3 | 2 | 1 |

22. I can talk to my parents about anything. | 5 | 4 | 3 | 2 | 1 |

23. My parents don't try to understand my problems. | 5 | 4 | 3 | 2 | 1 |

24. My parents make me feel trusted. | 5 | 4 | 3 | 2 | 1 |

25. My parents are always picking on me. | 5 | 4 | 3 | 2 | 1 |

26. I depend upon my parents for advice and guidance. | 5 | 4 | 3 | 2 | 1 |

27. My parents praise me when I do something well | 5 | 4 | 3 | 2 | 1 |
APPENDIX C

DATA COLLECTION SHEET
### DATA COLLECTION FORM

1. **Student Code Identification Number**

2. **Student Date of Birth**

3. **Zip Code of Student’s Last Address**

4. **Student’s Age at First Arrest**

5. **Ethnicity**
   - African-American
   - Asian
   - Caucasian
   - Hispanic
   - Native-American
   - Other (Specify)

6. **Offense for Which Currently Incarcerated**
   - Person-to-Person (Specify)
   - Property (Specify)
   - Status (Specify)
   - Other (Specify)

7. **History of Abuse/Neglect**
   - Physical Abuse
   - Sexual Abuse
   - Physical and sexual abuse
   - Neglect
   - Other (Specify)

8. **History of Substance Abuse**
   - Tobacco
   - Alcohol
   - Other drugs (Specify)
   - Tobacco & Alcohol
   - Tobacco, Alcohol, & other drugs
   - Alcohol & other drugs (Specify)

9. **Family Structure**
   - Living with both parents
   - Living with mother only
   - Living with father only
   - Living with mother and stepfather
   - Living with father and stepmother
   - Living with relatives
   - Living alone
   - Other (Specify)

10. **Achievement Scores**
    - Reading
    - Math
    - Total Achievement

11. **Questionnaire Scores**
    - School attachment and involvement
    - Attachment to family
    - Family discipline
    - Family supervision and monitoring

12. **Behavior Dimensions Rating Scale**
    - Aggression/Acting-Out
    - Social Withdrawal
    - Immaturity/Irresponsibility
    - Fearful/Anxious
    - Total Scale Score
REFERENCES


Vocational Rehabilitation Act (1973). *Public Law No. 93-112, Section 504*.


