PREDICTING JUVENILE DELINQUENCY IN TEXAS PUBLIC SCHOOLS:

RESPONSE TO A TEXAS LEGISLATOR'S CHALLENGE

by

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Abstract

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The purpose of this study is to engage in a systematic inquiry of juvenile delinquency in

Texas public schools and respond to the statement made by a member of the Texas Legislature

who challenged public school officials to predict delinquency in order to keep students out of the

court system. The study is based on the assumption that a profile for juvenile delinquency can be

developed using the existing data submitted by Texas public school districts through the Public

Education Information Management System (PEIMS).

This is a quantitative study that first explored a profile for delinquent and non-delinquent

at-risk students. Next, the study used a logistic regression model to establish the relationship

between delinquency status and other demographic and at-risk indicators. Finally, stepwise

logistic regression was used to identify what combination of indicators is most predictive of

delinquency. Although the study shows that school-related indicators alone are not enough to

develop a comprehensive profile for juvenile delinquency, the analysis revealed that the best set

of variables describing a delinquency profile included gender, grade level, math achievement,

LEP (Limited English Proficient), truancy, and DAEP (Disciplinary Alternative Educational

Program) placement. Students who are designated *at risk* essentially place educators *on the clock*

in terms of providing effective interventions before they enter the pipeline into the criminal justice system.

The study provided insights into next steps and direction for future research to develop proactive measures toward interagency collaboration and targeted intervention strategies to further address this charge. Districts must extend the scope of data collection available and the time duration for which data is reported, and legislators must expand the scope of state statute which identifies students as "at-risk" to include being at risk for delinquency.

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CHAPTER I

INTRODUCTION

Victor Hugo, the French poet and novelist, is credited with having said "He who opens a school door closes a prison," leaving the perception that even in his time during the mid- to late 1800s, education was both the reason leading to social problems and the solution to building a prosperous society. More than 100 years later, the Council for State Governments and Public Policy Research Initiative makes the same assertion, evidenced by a study on the effects of exclusionary disciplinary practices using school and juvenile justice database records for 7th grade students (approximately 12 years old), that showed how suspensions, expulsions, and dropping out had a significant impact on engagement in delinquent activity (Fabelo et al., 2011). A parallel study of 8th and 9th grade students resulted in comparable findings, showing that school disengagement strongly predicted criminal engagement, especially among African American males (Henry, Knight, & Thornberry, 2011).

Therefore, it is not surprising that The Elementary and Secondary Education Act (ESEA) of 1965 allocates funding to Local Education Agencies (LEAs) for State Compensatory Education programs for the explicit purpose of serving the educational needs of students who are economically disadvantaged and otherwise at-risk of dropping out of school. Included among those students designated to be served by compensatory education programs are those with a history of involvement with law enforcement, specifically students who have been placed on probation, parole, deferred adjudication, or other conditional release (Texas Public Education Information Management System, n.d.; Texas Education Code, 2019).

Maintaining interest in school is crucial for delinquent youth. According to Hirschfield and Gasper (2011), "engagement decreases delinquency, delinquency hinders engagement, and

engagement and delinquency are manifestations or consequences of the same underlying conditions" (p. 4). For delinquent youth on the cusp between youth and adulthood, the consequences of their actions may have lifelong social and economic ramifications. The long-term opportunities propagated by academic success are particularly significant, then, for this group (Blomberg, Bales, & Piquero, 2012). Studies show that alienation or detachment in school may begin as early as the first grade and are considered formative processes elemental to school failure and dropping out (Alexander, Entwisle, & Kabbani, 2001). Especially in urban areas, school failure and dropout come with many social and economic costs (Orfield, 2004; Pettit & Western, 2004).

Tiered intervention strategies for academically struggling students are commonplace in public education, but they are not always based on data-driven research. For instance, research shows little, if any, systemic implementation of targeted interventions to address social-behavioral concerns, although programs to address severe behavioral disorders certainly exist (Sander, Sharkey, Fisher, Bates, & Herren, 2011). There is no definitive study showing a causal relationship between educational outcomes and delinquency (Hirschfield & Gasper, 2011), making it all the more important to explore the relationship between the two; that is, predictive indicators for delinquency using observable, quantifiable factors currently collected and historically maintained in local school district databases. Lipsey and Cullen (2007) asserted that although the risks associated with criminal activity are not stable, they can be identified and are specific during students' academic history, thus possibly targeting interventions developed to address the individual needs of the offender.

Sander, Patall, Amoscato, Fisher, and Funk (2012) further asserted that these targeted interventions should be incorporated into delinquency programs, regardless of the setting. The

Institute of Education Sciences (IES) and the United States Department of Education maintain the *What Works Clearinghouse* (WWC, n.d.), a resource for educational interventions based on empirical data. Sander et al. (2012) recommended implementing and examining the effects of the interventions based on the public database as the next step in juvenile delinquency research.

Whereas studies conducted by social-science federal agencies are able to include familial and historical data such as parents' marital status, mental and medical histories, and history of involvement with law enforcement (Majoribanks, 1996), the reach of school districts is limited to specific collectible, reported data related to a student's academic background. Despite the evidence promoting the effects of academic factors in limiting delinquency, Sander et al. (2012) noted a large body of juvenile justice literature focuses solely on behavioral, criminal, and recidivism outcomes. Not surprisingly, many reports which spotlight interventions designed to reduce crime and improve behavioral outcomes make a cursory examination of educational variables. The authors lamented the limited literature regarding juvenile delinquency interventions and educational outcomes despite the relationship between the two.

Thomas Blomberg, during his Congressional testimony (2009), described incarcerated youth as "lost educational opportunities," and further described the benefit to society for providing the necessary educational resources needed to reach these youth as "substantial." At the median age of incarceration (15), most youth in the typical high school progression would be entering the 10th grade. Sander, Patall, Amoscato, Fisher, and Funk (2012), however, indicated the average reading level of adjudicated youth to be fourth grade -- the level of most children aged 9-10 years, thus supporting Blomberg's (2009) point on limiting future opportunities.

In addition, Stouthamer-Loeber and Loeber (1988) found that children are at an increased risk of experiencing problem behaviors when first engaged in those criminal behaviors at an

early age. Similarly, Robins and Radcliff (1980) found a correlation between arrest prior to age 15 and adult offenses. Likewise, Farrington (1983) found that youth who had become chronic offenders by the age of 25 had been first convicted by their 16th birthday.

Moreover, Botvin, Griffin, and Nichols (2006) found that school-based approach to prevention programs intended to deter substance abuse could also prevent violence and delinquency. In a 2012 study, Henry, Knight, and Thornberry developed a school disengagement warning index using historical, collectible district data from which they concluded that schools could easily create their own measure as a "screening device" to identify students as at risk for school disengagement and dropout, but more importantly for subsequent criminal behaviors. . While crime is the primary focus of juvenile justice literature, Sander et al. (2012) posited that "how schools and education relate to the question of 'what works, for whom, and under what conditions' remains an important issue" (p. 1706).

Statement of the Problem

On May 13, 2011 during public testimony of the Senate Criminal Justice Committee, Senator John Whitmire of Houston, Texas insisted that it was incumbent upon school districts to predict delinquent behaviors and intervene before students become entangled in the court system. True, effects of delinquency permeate every aspect of an offender's life, giving public schools, communities, students, and society as a whole a vested interest in the prevention of criminal activity. Gottfredson (2001) and Blomberg et al. (2012) all asserted that the school issues plaguing many students with recurring involvement in the law enforcement system emerge as early as preschool. Public schools, through compulsory attendance laws, are charged with the responsibility of educating all students, including those who engage in these risk behaviors. Federal funding, through Title I Part D of the Elementary and Secondary Education Act (ESEA),

subsidizes the development and implementation of prevention and intervention programs for students who are neglected, delinquent, or at-risk.

In order to establish a warning index that would identify students at risk of engaging in delinquent behavior early, schools must be able to recognize those common characteristics which are predictive of such behaviors. Majoribanks (1996), for example, found that key factors in a student's life outside of school influence student learning. School districts, however, do not have access to comprehensive family data and must rely solely on academic, social, and behavioral data that can be collected and historically maintained at the district level.

Purpose of the Study

The purpose of this study was to develop a model that can be used to predict potential delinquency status of adolescents by examining the relationship between being involved with law enforcement (juvenile delinquency) and the Texas Education Agency (TEA) academic, social, and behavioral indicators for being at-risk of dropping out of school, as well as demographic characteristics. The study examined relevant data from one of the 15 largest public-school districts in Texas grades 9-12 student population during the academic year 2012-2013 as a case study providing information on the issue of juvenile delinquency and the policies and programs initiated to address the problem.

Research Questions

This study seeks to answer the following questions:

1.   What are the profiles of delinquent and non-delinquent students in the research sample and how do these profiles differ in terms of demographic, academic, social, and behavioral factors?

2.   What is the relationship between juvenile delinquency and other academic (e.g.,

grade level, standardized assessment outcomes in math and reading), social (e.g., residential

facility placement), and behavioral indicators (e.g., truancy, disciplinary placements, grade

retention)? Is this relationship affected by demographic factors (e.g., gender, race, socio-

economic status, LEP status)?

3.   What combination of at-risk indicators is most predictive of delinquency?

Researcher's Stand

As an educator of more than 20 years who spent six years in the public education

classrooms of Title I schools followed by two years as an educational liaison with the Texas

Youth Commission (now Texas Juvenile Justice Department), and 11 subsequent years as the at-

risk administrator for one of the 100 largest public school districts in the nation, I have a vast

array of experience with both small rural and large urban districts working with at-risk youth. In

my experience I have witnessed "throw away" youth. Those who rarely, if ever, see their

families after incarceration. I have seen the stereotypical juvenile offender who, at the age of 16

reads at a second-grade level. I have known youth who resign themselves to the same fate as

their incarcerated fathers, brothers, and uncles because "that's just how it is, Miss." However, I

have also seen the rare offender who, upon parole, enrolls in high school and earns a diploma

and a college scholarship.

When I began my doctoral work, I knew that I wanted to pursue research that was related

to youth at-risk. It has been my passion since high school when I wrote a term paper on the

prevalence of child abuse in the military. What I did not expect was a helping hand from Senator

John Whitmire of Texas who did not just say we, as school administrators, should be predicting

delinquency in our schools to prevent students from becoming entangled in the court systems. He

said it to me, personally! While I was giving public testimony about a truancy bill, he made me

question: Can we do that? Do our data support that?

My job offered me direct access to the data every day. I analyzed different components of

the data on an ongoing basis. Never, however, had I considered the data from this perspective.

Inside our own little bubble called education, do we collect the data, that is to say, do we have

access to the data, which would allow us to truly predict delinquency and impact trajectories of

at-risk youth? My goal, upon completion of this dissertation is to be able draw some conclusions

on how effective the school districts' data would be in predicting delinquency and, therefore,

respond to Senator Whitmire's (2011) challenge.

Significance of the Study

Predicting delinquency in the educational setting has a major significance in improving

schools and helping youth to avoid the path to delinquency. With students entering school at

prekindergarten (age 4) or kindergarten (age 5) levels when studies have identified the root of

school disengagement, early prediction will give school officials the necessary tools to expose

early symptoms of antisocial behaviors in order to construct and implement targeted intervention

strategies for students at risk for later engaging in delinquent behavior (Stouthamer-Loeber &

Loeber, 1988). Particularly among offenders who are below the age of criminal responsibility,

from whom a relatively high proportion become chronic offenders, risk data can be used by

school officials to gauge the risk of career criminal activity (Loeber & Stouthamer-Loeber,

1987).

Among incarcerated delinquents, studies have consistently reported lower rates of

recidivism and higher rates of educational achievement for those who engaged in programs

culminating in high school graduation or GED attainment (Blomberg, Bales, & Piquero, 2012;

Stewart, 2003). If the school disengagement warning index is shown to be related to later

negative consequences, then that finding will have important implications for the development of

intervention strategies. Providing resources and services to students and their families when they

are disengaged from school but still enrolled in formal education, is certainly an easier task

(Henry et al., 2012) than re-integrating a juvenile offender into the school system. As

Stouthamer-Loeber and Loeber (1988) posited, "The efforts to predict delinquency can serve

several purposes, such as the formulation of theories about child development and the

highlighting of early markers of deviancy that can be incorporated in prevention efforts for

children at risk for delinquency" (p. 333). Although it may never be too late to reconnect

dropouts and those needing educational assistance back into the educational system, and in turn,

it may never be too late to help deter a juvenile delinquent from crime (Piquero, Cullen,

Unnever, Piquero, & Gordon, 2010), prevention is always a better strategy.

Definition of Terms

The following definition of terms will assist the reader in understanding the key concepts

and terminology used in this study.

Adjudicated. This term is synonymous with "convicted," indicating the court has

determined the juvenile committed the offense.

At Risk. At-risk, according to the Texas Education Agency, refers to students who meet

the criteria for one or more of the 13 indicators established by the Public Education Information

Management System (PEIMS) data standards (TEC §29.081). These indicators refer a school-

aged individual who is at-risk of academic failure, has a drug or alcohol problem, is pregnant or

is a parent, has come into contact with the juvenile justice system in the past, is at least one year

behind the expected grade level for the age of the individual, has limited English proficiency, is a

gang member, has dropped out of school in the past, or has a high absenteeism rate at school (No

Child Left Behind Act, Title I Part D).

Delinquent conduct. This type of behavior is defined by the Juvenile Justice Code as

any conduct, other than a traffic offense, which violates state law and is punishable by

imprisonment or confinement in jail; or a violation of an order of the juvenile courts. Generally

speaking, juvenile delinquency under Texas law results from either violation of the Texas Penal

Code or violation of conditions of probation, this may include such offenses as running away,

violating city ordinances, violating the school district's student code of conduct or even

prostitution or possession of certain materials of a sexual nature.

Deferred Adjudication. Defined in Texas Family Code §53.03(a) as a type of

probation, deferred adjudication generally occurs in cases involving less serious offenses by

first-time offenders. The juvenile is placed on probation, with certain conditions, for a period of

six months or less, after successful completion of which, the case is dismissed.

Dropout. A *dropout*, as defined by the Texas Education Agency (TEA), is a student who

attends grade 7-12 in a public school in a particular school year, does not return the following

fall, is not expelled, and does not: graduate; receive a GED; continue school outside the public

school system; begin college; or die. (Region 20 ESC)

Juvenile. In Texas, a *juvenile*, or child, refers to a person at least 10 but not yet 17 years

of age.

Juvenile Probation. A disposition option subject to a period of good behavior, under

supervision, that serves as a sanction for juveniles adjudicated in court, as a proposed means of

diverting juvenile offenders from the court system; community-based corrections used to

informally monitor at-risk youth and prevent their progression into more serious problem

behavior.

Other Conditional Release. Defined by the Texas Family Code, this type of release

requires written conditions provided to the child which impose reasonably necessary

requirements for release, which insure the child's appearance in subsequent court proceedings.

This type of release is often conditioned upon the agreement that an adult will ensure the child's

appearance in court.

Parole. A period of Texas Juvenile Justice Department (TJJD) supervision beginning

after release from a residential program and ending with discharge, also aftercare.

PEIMS. The Public Education Information Management System (PEIMS) is the

warehouse of Texas public school district data collection and analysis including data for student

demographics and academic performance. PEIMS requires an annual submission by each Texas

public school district using a set of immutable definitions, codes, formats, procedures, and dates

established by the PEIMS Data Standards to help ensure the accuracy and integrity of the data

collected.

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Overview of Chapters

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The current chapter contained an overview of the study, positioning it within the body of

research on delinquency. The problem statement included the rationale for the study by

identifying a gap in that literature, followed by the purpose of the study and research questions.

Researcher's stand was introduced to clarify context for key decisions in the research design,

followed by a brief discussion of the significance of the study.

The following chapter examines literature on juvenile delinquency and provides

contextual data for Texas. It also consists of a review of the extent literature on the academic,

social, and behavioral predictors of juvenile delinquency which correspond to data that is

collected and reported by Texas public schools through the Public Education Information

Management (PEIMS) system. Chapter 2 also provides an overview of theoretical frameworks

used in this dissertation to interpret the findings. Chapter 3 details the methodology used for the

study including the research sample and selection process, data collection sources, research

design, variables, and statistical analyses employed. Chapter 4 presents the findings of the study

by systematically addressing each of the three research questions. Finally, Chapter 5 will provide

a discussion of the findings, the limitations of the study, and any ramifications to existing

practice or development of policy, and resulting recommendations to future research.

CHAPTER II

LITERATURE REVIEW

This chapter begins the discussion by exploring the notion of delinquency from both

Texas and national perspective, and examines the cost, socially and economically, of

delinquency. Next, theories associated with delinquency are explored, as a means of establishing

a framework for the discussion. Specifically, the chapter includes a comparison of the various

theories of control, strain, and differential association to provide a framework that helps to

explain the *whys* for delinquent behavior. The chapter culminates with an examination of

research on academic, social, and behavioral indicators reported through the Public Education

Information Management System (PEIMS) and the Courts that are collected by public schools as

characteristics of risk for dropping out of school that are also well-documented in the literature

as being predictors of juvenile delinquency.

Juvenile Delinquency: Facts and Policy

This section explores the pipeline to prisons of delinquents, the Texas approach to at-risk

students, and the cost and predictors of delinquency.

Pipeline from Dropout to Prison

During public testimony in 2011, Senator John Whitmire (D-Houston), Chair of the

Senate Criminal Justice Committee, declared that it is incumbent upon school officials to predict

and intervene in delinquent behavior in order to prevent juveniles from becoming entangled in

the court system. Dropping out of school has long been regarded as a potential pathway to

incarceration. In fact, an internet search for the term "school to prison pipeline" elicits more than

17,000 hits. The term, first introduced by Wald and Losen (2003), was used in reference to the

ways in which dropping out of school appears to provide a direct route to delinquency (Crawley

& Hirschfield, 2009). Skiba, Arredondo, and Williams (2014) defined the school to prison

pipeline as "the relationship between school disciplinary practices and increased risk of juvenile

justice contact" (p. 546). Others, however, would disagree with that assertion. Sweeten,

Bushway, and Paternoster (2009) conducted a study that included 8,112 youth aged 12-17,

concluding that the act of dropping out is not a singular event, but rather, the culmination of a

series of life events. Moreover, the study further found that dropping out is not the cause of

delinquency and recommended further research to determine which factors lead to dropping out,

and in fact, predict a juvenile's likelihood of engaging in delinquent behaviors.

The Texas Context

Given that education is a right retained by the individual states under the 10th

Amendment to the U.S. Constitution, the definition of at-risk can vary from state-to-state as well

as at the federal level. Under the Title I Part D statute of the Elementary and Secondary

Education Act (ESEA) of 2001, as amended, Section 1401 Subpart 3 states that the term "at-

risk," when used with respect to a child, youth, or student, means a school-aged individual who

is at-risk of academic failure, has a drug or alcohol problem, is pregnant or is a parent, has come

into contact with the juvenile justice system in the past, is at least one year behind the expected

grade level for the age of the individual, has limited English proficiency, is a gang member, has

dropped out of school in the past, or has a high absenteeism rate at school.

The Texas Education Code clearly defines a student who is at risk of dropping out of

school in §29.081 Compensatory, Intensive, and Accelerated Instruction. The Texas statute is

more detailed than the federal statute in some respects, and yet narrower in others. For example,

TEC §29.081 does not expressly include truancy, gang affiliation, or overage as precursors to

dropping out of school as Title I Part D does; however, they may be inferred from the language

of the statute.

Although the 13 indicators for being at risk in Texas are not specifically categorized, the

At-Risk Report (SRS 004), through which the district reports to PEIMS for compensatory

education funding and from which data for this study will be drawn, clearly typifies indicators as

academic, social, and disciplinary (behavioral). A student is classified as at-risk academically if

he/she has been retained, fails to maintain an average of 70 % or higher in two or more

foundation courses in grades 7-12 during any given term, does not meet the standard for

kindergarten readiness or on the state assessments, is limited English proficient, or has been

previously reported to PEIMS as a dropout. Students who have been assigned to either the

District Alternative Educational Program (DAEP) or the Dallas County Juvenile Justice

Alternative Educational Program (JJAEP) are at risk for disciplinary (behavioral) reasons;

whereas those for whom there has been Child Protective Services (CPS) involvement, residential

placement, pregnant or parenting, or homeless are considered at risk due to social factors. The

circumstances for which a student may be classified under each of the categories that will be

used in the study are more explicitly defined in Chapter 3.

The Cost of Delinquency

The overall financial burden imposed by juvenile delinquency on the taxpayer is

estimated at a staggering $188 billion dollars per year, and its economic impact has a domino

effect. The Office for Juvenile Justice and Delinquency Prevention (OJJDP) estimated that more

than 800,000 youth under the age of 18 were arrested in 2017. A 2011 Justice Policy Institute

report estimated that, nationally, the loss of wages due to juvenile crime ranged between $4.07

and $7.60 billion, which, in turn, resulted in lost tax revenues estimated between $2.07 and $3.87

billion. Consequently, the increased likelihood of unemployment and underemployment of

juvenile offenders becoming dependent upon public assistance was estimated to range from $2.1

to $3.7 billion annually (Cohen, Piquero, & Jennings, 2010).

Just as the costs of juvenile delinquency are significant nationally, so too are they within

the state of Texas. In Texas, the 2015 Legislative Budget Board calculated the cost of juvenile

incarceration at $437.11 per day while the cost of juvenile parole and probation were computed

at $31.93 and $5.40 per day, respectively (Fiscal note, 84th Regular Legislative Session, HB

1205). The Texas Juvenile Justice Department (2019) estimates approximately 800 new

incarcerations annually.

To put this into perspective for the time period leading up to Senator Whitmire's

statement, youth ages five to 17 accounted for almost 19 % of the total United States population

(Howden & Meyer, 2011) and were responsible for approximately 16% of all violent crime and

26% of all property crimes (Puzzanchera, 2009). Juvenile court statistics from the Office of

Juvenile Justice and Delinquency Prevention (Puzzanchera & Robson, 2014) indicated an

estimated 55% increase in juvenile cases between 1985 and 2009 (Puzzanchera & Kang, 2011).

The OJJDP further reported 77.6% of those cases involved a juvenile defendant between the ages

of 10 and 17. Approximately 72% of those defendants were male while 64% were White. On its

face, this appears to contradict the literature which claims an overrepresentation of Black males

among the delinquent population; however, changes in federal reporting guidelines for race fail

to further disaggregate the data to an extent which would allow the distinction between White

Hispanic and White non-Hispanic youth (Sander et al., 2012).

Official records of delinquency indicate a peak age of 13 to 16 years (Murray &

Farrington, 2010), with the average age at adjudication being 15, an age at which most youth are

entering the 10th grade (Sander et al., 2012). Higher rates of crime and incarceration among

Black adolescents and young adults are reported as compared to their White peers (Rocque &

Paternoster, 2011). Rocque and Paternoster (2011) also found an increase in research studies

focusing on the relationship between minorities experiencing school failure and future contact

with the juvenile justice system. An extensive body of knowledge documents the link between

school failure, school disengagement, and involvement in the juvenile justice system. The

precursors or origins of school failure and disengagement, however, are not clearly defined in the

existing literature (Rocque & Paternoster, 2011).

 According to Kaye (2009), about half a million people dropout of high school every year,

and 68% of state prisoners throughout the nation were high school dropouts. Furthermore, Kaye

stated, adults who were frequently truant as teenagers tend to have an increased likelihood of

incarceration, and our nation's incarcerated adults have the lowest academic skill levels and the

highest disability and illiteracy rates. Lochner and Moretti (2004) concluded that "schooling

reduces the probability of incarceration and arrest" (p. 155).

 Although a strong body of research exists on the risks for delinquency, few studies have

attempted to understand the variables within schools that exacerbate or counteract these risks.

Christle, Jolivette, and Nelson (2005) conducted three multi-method studies that examined three

school characteristics related to delinquency–academic failure, suspension, and dropout–at the

elementary, middle, and high school levels respectively. The results suggested that school-level

characteristics can help minimize the risks for youth delinquency.

 Judith S. Kaye, former Chief Judge of the State of New York, called for individual

responsibility as well as collective, societal responsibility. Kaye urged juvenile advocates to

begin by focusing first on youth who were on the edge, facing imminent danger of descent into a

life of crime that would impact not only themselves, but families and community collaterally.

(Kaye, 2009).

Predictors of Delinquency

Risk is inherent in every aspect of life. While no one is immune to risk, and individuals

must face it throughout life, the effect of risk factors may significantly impact the path a youth

takes toward juvenile delinquency (Alltucker et al., 2006). An unintended finding of a study by

Christle, Jolivette, and Nelson (2005) was that academic failure, suspension, and dropping out of

school were risks for juvenile delinquency. Furthermore, they posited that the "number, type,

duration, timing, and severity of risks" (p. 70) may increase the probability of engaging in

delinquent activity. Although some dropping out of school factors are related to youth socio-

economic background or out-of-school activities, other factors have been identified throughout

at-risk students' academic careers.

The Texas Education Code §29.081(d) characterizes a student as being at risk for

dropping out of school if one or more of the following 13 indicators are present:

(1) was not advanced from one grade to the next for one or more years; (2) if the student

is in grade 7, 8, 9, 10, 11, or 12, did not main an average equivalent to 70 on a scale score

of 100 in two or more subjects in the foundation curriculum during a semester in the

preceding or current school year or is not maintaining such an average in two or more

subjects in the foundation curriculum in the current semester; (3) did not perform

satisfactorily on an assessment instrument administered to the student under Subchapter

B, Chapter 39, and who has not in the previous or current school year subsequently

performed on that instrument or another appropriate instrument at a level equal to at least

110 percent of the level of satisfactory performance on that instrument; (4) if the student

is in prekindergarten, kindergarten, grade 1, 2, or 3, did not perform satisfactorily on a

readiness test or assessment instrument administered during the current school year; (5) is

pregnant or a parent; (6) has been placed in an alternative education program in

accordance with Section 37.006 during the preceding or current school year; (7) has been

expelled in accordance with Section 37.007 during the preceding or current school year;

(8) is currently on parole, probation, deferred prosecution, or other conditional release;

(9) was previously reported through the Public Education Information Management

System (PEIMS) to have dropped out of school; (10) is a student of limited English

proficiency, as defined by Section 29.052; (11) is in the custody or care of the

Department of Family and Protective Services or has, during the current school year,

been referred to the department by a school official, officer of the juvenile court, or law

enforcement official; (12) is homeless, as defined by 42 U.S.C. Section 11302, and its

subsequent amendments; or (13) resided in the preceding school year or resides in the

current school year in a residential placement facility, emergency shelter, psychiatric

hospital, halfway house, cottage home operation, specialized child-care home, or general

residential operation.

At risk indicators established by the Texas legislation are not the same as those found in

federal statute. Title I Part D of the Every Student Succeeds Act (2015) defines at risk as:

"A child, youth, or student, means a school aged individual who is at-risk of academic

failure, dependency adjudication, or delinquency adjudication, has a drug or alcohol

problem, is pregnant or is a parent, has come into contact with the juvenile justice system

or child welfare system in the past, is at least one year behind the expected grade level for

the age of the individual, is an English learner, is a gang member, has dropped out of

school in the past, or has a high absenteeism rate at school."

Research has pointed to other potential circumstances that could lead to dropping out of school and delinquency. Among the specific contributing factors discussed in the literature, Alltucker, Bullis, Close, and Yovanoff (2006) suggested future studies include the examination of gender and foster care on delinquency status. Egeland, Yates, Appleyard, and Van Dulman (2002) identified child abuse and neglect as one such variable.

Factors Associated with At-Risk and Delinquency Status

For the purpose of the current study, seven potential predicting factors were analyzed, four of which are academic and three non-academic, all of which being prominent in the extant literature. Literature linking these predictors to delinquency is presented below, first in terms of concepts and theoretical explanations, second through empirical research testing the predictive validity of those and related factors.

Demographic Factors

Literature examining demographic indicators and their possible association with delinquency are included below. Studies are grouped into four major sections, including a) gender, b) race, c) economic status, and d) LEP status. Studies included in the review provide background on the topic along with empirical evidence for the association between those specific factors and delinquency.

Gender. Delinquency looks different depending upon the gender of the offender (Hagan, McCarthy, & Foster, 2002). Historically, juvenile delinquency has been considered a male concern, and while males still offend at greater rates than their female peers, the gender gap in offenses has narrowed considerably in both frequency and severity than in years past (Cauffman, 2008; Dodge, Coie & Lynam, 2006). According to the National Center for Educational Statistics

(NCES), in 2012, students who were suspended, expelled or referred to law enforcement were three times more likely to be male than female although Puzzanchera and Robson (2014) noted that the proportion of female offenders on court dockets has also increased. Texas statistics for suspensions mirrored the national data as 70% of suspended students being male; however, a slightly higher number of male students were expelled in Texas in 2012, accounting for 77% of offenders.

Race. The most currently available statistics available from the NCES showed as many as 19.6% of all students, nationwide, in grades 6-12 have been suspended from school at least once. More than three million students receiving one or more days of in-school suspension with an additional three million students receiving out-of-school suspension, with 1.4 million being suspended for two or more days (NCES, 2016). Of the students suspended during that time, 40% were Black, 16% White, and 17% Hispanic. Moreover, 42% of the students referred to law enforcement were White, 27% Black, and 24% Hispanic. In Texas, 49% of students receiving out-of-school suspension were Hispanic, 30% Black, 15% White, and less than 1% Asian. Similarly, 50% of all students expelled from school were Hispanic, 23% White, and 22% Black. Table 2.1 provides context by showing the National, Texas, and study District race distributions, respectively. Data for out of school suspensions and expulsions indicate a disproportionate number of Black/African American students are suspended and expelled as compared to their White and Hispanic peers. While Hispanic students are suspended at a rate proportionate to their demographic representation, White students are grossly underrepresented among suspended and expelled students in the state.

Table 2.1. The 2018 Distribution of Population by Race Groups

	Total Population U.S. Census [a]	Student Population Texas	Student Population Study District
Population Estimates	327,167,434	5,385,012	56,471
White	76.5%	27.8%	18.7%
Hispanic	18.3%	52.4%	50.8%
Native Hawaiian or Other Pacific Islander	0.2%	0.1%	0.1%
Asian	5.9%	4.4%	9.0%
American Indian or Alaska Native	1.3%	0.4%	1.6%
Black/African American	13.4%	12.6%	17.4%
Two or More	2.7%	2.3%	2.4%

[a] The U.S. Census does not report the number of school-aged persons, only the estimated percentage of persons under 18 in 2018 was 22.4% (U.S. Census.gov). I assume the percentage of racial groups in the U.S. population does not differ significantly by age groups.

Economic status. The Texas Education Code PEIMS Data Standards define economic disadvantage as a student who qualifies for free or reduced lunch under the National School Lunch and Child Nutrition Program. Students qualify for the program based on the family income, representing the total income for all adults living in the home, and the total number of household residents. According to the USDA Fact Sheet (USDA, 2019), 7.1 million students participated in the National School Lunch Program in its first year (1946), and 30.4 million participated in 2016.

Several studies assessed the relationship between socioeconomic status and delinquency. In a longitudinal study, Rekker et al. (2015) examined about 500 boys age 7-18 over a 10-year

span and found higher rates of delinquency during the years when their parents earned relatively

lower income. In fact, boys from low-income homes were 2.5 times more likely to commit

moderate crimes and more likely to engage in serious criminal activity. In an earlier study,

Brown and Males (2011) suggested that younger individuals were relatively more involved in

criminal activities than older individuals because they were poorer. Thus, they concluded that the

relative peak in criminal behavior during adolescence was not a consequence of developmental

changes; rather, it was a consequence of differences in economic status. Their findings align with

those of Alltucker et al. (2006) and Shulman, Steinberg, Steinberg, and Piquero (2013), who also

established the association between low socioeconomic status and delinquent behavior, peaking

during adolescence, and becoming most pronounced when exposure to poverty was extended

over a longer period of time. Although the relationship between age and delinquency will be

discussed in greater detail in a later section, these studies indicate a more complex relationship

that exists between age, SES, and delinquency.

Due to the longitudinal nature of the study conducted by Rekker et al., (2015) they also

found that as parents' circumstances improved over time, the criminal activity of their children

decreased. Schonberg and Shaw (2015) provided additional detail into the relationship between

delinquency and socioeconomic status with their study indicating that delinquent students often

have a lack of role models, lack of exposure to adequate schools including day care, and more

intense family stress.

Limited English proficiency (LEP). LEP.gov (2019) defines a person as Limited

English Proficient (LEP) whose primary home language is one other than English and who is

limited in their ability to speak, read, write, or understand the official English language. LEP

status is a good proxy for immigrant status being more common for the foreign-born students or

those with immigrant parents to experience English language difficulties. Most immigrant families live in urban areas, which are also more likely to experience higher levels of poverty. For instance, in 2015, the total percentage of Dallas County residents identified as LEP was 19.4% compared to 14.2% of all Texas residents (LEP.gov, 2019). Comparatively, among students enrolled in the Texas public schools, statewide, for the 2017-2018 school year, 1,014,830 students (18.8%) were identified as English Language Learners while that same subpopulation of students in the Study District numbered 16,172 students (28.6%).

LEP status has been studied extensively in relation to student achievement (Collier, 1992; Moosung & Na'im, 2008; Thomas & Collier, 2002). Although there is less literature on the relationship between LEP status and delinquency, most findings are positive. According to the U.S. Census Bureau (n.d.) in 2013, over 20% of U.S. residents indicated that Spanish or a language other than English was their primary language spoken in their home. Within that report, researchers stressed how immigrants were relatively more likely than native-born U.S. citizens to be shielded from some of the negative aspects of American culture, including elements that encourage criminal activity. Furthermore, non-native residents often possess a close community network that offers employment possibilities. In addition, youths who reside with foreign-born residents have to a significant extent been protected from influences of violence (Desmond & Kubrin, 2009). In fact, Graif and Sampson (2009) found that diversity of home languages within a community was associated with relatively lower homicide rates.

However, research has been divided on the effect of LEP status on criminal activity because LEP is not defined only by home language or immigrant status. Limited English Proficiency, as it is used by the Texas Education Code, refers to students who have a home language other than English and who are limited in their ability to speak, read, write, or

understand the language. Radmann (2005) examined the home language of Hispanic defendants in state and federal courts and showed that 40% to 60% indicated their primary home language was Spanish. While not addressing LEP or race specifically, and not identifying whether defendants were US-born or immigrants, this finding provides context to the number of non-English speakers within the criminal justice system in the United States. In a study more directly related to LEP, Tam and Freisthler (2014) examined this relationship, finding no significant association between linguistic acculturation and delinquency.

Academic Indicators

Literature examining academic indicators and their possible association with delinquency is included below. Studies are grouped into three major sections, including a) grade, b) general academics, c) math achievement, and d) reading achievement. Studies included in the review provide background on the topic along with empirical evidence for the association between those specific factors and delinquency.

Grade level. Defoe, Farrington, and Loeber (2013) conducted an empirical study on 503 boys, ages 11-15, to test the association between delinquency and age. They found that the correlation increased as student grew older, pointing to a need for further research on the nature of this relationship. Between the years of 1985 and 1991, the number of 15-year-olds arrested for murder increased by 217% (Dawkins & Sorenson, 2014). Lo et al., (2011) in an in-depth review of the extant literature, concluded that youth are more likely to engage in delinquent activity between the ages of 15 and 19. Similarly, in a study seeking to explain the risks of delinquency, Hallfors et al. (2006) showed the greatest risk for engaging in delinquent activity occurs between grades 9 and 10.

In Texas, the average age of enrollment for freshman and sophomore students is 14 and 15 years old, respectively. Using longitudinal data from the National Longitudinal Study of Youth (NLSY, 1997), Shulman, Steinberg, and Piquero (2013) also established a strong relationship between age and crime. The study, entitled *America's Children: Key National Indicators of Well-Being* (2015), reported that in 2013 the offending rate for serious crime was nine crimes per 1,000 juveniles between 12- and 17-year-old, with a total of 232, 000 such crimes involving juveniles. Additionally, the Office for Juvenile Justice and Delinquency Prevention (2014) reported about 17% of all serious violent crimes that took place in 2013 involved a juvenile offender. Thus, the Department of Justice stated:

> Data shows that the arrest of serious violent careers begins to increase at age twelve, doubles between ages thirteen and fourteen, and continues to increase to a peak at ages sixteen to seventeen. It drops fifty percent by age eighteen, and continues to decrease through age twenty-seven. (U.S. Department of Justice, 2018)

General academics. Researchers have examined the connection between students' general academic performance and delinquency. Results have been relatively consistent on this topic as evidenced by Maguin and Loeber's (1996) study, which showed that low academic achievement across subjects predicted delinquency. In a related study, Moretti (2005) found that students who failed to graduate from high school were significantly more likely of engaging in later criminal activity. Moretti explained that students' academic deficiencies often lead to disruptive behavior, which in turn may result in alternative academic placements, such as DAEPs. This creates a multi-directional cycle connecting poor academics to poor behavior.

Math achievement. While overall academic achievement has been linked to delinquency, Foley (2001) focused his analysis on math achievement because mastery in this

school subject requires continuous academic engagement and effort that could be problematic for

students with inconsistent school attendance. Foley's review of related literature indicated

consensus of research showing that youth who were incarcerated had significantly lower math

achievement than those who were not incarcerated. Nelson, Benner, Lane, and Smith (2004)

presented similar results from their study of 155 K-12 students with behavioral disorders,

showing significant gaps in math achievement for each of the grade levels. Zamora (2005) had

similar findings, examining a sample of 237 4th to 12th graders in Texas, showing that half

performed dramatically below their grade level in math. In fact, although students in the sample

mainly came from grades 7-12, only 25% performed at the middle school level in math.

Reading achievement. While research cited above made the connection between

incarceration and low math achievement, even more literature was available to substantiate the

association with reading skills. In fact, researchers such as Morgan, Farkas, Tufis, and Sperling

(2015) have suggested that students' reading ability and behavior problems are closely related

and even indicate a bi-directionality. They found that children with low reading scores were at

significantly greater risk of delinquency, showing gradually more resistance to interventions,

both behavioral and academic. Vacca (2008) determined that the typical juvenile offender, who

is 15 years old, only reads at a fourth-grade level. This finding aligns with that of the Criminal

Justice Initiative (1997), which reported that illiterate youth were over-represented in the

criminal justice system. Research has shown that early reading deficits represent flags for later

delinquency behaviors (Green et al., 2008) likely through the emergence of behavioral disorders.

For instance, reading performance in the first grade has been associated with subsequent

behavior problems in the third grade (Algozzine, Wang, & Violette, 2011) that can further lead

to delinquent behavior. Pushing the argument forward to high school, Anderson, Howard, and

Graham (2009) showed that reading disabilities were closely associated with delinquency for students at the age of 18.

   Retention. Retention refers to a student who was not advanced from one grade level to the next for one or more school years, not to include the voluntary retention by parents of a student in pre-kindergarten or kindergarten. In addition to the literature on math and reading achievement, substantial research supports the association between retention and delinquency. Research findings are not conclusive, with some studies showing a positive association between grade retention and delinquency, while others showed no significant association. For instance, in a large-scale quantitative study ($n = 1,164$) on grade retention, McCoy and Reynolds (1990) examined retention through age 14 and found no significant relationship between retention and students' self-reported perceived competence at age 12; nor did they find an association between grade retention and the number of code of conduct violations that a student reported by the age of 14. This work aligns with Jimerson and Ferguson (2007), who produced a longitudinal study that showed that reading and math deficits predicted delinquency, while grade retention did not. Conversely, Leone et al (2005) identified commonalities of incarcerated youth, which included academic deficiencies, reading deficits, and retention problems. According to Robertson and Walker (2018), who presented a large-scale empirical study ($n = 61,097$), students who had been retained a grade in school were nearly 50% more likely to engage in juvenile criminal activity. They also found that 65% of the students from the sample who had arrests or referrals had previously failed a grade.

Social Indicators

   Literature examining social indicators and their possible association with delinquency are included below. Studies are grouped into two major sections, including youth being in custody of

Child Protective Services (CPS) and Residential Placement Facility. Studies included in the review provide background on the topic along with empirical evidence for the association between that those specific factors and delinquency.

Child protective services. The indicator for CPS refers to a child who is in the care or custody of the Department of Family and Protective Services or has been referred to the department by a school, court, or law enforcement official, during the current school year (TEC §29.081). Placement is intended to be temporary; however, the length of placement varies with the ultimate goal being a safe reunion between youth and their family. Substitute care, also referred to as foster care, can take several forms from kinship care in which a child is placed with a family member; placement with a friend of the family, referred to as voluntary care; adoption; or permanent care, meaning the courts have permanently removed the child from the home without placing him for adoption (Texas Department of Family and Protective Services, n.d.).

The effects of CPS placement on delinquency has been studied in many contexts. In a recent study, Barrett and Katsiyannis (2017) focused on one-time offenders who were over the age of 14 and were described as *first offenders*. Researchers found that those one-time offenders were three times more likely to have at one time been placed in foster care than comparable youth from the general population. Their study aligns with the findings of Cutuli et al. (2016), who examined similar youth, this time residing in three urban centers. Cutuli et al. flipped the analysis by considering the future activities of children placed in foster care, finding that between 7% and 24% of foster care children later became involved in some way with the juvenile justice system.

In a relatively narrower study, Ryan et al. (2010) explored the relative risk of delinquency by African American youth who had been placed in foster care compared to non-Hispanic White

or Hispanic youth. They found that African Americans from foster care placements had relatively higher levels of juvenile delinquent activities than non-Hispanic White or Hispanic youth. They also presented nuanced findings, noting that children with spells, as defined as separate placements, within foster care system had relatively higher risk of involvement with the juvenile justice system. Conversely, children with relatively more stable foster care placements had fewer juvenile offences, aligning with Alltucker et al. (2006), who reported similar findings.

Looking at another aspect of delinquency, Evans and Burton (2013), focused on the possible association with childhood abuse and neglect. In a study of 161 male youth, relative frequency of childhood abuse was positively associated with involvement with the juvenile justice system. These findings aligned with more recent work of Robertson and Walker (2018) who found that between 9% and 29% of children placed in CPS were later involved in a juvenile crime. In addition, they reported that 19% of youth who had been in juvenile custody had experienced been previous physical abuse.

Residential placement facility. The Texas Education Code §29.081 defines a residential placement facility as any detention facility, substance abuse treatment facility, emergency shelter, psychiatric hospital, halfway house, cottage home operation, specialized child-care home, or general residential operation that is located within the district. Looking at youth between ages 7 and16 with one or more placements during a five-year period and no prior arrests ($n = 20,309$), Ryan, Marshall, Herz, and Hernandez (2008) reported a significant association between group home placement, in which they included all of the aforementioned settings, and delinquency. In a similar study, Ryan and Testa (2005) found a significant association between the frequency of placement in the child welfare system and incidents of juvenile delinquency. Dodge and Sherrill (2006) contributed additional research in terms of the nature of the risk of

delinquency, noting that the pervasiveness of deviance in residential facilities coupled with the inevitable exposure to those behaviors through friendships creates an increased likelihood of delinquency. With respect to the relationship between delinquency and confinement in a psychiatric hospital, researchers have noted that almost half of the children admitted to psychiatric units were involved with the juvenile justice system either before admission or after release (Cropsey, Weaver, & Dupre, 2008). Particularly vulnerable are youth who have been in a highly restrictive out of home context, remaining highly likely to engage in criminal activity after discharge.

Behavioral Indicators

Literature examining behavioral indicators and their possible association with delinquency are included below. Studies are grouped into two sections, including a) District Alternative Educational Program (DAEP) and b) truancy. Studies included in the review provide background on the topic along with empirical evidence for the association between that those specific factors and delinquency.

District alternative educational program. The indicator for DAEP refers to a student who has been placed in an alternative education program in accordance with Texas Education Code §37.006 during the preceding or current school year. The Texas Administrative Code (TAC) §103.1201 defines DAEP as "an educational and self-discipline alternative instructional program, adopted by local policy, for students in elementary through high school grades who are removed from their regular classes for mandatory or discretionary disciplinary reasons."

Programs such as DAEP have been studied to determine the effect of placement in an alternative education program on later criminal activity. In a study from the Netherlands, Weerman, Harland, and van der Laan (2007) examined a sample of students who engaged in

misbehavior in the seventh and ninth grades and found that placement in a disciplinary program during early adolescence predicted delinquency outside of school a year later. Narrowing the focus to the state of Texas, Fabelo et al. (2011) examined students from grades 7-12 and showed that 15% of students assigned to their district's DAEP had 11 or more violations during those years. Notably, they found that half of those offenders had additional contact with the juvenile justice system in subsequent years. While DAEP placements have been proposed in the state of Texas to curb future criminal activity, long-term results are mixed. According to Archer (2009), school disciplinary practices often place students on a pipeline through suspensions, expulsions, alternative disciplinary placements, and finally, leading to incarceration. In conclusion, DAEP placements may not have the positive effect expected, even if they are viewed as early intervention programs.

Truancy. Truancy refers to a student who is in violation of Texas Family Code Sec. 65.003 which states that a child who is required to attend school under the Texas Education Code engages in truant conduct if he/she fails to attend school on 10 or more days or parts of days within a six-month period in the same school year. Just as DAEP placement has been associated with subsequent delinquency, so has chronic truancy been linked to criminal behavior. In a study by Robertson and Walker (2018) looking at data from over 100,000 youth in Mississippi, students who were chronically absent were 3.5 times more likely to engage in criminal behavior than those who were not. Results paralleled those from a seminal work called the Cambridge Study in Delinquent Development (Rocque, et al., 2017), providing longitudinal data of children from South London between the age of eight (1961-1962) to the age of 50. Of the 28% of boys described as truant as 14-year-olds, 40% were convicted of a crime by age 50 (Roque et al., 2017). In a related work by Vaughn, Maynard, Salas-Wright, Perron, and Abdon (2013)

examining students between ages 12 and 17, skipping school was associated with delinquency,

physical aggressiveness, low school engagement, and low grades likely resulted from low

parental involvement and lack of supervision. These findings aligned with Byer and Kuhn

(2007), who found that 94% of juvenile offenders in Rhode Island had a documented history of

truancy. Additional research by Zhang, Katsiyannis, Barrett, and Willson (2017) also showed a

significant positive association between truancy and future delinquency.

Theoretical Perspectives

Pratt and Cullen (2000) have noted that the key to discovering what makes people engage

in criminal activity is to discover what makes them refrain from it. Specifically, the authors

explored how self-control can be reconceptualized as a key early predictor of criminal behavior.

With that in mind, gaining a theoretical perspective on potential antecedents of delinquency is

essential task when examining the topic. The following section includes brief introductions to

four theories of delinquency, including a) Differential Association Theory, b) Social Control/

social learning theory, c) Self-Control Theory, and d) general Strain Theory. While the current

quantitative study did not test the applicability of these theories to youth delinquency directly,

these theories provided some rationale for my hypotheses and served as a guide to developing a

conceptual framework focused on academic, social, and behavioral indicators of delinquency.

When appropriate, some of these studies were referenced in the discussion of the present study,

explicitly noting similarities and differences in findings relating to predictors of delinquency.

While differential association, social control, self-control, and strain theories of crime are

all sociological in nature, they differ in the types of social relationships that are believed to lead

to delinquency and the motivation behind delinquent behaviors. Differential association, social

control, and self-control theories focus on the absence of positive relationships rather than the

impact of negative ones; whereas strain theory focuses explicitly on negative relationships and asserts that those relationships provide societal models and condones the delinquent behavior (Hirschi, 1969; Gottfredson & Hirschi, 1990; Skrzypiec, 2013).

In early development of crime theory, Edwin Sutherland proposed the Differential Association Theory, in which he contended that criminal behavior was learned by association with what he referred to as "criminal definitions," that is, motives, rationale, and attitudes from others of influence, namely family and friends, who lead the young person to view delinquency as desirable and justified (Skrzypiec, 2013).

Social Control Theory later posited that it was the absence of positive social bonds to enforce social norms that increased the propensity to engage in delinquent behaviors. Or alternately, positive social bonds can deter persons from engaging in criminal activity. Hirschi (1969) defined those bonds as attachment, commitment, involvement, and beliefs. Attachment referred to significant relationships with parents or teachers; commitment was about goals and activities, such as school or work; involvement referred to activities, such as extracurricular sports or clubs; and beliefs referred to socially accepted norms including school rules and community laws. Social Control theory better explains the propensity to offend rather than the severity of offense (Paternoster & Triplett, 1988).

Upon further study of crime theory, however, Gottfredson and Hirschi (1990) developed the Self-Control Theory, which contends that all crime can be attributed to low self-control regardless of the frequency or severity of the offense. Self-Control Theory asserts that the immediate gratification of crime seduces individuals with low self-esteem control to engage in illegal activity (Gottfredson & Hirschi, 1990).

Finally, Strain Theory differs from the previous theoretical frameworks in both motivation and type of social relationships leading to delinquency. Strain Theory focuses explicitly on negative relationships with others. Early studies of strain theory focused on a single type of negative relationship, one which prevented a juvenile from achieving a positively valued goal (Cloward & Ohlin, 1960; Cohen, 1955; Merton, 1938). General Strain, as related to juvenile delinquency, focuses on the individual and the immediate social environment. Agnew (1992) categorized negative relationships three ways when defining Strain Theory: "(1) the actual or anticipated failure to achieve positively valued goals, (2) the actual or anticipated removal of positively valued stimuli, and (3) the actual or anticipated presentation of negative stimuli" (p.47).

Each of these theories of crime can be considered in the context of juvenile delinquency and, more specifically, each of them guided my research design, so I will briefly present my theoretical assumptions. The purpose of this study is to examine the relationship between engaging in delinquent activity and academic, social, and behavioral indicators for being at-risk of dropping out of school. When we apply crime theory to students who are truant or assigned to the DAEP, for example, self-control theory presents an obviously logical framework. Students identified as at-risk for those reasons may simply lack the self-control necessary to refrain from violating the student code of conduct or being absent from school without excuse ("skipping"). Gottfredson and Hirschi (1990) posited that the instant gratification of crime lured juveniles with low self-control into delinquency. As Pratt and Cullen (2000) put it, any factor that repels you from what you should do (or what you know is right) can be argued to result from a lack of self-control. That theory may not fully explain however, a student's propensity to engage in some delinquent behaviors over others, so we strive for a deeper understanding.

Being at-risk, whether for dropping out of school or delinquency, is inherently negative in nature; implying explicitly negative or, conversely, lacking of positive relationships. The student code of conduct and discipline policies are written in order to maintain law and order in our schools. Public schools reinforce the boundaries of acceptable behavior within that context but cannot deny the influences of social and familial factors. Deviation from those norms is what we use to establish a theoretical framework for delinquency as it applies to the educational setting. Social Control Theory asserts that those social norms and values along with our relationships and commitments are what discourage us from breaking the law (Hirschi, 1969).

Where Hirschi (1969) focused on positive relationships that repel students (or people in general) from engaging in anti-social behaviors, Differential Association Theory reaches the same conclusion from the opposing angle: through association with others where there is a lack of positive influence, students assume the attitudes and beliefs of delinquent behavior (Skrzypiec, 2013). Looking at the state-established at-risk indicators through that differential association lens, it can be reasonably argued that the interaction with others who engage in problem behaviors, influence students who become truant or engage in conduct that results in assignment to the DAEP. Similarly, association with others in foster care who have engaged in such behaviors may influence them to see delinquency as acceptable (Skrzypiec, 2013).

Unlike the other theories of crime that contend delinquency results from the lack of positive influences, General Strain Theory asserts that crime is the result of explicitly negative influences. The negative experiences resulting from stress placed on individuals to achieve socially accepted goals, even though they may lack the means, are what drive a youth to engage in delinquency activity (Agnew, 1992). So, theoretically, societal stressors to perform academically, socially, and behaviorally regardless of background and experiences provoke

delinquency. Given that the methodology for this study is quantitative in nature, students have either been identified according to each of the indictors or not, and each of the academic, social, and behavioral at-risk indicators is negative in nature, so Strain Theory can be applied to all aspects of delinquency in the school context. Societal norms and values dictate that students will achieve a certain level of academic success, behave with a certain level of decorum, and live to a certain standard. The stress of failing to conform to those social norms may drive students to become delinquent. While data available for this study does not allow to explicitly test these theories and this research does not aim to theory-testing, they guided the choice of variables employed and specific concepts will be used to interpret the results.

Chapter 2 Summary

Chapter 2 included a critical look at relevant empirical research and theoretical perspectives to support my dissertation. Studies cited were related to the pipeline from dropping out to prison, the cost of delinquency, predictors of delinquency, providing facts and policy about the juvenile delinquency phenomenon. This was followed by a presentation of targeted studies related to each of the factors examined in the present research, including demographic, academic, social, and behavioral indicators of delinquency. Finally, I reviewed several theories of delinquency that guided my conceptual framework, data collection, and interpretation of findings. Chapter 3 includes a presentation of research methods along with justifications for those choices.

CHAPTER III

METHOD

The purpose of this study was to develop a model that examined the relationship between delinquent behavior and student-level demographic characteristics as well as TEA established academic, social, and behavioral indicators for being at-risk of dropping out of school. Through the study findings, the researcher further aimed at predicting delinquency behaviors based on a student's comprehensive at-risk profile that could be used by educators to develop early interventions. The study addressed the following research questions:

1.   What are the profiles of delinquent and non-delinquent students in the research sample and how do these profiles differ in terms of demographic, academic, social, and behavioral factors?

2.   What is the relationship between juvenile delinquency and other academic (e.g., grade level, standardized assessment outcomes in math and reading), social (e.g. residential facility placement), and behavioral indicators (e.g. truancy, disciplinary placements, grade retention)? Is this relationship affected by demographic factors (e.g. gender, race, socio-economic status, LEP status)?

3.   What combination of at-risk indicators is most predictive of delinquency?

Research Sample and Data Collection

Research Sample

The extant literature shows peak age of delinquency between 13 and 16 years (Murray & Farrington, 2010) with an average age at the time of adjudication of 15 years (Sander et al., 2012), prompting the selection of the sample for this study of 2012-2013 high school students from a Texas school district. The school district has a population of more than 50,000, grade 9-

12 students, of whom about 9% have been identified over the course of their academic career

with one or more at-risk indicators for dropping out of school. The at-risk high school population

constitute the research sample for the study (n=4,477)

The sample consisted of two representative groups for comparison. First group consisted

of those students who had been identified as being at risk for dropping out of high school, based

on the same selected indicators, but who had not been identified as delinquent. The second group

included all students, grades 9-12 whose record reveals identification for actual juvenile

delinquency in addition to one or more at risk indicators for dropping out of school. For the

purpose of this study, juvenile delinquency was defined as having been placed on probation,

parole, deferred adjudication, other conditional release, mandatory expulsion to the Dallas

County Juvenile Justice Alternative Education Program (JJAEP), or in an incarceration facility

outside of the district. Table 3.1 provides more in-depth descriptions of these terms. The sample

(n=4,477) included 122 (2.73%) delinquent students and 4,355 (97.27%) non-delinquent students

in grades 9-12.

Table 3.1

Indicators of Juvenile Delinquency

Description	Definition
Probation	Juvenile is supervised rather than incarcerated
Parole	Early supervised release of a juvenile offender
Deferred Adjudication	Juvenile placed on community supervision
Other Conditional Release	Released with alternative supervision (e.g. hospitalization)
Incarcerated	Correctional facility outside district boundaries
Mandatory Expulsion to DCJJAEP	Student found to be in violation of TEC §37.017

Data Collection

Longitudinal administrative data were collected from a variety of district-level data

sources (Table 3.2) and compiled into one student-level data file. Each district reports identified

students by name and student identification number, both of which were used to link information

from various datasets, and later removed from data files to ensure confidentiality of private

information. Although the same IRB approval had to be met for use of this data for the study, as

the At-Risk Administrator and Student Services Coordinator for the district studied in this

dissertation, I had unlimited access to the data as its usage fell under the purview for my title and

job description. However, IRB approvals from both UTA (Appendix) and the school district

have been obtained prior to accessing and analyzing the data for research purposes.

Table 3.2

Data Sources

Report Name	Description	Data Type
At-Risk Report (SRS004)	TEA identified at-risk indicators	Current and prior year; code pendent
Court Filing System Profile (CFS)	Number and type of truancy cases filed	Longitudinal
Student ID Inquiry Report (SS-SIDINQ)	History of student enrollment and leaver reasons	Longitudinal
Student Discipline System Report (SDS22)	Student disciplinary placements	Current year
Historical Student Data	Prior year at-risk and testing data not included on SRS 004	Longitudinal

The At-Risk Report (SRS004) is a district-level report displaying each student who is identified as being at-risk for dropping out of school based on the state-established criteria for each of the 13 indicators. Additionally, the SRS004 provides student-level descriptive data including: campus assigned, age, grade, gender, and race/ethnicity. The duration of identification was code dependent with some indicators being permanent (e.g., retention), some previous and current year only (e.g., alternative educational program placement), and some benchmark driven (e.g., meeting the math standard for TAKS).

The Court Filing System Report (CFS) contains longitudinal truancy data for the number and type of cases filed in any given school year and the disposition thereof. Charges of Failure to Attend School (FAS) may be filed against a student, age 12 and over, who is considered to be in violation of state compulsory attendance laws as provided by the Texas Education Code (TEC) §25.094. Similarly, a charge of Parent Contributing to Non-Attendance (PCN) is filed against a parent who is alleged to be criminally negligent in the non-attendance of their child, in accordance with TEC §25.093. Only statutorily mandated filings for 10 or more days or parts of days in a six-month period will be counted.

The Student Services Student ID Inquiry Report (SS-SIDINQ) documents the entire enrollment history for a student in the District's schools and includes the dates of withdrawal, if any, along with the reason for withdrawal, as reported by parents/guardians. The Student Discipline System Report (SDS22) were used to identify all students with a placement in the district's alternative education program, either mandatory or discretionary, as well as all students whose disciplinary infraction required a mandatory placement in the Dallas County Juvenile Justice Alternative Education Program (JJAEP). The distinction between mandatory and

discretionary placements is made through the assignment of placement codes when entering

disciplinary data into PEIMS.

Finally, historical student data were gathered, as available, to fill any gaps in at-risk and

testing data that may not have been included on the SRS 004. There was no specific report

available for these data; but rather, information had to be accessed through the district's

Planning, Research, and Evaluation (PRE) Department. Once the individual data requests were

fulfilled, I was able to merge data from different administrative files into a single spreadsheet,

prepare the data using the Statistical Package for Social Sciences (SPSS) (e.g., coding, deriving

new variables), and initiate statistical analysis.

Research Design

Variables

Table 3.3 shows the variables available in the data and those employed in this study,

displaying codes, types, and values. The dependent, or outcome, variable is juvenile delinquency

status. Students at-risk of dropping out were considered delinquent for the study if they have

been placed on probation, parole, deferred adjudication, other conditional release; mandatory

expulsion to the Dallas County Juvenile Justice Alternative Educational Program (JJAEP); or in

an incarceration facility outside of the district. This is a categorical, dichotomous variable to

indicate membership in the delinquency group, the value for the variable were either yes (Y) or

no (N) for delinquency status. The NO category is used as reference category in the regression

models.

The independent variables for the academic, social, and behavioral indicators were

categorical dichotomous variables to indicate (NO/YES) whether each characteristic applied to

the student or not. Finally, the demographic indicators were nominal in nature but not necessarily

dichotomous. Certain demographic variables were included in the study in order to determine what effect, if any, they had on the relationship between the at-risk indicators and delinquency status. The independent variables proposed for the study are defined as follows:

Gender. Students were identified as either male or female. The male group is used as reference category in the model.

Race. For the purposes of this study, race/ethnicity was defined, using the most current federal reporting standards, as (I) American Indian or Alaska Native, (A) Asian, (B) Black or African American, (P) Native Hawaiian or other Pacific Islander, (T) Two or more races, and (W) White. The White group is used as reference category in the model.

Economically disadvantaged. Students were considered economically disadvantaged when the family qualifies for free or reduced lunch based on the federal guidelines. This is a dichotomous variable.

LEP. The variable is an indicator of students whose primary home language is one other than English and who are limited in their ability to speak, read, write, or understand the official English language. LEP is a dichotomous variable.

Grade level. Current year grade level was included in the data analysis. Grade level was determined by the number of credits earned. Grade 9 group is used as reference category in the model.

Texas assessment of knowledge and skills (TAKS). TAKS scores were used to assess student attainment in core curriculum areas. Based on the literature, the indicators for math (TAKSM) and reading (TAKSR) will be used as predictors in this study. This indicator is code dependent, meaning in order to remove the code from a student's at-risk profile, the standard must be met in a subsequent administration at 110 %. Rather than the actual score, the study

employed a measure of the reading and math assessments that indicated whether the student had

met (Y) or had not met (N) the state standard for the assessment.

Child protective services (CPS). CPS refers to a student being in the care and custody of

CPS or for whom there is an active CPS case. Referrals to CPS may be made by the school, court

system, law enforcement, or through an anonymous source. The duration of the CPS status is

dependent upon the level of supervision by the agency. Students for whom a report is

investigated or for whom an investigation is completed are flagged for the current school year,

whereas students who are in the care and custody of CPS remain identified for the duration of

their foster care status. Students who meet either of these criteria (i.e., are coded on the SRS004

for the 2012-2013 school year with a CPS indicator) were included in the current study.

Residential placement facility. This factor describes students who have been placed in a

residential care facility outside of the district and are considered at-risk for dropping out of

school. The indicator is classified by the District's reporting as a social factor. The individual

codes for each facility type were included in the data collection in order to analyze the

differences between the placement and the outcomes. Students may receive in-patient treatment

at one of the following: detention placement facility (RPF01), substance abuse treatment facility

(RPF02), psychiatric hospital (RPF03), emergency shelter (RPF04), halfway house (RPF05), or

foster- family group home (RPF06). Rather than classifying a student simply as at-risk due to

placement in a residential facility, this category was disaggregated in order to observe any

differences that may exist in the delinquency statuses of these students.

Retention. Grade retention refers to a student who was not promoted from one year to

the next. It does not include students who were voluntarily retained in kindergarten at the request

of the parent. Retention is a permanent indicator of being at-risk for dropping out of school. It is

represented by a two-category variable to describe whether the student had been retained at least

once in his/her educational career.

Table 3.3.

Codes, Types, and Value for Study Variables

Variables	Code	Type	Value
Dependent Variable			
Juvenile Delinquency status	DELQ	Categorical	N/Y
Independent Variables: Demographics			
Gender	GENDER	Categorical	M/F
Race	RACE	Categorical	I/A/B/P/W/T
Economically Disadvantaged	ECON	Categorical	N/Y
LEP	LEP	Categorical	N/Y
Independent Variables: Academic			
Grade Level	GRADE	Categorical	9,10,11,12
TAKS Math (standard met)	TAKSM	Categorical	N/Y
TAKS Reading (standard met)	TAKSR	Categorical	N/Y
Grade Retention	RETN	Categorical	N/Y
Independent Variables: Social			
CPS Involvement [a]	CPS	Categorical	N/Y
Drug or Alcohol Residential Facility Placement [a]	RPF02	Categorical	N/Y
Psychiatric Residential Facility Placement [a]	RPF03	Categorical	N/Y
Emergency Shelter Residential Placement [a]	RPF04	Categorical	N/Y
Halfway House Residential Placement [a]	RPF05	Categorical	N/Y
Foster-Care Group Home Residential Placement	RPF06	Categorical	N/Y
Independent Variables: Behavioral			
Truancy-Parent Contributing to Non-Attendance [a]	PCN	Categorical	N/Y
Truancy-Failure to Attend School	FAS	Categorical	N/Y
Disciplinary Alternative Educational Program	DS053	Categorical	N/Y

[a] Variables that will not be used in the final model.

Truancy. Truancy is defined as being absent without excuse, in violation of the

compulsory attendance laws of Texas. Cases are filed in the Dallas County Truancy Courts with

a charge of either: Parent Contributing to Non-Attendance (PCN) in which the district charges

the parent acted with negligence in the absence of the child from school, or Failure to Attend

School (FAS) in which the district names the child as the defendant, asserting that the absences

were the fault of the child. Students must reach the age of 12 prior to being charged with FAS.

Although discretionary filings are permitted for either charge under the statute, only cases which

are mandated under TEC §25.085 for 10 or more days or parts of days in a six-month period

were used in the current study.

Disciplinary alternative education program (DAEP). DAEP refers to a student who,

due to a violation of the Student Code of Conduct, has been removed to the District Alternative

Education Program (DAEP) either discretionarily or mandatorily, based on the severity and

location of the offense. Indicators for DAEP placement appear on the SRS004 for the current and

previous school year. The SS-SIDINQ Report, however, allowed the inclusion of historical

DS053 data for subjects included in the study.

Statistical Procedures

Several statistical procedures were employed in this study. First, descriptive statistics

were used to present the sample and describe the variables included in the analysis. Descriptive

statistics are part of two-way tables and provide a better portrayal of the research sample and

variable distributions. In addition, the bivariate analysis procedure was used to contrast various

indicators for the two student groups compared in the study. Since all variables are categorical,

cross tabulations (or two-way tables) were used to compare distributions of delinquency status

by each independent variable (e.g., delinquency status by demographic factors). Chi-square tests

were computed to examine whether specific factors were associated with delinquency status. A series of bivariate analyses were thus conducted to address *Research Questions 1*, to contrast and compare the two groups (delinquent and non-delinquent) by all variables selected for the study. Through cross tabulations and chi-square (χ^2) tests of independence, the study included analysis of group differences by examining "the relationship between two discrete variables" (Tabachnick & Fidell, 2001, p.55) in order to establish whether the specific indicators (i.e., demographic, academic, social, or behavioral) were associated with delinquency status. The contingency tables displayed the frequency distribution of the variables showing specific patterns. The bivariate analyses also helped make decisions on which independent variables from each of the demographic, academic, social, and behavioral sets should be kept for modeling delinquency status (e.g., some cells in the two-way tables had no case). Variables removed will be further discussed in the limitations to the study found in Chapter 5.

Second, I developed logistic regression models to examine the relationship between delinquency status and the independent variables. Results of the logistic regression were presented in terms of odds ratios that represented the likelihood that an outcome would occur (e.g., being a delinquent versus not) given particular characteristics (e.g., female), compared to the reference category (e.g., male). This multivariate statistics analysis was conducted to examine the combined effect of all factors on delinquency status.

Finally, I employed a step-wise logistic regression in an attempt to answer a question relevant to practice: What combination of at-risk indicators is most predictive of delinquency? According to Tabachnick and Fidell (2001), "logistic regression allows one to predict a discrete outcome such as group membership from a set of variables that may be: continuous, discrete, dichotomous, or a mix" (p. 517). Once relationship and strength of association for the individual

predictor variables were established by the procedures conducted to answer Research questions 1

and 2, stepwise logistic regression was employed to further determine what combination, if any,

of independent variables yielded the best prediction of the criterion, juvenile delinquency. In this

method, each predictor variable was reassessed as a new variable and introduced to examine its

statistical significance, and either included in or deleted from the subset based on its calculated

contribution. Table 3.4 provides a summary of variables and statistical procedures for each

research question.

Table 3.4

Research Questions, Variables, and Statistical Procedures

Research Questions	Statistical Procedures	Variables
RQ1	Crosstabulations and Chi-square tests ($p<0.05$)	Delinquency Status
		Demographic factors
RQ2	Binary Logistic Regression	Academic factors
		Social factors
RQ3	Stepwise Logistic Regression	Behavioral factors

Chapter 3 Summary

Chapter 3 included a description of the study's methodology, focusing on the details and

research choices central to the work. The researcher presented sections on the research sample,

data collection procedures, a description of variables, and statistical procedures for each research

question.

CHAPTER IV

FINDINGS

The purpose of this study was to determine what school-level data would allow school

officials to predict delinquency, as challenged by Texas Legislators, in order to keep students

from becoming engaged in the court system. Subjects in the sample were students in a large

North Texas district identified in 2012-2013 as being at risk of dropping out of school, some of

them being additionally delinquents. Delinquency was defined as students with a record of

probation, parole, deferred adjudication, other conditional release, incarceration, or mandatory

expulsion to the Juvenile Justice Alternative Educational Program. The sample (n=4,477)

included 122 (2.73%) delinquent students and 4,355 (97.27%) non-delinquent students in grades

9-12, in the 2012-2013 academic year. The results of this quantitative study are presented in

Chapter 4 and are organized by research questions.

Profiles of Delinquent and Non-Delinquent Students

Research Question 1

What are the profiles of delinquent and non-delinquent students in the research sample

and how do these profiles differ in terms of demographic, academic, social, and

behavioral factors?

A series of cross tabulations were run for delinquent/non-delinquent status by

demographic, academic, social, and behavioral factors. In addition to providing descriptive

statistics for the sample and each of the two groups, the bivariate analysis included chi-square

tests of association between delinquent status and each of the demographic factors (gender, race,

socio-economic status, LEP), academic (grade level, met TAKS reading, met TAKS math

retention), social (CPS involvement, residential placement-psychiatric hospital, residential

placement-foster group home), and behavioral factors (truancy-parent contributing to non-attendance, truancy-failure to attend school, DAEP placement). According to Gall, Gall, and Borg (2007), a *p* value less than 0.05 indicates a statistically significant relationship between categorical variables. For example, were a chi-square test to show $\chi^2(2, n=4,000) = 7.615$, $p = 0.04$, then a statistically significant relationship would be a logical conclusion. Below are narrative accounts of findings with respect to delinquency by demographic, academic, social, and behavioral factors.

Delinquency and Demographic Factors

Cross-tabulations were performed to test the association between demographic factors and delinquency status. Demographic factors included gender, race, socio-economic status, and LEP status. Table 4.1 displays cross-tabulations of delinquency status by each demographic factor and indicates whether the corresponding tests of association were statistically significant. Results of Table 4.1 are further discussed.

Gender. Overall, 55% of subjects in the study were male and 45% were female. The first analysis tested the association between delinquency and gender using chi-square tests. The data showed that there was a significant association between gender and delinquency status, $\chi^2(1, n=4477) = 54.5$, $p < 0.001$. The significant association between delinquency status and gender is reflected in the largest percentage of males among delinquent students. While approximately 55% of all students are male, they represented almost 88% among the delinquent group. The pattern appears to indicate that female students engaged in delinquent activity less frequently than their male counterparts.

Table 4.1

Delinquency Status by Demographic Factors

| | Delinquency Status | | |
	Non-Delinquent n (%)	Delinquent n (%)	All
Gender ***			
Male	2351 (54%)	107 (87.7%)	2458 (54.9%)
Female	2004 (46%)	15 (12.3%)	2019 (45.1%)
Race (ns)			
White	826 (19%)	20 (16.4%)	846 (18.9%)
Asian	286 (6.6%)	6 (4.9%)	292 (6.5%)
Black	970 (22.3%)	35 (28.7%)	1005 (22.4%)
Hispanic	2166 (49.7%)	55 (45.1%)	2221 (49.6%)
American Indian	34 (.8%)	2 (1.6%)	36 (.8%)
Two or More Races	73 (1.7%)	4 (3.3%)	77 (1.7%)
Economically Disadvantaged (ns)			
No	1708 (39.2%)	42 (34.4%)	1750 (39.1%)
Yes	2647 (60.8%)	80 (65.6%)	2727 (60.9%)
LEP ***			
No	2823 64.8%)	101 (82%)	2924 (65.3%)
Yes	1532 (35.2%)	21 (18%)	1553 (34.7%)

*p< 0.05 **p<0.01 ***p<0.001

Race. The next analysis was to test the significance of the association between

delinquency status and race. When looking at students by race, subjects were coded as White,

Asian, Black, Hispanic, American Indian, and Two or More Races. Overall, 18.9% of at-risk

students in the study were White; 6.5% Asian; 22.4% Black; 49.6% Hispanic, 0.8% American

Indian and 1.7% were Two or More Races. Meanwhile, among delinquent students 16.4% were

White, 4.9% were Asians, 28.7% were Black, 45.1% were Hispanics, 1.6% were American

Indians and 3.3% were Two or More Races. Although we can notice a larger percentage of Black

or African American students among the delinquent population, the distribution appears to be

relatively even across the races. A corresponding chi-square test for independence was

performed to examine the relationship between race and delinquency. The result indicates no

significant relationship $\chi^2(5, n=4477) = 6.47$, $p = 0.264$, which is reflected in the relative

similarity between the representation of White, Asian, Black, Hispanic, American Indian, and

individuals of two or more races among all at-risk students and among those with delinquent

status.

        Economically disadvantaged (socio-economic status). The next demographic analysis

was to test the significance of the association between delinquency status and socioeconomic

status (measured by PEIMS economically disadvantaged indicator). Overall, 61% of at-risk

students in the study were economically disadvantaged and 39% were not. The pattern appears to

indicate that economically disadvantaged students engaged in delinquent activity just as

frequently as their non-economically disadvantaged counterparts, although it was slightly more

likely for delinquent students (65.6%) to be economically disadvantaged. A corresponding chi-

square test of independence was performed to examine the relationship between socioeconomic

status and delinquency. The result indicates no significant relationship $\chi^2(1, n=4477) = 1.15$, p =

0.302 which is reflected in the relative similarity between the distributions among all students

and just those with delinquent status.

        LEP. The final demographic analysis was to test the significance of the association

between delinquency status and LEP status. Overall, 34.7% of subjects in the study were

identified as LEP and 65.3% were not LEP. However, among the delinquent students, 82% are

non-LEP and 18% are LEP which clearly shows the delinquency phenomenon is lower among

the LEP students. A corresponding chi-square test of independence was performed to examine the relationship between LEP and delinquency. The data showed that there was a significant association between LEP status and delinquency status, $\chi^2(1, N=4477) = 16.91$, $p <0.001$.

Delinquency and Academic Factors

Crosstabulations were performed to test the association between academic factors and delinquency status. Academic factors included grade level, TAKS Reading Met, and TAKS Math Met. Results are presented in Table 4.2 and further discussed.

Grade level. The next analysis was to test the significance of association between delinquency status and grade level. When looking at students by grade level, subjects were coded as attending grade 9, 10, 11, or 12. Overall, 10.9% of at-risk students in the study were in grade 9; 12% in grade 10; 9.4% in grade 11; and 67.8% in grade 12, which shows already that the majority of at-risk students in the district were in the senior year. Among the delinquent students, 27.9% were 9th graders, 32.8% were 10th graders, 18.9% were 11th graders, and 20.5% were 12th graders. The pattern appears to be a relative decrease in the proportion of delinquent students, as students progressed into the upper-grade level. A corresponding chi-square test of independence between grade level and delinquency shows a significant association between the two variables, $\chi^2(3, n=4477) = 132.20$, $p < 0.001$. The significant association between delinquency status and grade level is reflected in the largest percentage of 10th graders among delinquent students. While approximately 12% of all at-risk students are 10th graders, they represented almost 33% of the delinquent group.

Table 4.2

Delinquency Status by Academic Factors

	Delinquency Status		All
	Non-Delinquent n (%)	Delinquent n (%)	
Grade level***			
9th	452 (10.4%)	34 (27.9%)	486 (10.9%)
10th	495 (11.4%)	40 (32.8%)	535 (11.9%)
11th	399 (9.294.5%)	23 (18.9%)	422 (9.4%)
12th	3009 (69.1%)	25 (20.5%)	3034 (67.8%)
TAKS Reading Met**			
No	3145 (72.2%)	100 (82.8%)	3245 (72.5%)
Yes	1210 (27.8%)	22 (17.2%)	1232 (27.5%)
TAKS Math Met ***			
No	2130 (48.9%)	84 (68.9%)	2214 (49.5%)
Yes	2225 (51.1%)	38 (31.1%)	2263 (50.5%)
Retention (ns)			
No	3549 (81.5%)	103 (84.4%)	3652 (81.6%)
Yes	806 (18.5%)	19 (15.6%)	825 (18.4%)

*$p< 0.05$ **$p<0.01$ ***$p<0.001$

TAKS reading met. The analysis tested the significance of the association between delinquency status and meeting reading achievement status. When looking at reading achievement, subjects were coded as meeting the state standard on the Texas Assessment of Knowledge and Skills (TAKS) Reading or not. Overall, only 27.5% of at-risk students in the study met the state standard for reading on the TAKS and 72.5% did not. Among delinquent students, only 18% passed reading TAKS as compared to about 28% among non-delinquent subjects. The pattern appears to indicate that students who did not pass TAKS reading had also higher rates of delinquency than students who passed TAKS reading. A corresponding chi-

square test of independence was performed to examine the relationship between reading

achievement and delinquency, data showing that there was a significant association between the

two variables, $\chi^2(1, N=4477) = 5.66$, $p = 0.018$.

TAKS math met. The second academic subject analysis was to test the significance of

association between delinquency status and math achievement status. When looking at students

by math achievement, subjects were coded as meeting the state standard on the Texas

Assessment of Knowledge and Skills (TAKS) Math, or not. Overall, 50.5% of at risk students in

the study met the state standard for math on the TAKS and 49.5% did not. Meanwhile, among

the delinquent students, only 31.1% met the TAKS Math standard. The pattern appears to

indicate that students who did not pass TAKS math had also higher rates of delinquency than

students who passed TAKS math. A corresponding chi-square test of independence was

performed to examine the relationship between math achievement and delinquency, data

showing there was a significant association between the two variables, $\chi^2(1, N=4477) = 18.9$, $p <$

0.001. The significant association between delinquency status and TAKS Math Met is reflected

in the uneven distributions across the two delinquency groups. While approximately 51% of the

all at-risk students met standard in TAKS Math, this was true only for 31% of the delinquent

group.

Retention. The following analysis tested the significance of association between

delinquency status and grade retention status. Overall, 81.6% of at-risk students in the study

were retained in one or more grades and 18.4% were not retained. Among delinquent students

only 15.6% were retained, compared to 18.5% among the non-delinquent students. A

corresponding chi-square test of independence was performed to examine the relationship

between retention and delinquency. The result indicates no significant relationship χ^2(1, n=4477)

= 0.68, p = 0.48.

Delinquency and Social Factors

Crosstabulations were performed to test the association between social factors and

delinquency status. Social factors included Child Protective Services (CPS) involvement,

Residential Placement (psychiatric hospital), and Residential Placement (foster group home).

Results are presented in Table 4.3 and further discussed.

Table 4.3

Delinquency Status by Social Factors

	Delinquency Status		All
	Non-Delinquent n (%)	Delinquent n (%)	
CPS (ns) [a]			
No	4341 (99.7%)	122 (100%)	4463 (99.7%)
Yes	14 (0.3%)	0 (0%)	14 (0.3%)
Residential Placement (psychiatric hospital) (ns) [a]			
No	4353 (100%)	121 99.2%)	4474 (99.9%)
Yes	2 (0.05%)	1 (0.8%)	3 (0.1%)
Residential Placement (foster home) (ns)			
No	4325 (99.3%)	121 (99.2%)	4446 99.3%)
Yes	30 (0.7%)	1 (0.8%)	31 (0.7%)

*p< 0.05 **p<0.01 ***p<0.001 [a] Variables will not be used in the final model

CPS. The first analysis presented descriptive statistics and tested the significance of

association between delinquency status and CPS status – at-risk students received, or not, Child

Protective Services. Overall, a mere 0.3% of at-risk students in the study were under the attention

of Texas CPS. No delinquent student benefited of these services, and only .3% of non-delinquent students did. I presented this result, to show that CPS involvement was minimal for at-risk students and raise questions about this issue. However, this social indicator will be dropped from further analysis of the data, due to sample size under study.

Residential placement (psychiatric hospital). The next analysis presented descriptive statistics and tested the significance of association between delinquency status and Residential Placement in a Psychiatric Facility. Overall, approximately 0.1% of the all at-risk students had been placed in a residential psychiatric hospital, compared to 0.8% among the delinquent group. However, findings should be viewed with caution due to small numbers within the delinquent group and the sample. Although I presented the descriptive statistics for this variable, this social indicator will be dropped from further analysis, due to the small sample size.

Residential placement (foster home group). The final analysis of social indicators presented descriptive statistics and tested the significance of association between delinquency status and Residential Placement in a Group Foster Home. This phenomenon is somehow more prevalent because overall, 0.7% of the at-risk students in the study were placed in a Group Foster home. Data indicate a similar pattern among delinquent and non-delinquent students. As a result, the corresponding chi-square test of independence between the two variables was not significant, $\chi^2(1, n=4477) = 0.30$, $p = 0.864$. Although findings should be viewed with caution due to small numbers within the delinquent group and the sample, I decided to include this social indicator in further analysis.

Delinquency and Behavioral Factors

Crosstabulations were performed to test the association between behavioral factors and delinquency status. Behavioral factors included academic retention, truancy (parent contributing, truancy (failure to attend), and DAEP placement. Findings are presented in Table 4.4.

Table 4.4

Delinquency Status by Behavioral Factors

	Delinquency Status		
	Non-Delinquent n (%)	Delinquent n (%)	All
Truancy-Parent Contributing (ns) [a]			
No			
Yes	4335 (99.5%)	122 100%)	4457 (99.6%)
	20 (0.5%)	0 (0%)	20 (0.4%)
Truancy-Failure to Attend (ns)			
No			
Yes	4102 (94.2%)	118 (96.7%)	4220 (94.3%)
	253 (5.8%)	4 (3.3%)	257 (5.7%)
DAEP Placement***			
No	3815 (87.6%)	82 (67.2%)	3897 (87%)
Yes	1532 (12.4%)	40 (32.8%)	580 (13%)

*p< 0.05 **p<0.01 ***p<0.001   [a] Variables will not be used in the final model

Truancy (parent contributing). The next analysis tested the significance of association between delinquency status and truancy status for parent contributing to non-attendance. Overall, 0.4% of at-risk students in the study had a parent contributing to truancy, and no case was indicated among delinquent students. The pattern appears to indicate a relatively small number of at-risk students in the sample had truancy cases filed against the parent for contributing to

nonattendance, which means this behavioral indicator was not relevant (at least) for this sample

and will not be included in further analysis.

Truancy (failure to attend school). The next analysis tested the significance of

association between delinquency status and truancy status for failure to attend school, which

appears to account for actual attendance decisions of students. Overall, 5.7% of at-risk students

in the study had a case (FAS) for truancy filed against the student and 94.3% did not. This

percentage is only 3.3% among delinquent students, compared to 5.8% among non-delinquents.

A corresponding chi-square test of independence was performed to examine the relationship

between FAS and delinquency showing no significant association between the two variables,

$\chi^2(1, n=4477) = 1.405, p = 0.236$.

DAEP placement. The final analysis tested the significance of association between

delinquency status and Disciplinary Alternative Educational Program (DAEP) placement.

Overall, 13% of subjects in the study had been placed in the DAEP and 87% had not. Among

delinquent students, 32.8% received DAEP placement as compared to 12.4% among non-

delinquents. A corresponding chi-square test of independence was performed to examine the

relationship between DAEP and delinquency. The data showed that there was a significant

association between the two variables, $\chi^2(1, N=4477) = 43.7, p <0.001$.

The descriptive statistics and bivariate analyses helped address Research Question 1 of

the study. In addition, it served to better explore the data and draw conclusions as to which

variables to consider for modeling the delinquency status. Some groups were particularly small

(none or a few cases) which would create singularities in the models, so variables were

dismissed. Same for variables that were less relevant for the educational practice (e.g., placement

in psychiatric facility). In addition to all demographic factors (e.g. gender, race, socio-economic

status, LEP status) and academic variables (e.g., grade level, standardized assessment outcomes

in math and reading), I included in further modeling selected social (e.g., residential facility

placement) and behavioral indicators (e.g. truancy, disciplinary placements, grade retention).

Relationship Between Juvenile Delinquency and Other Academic Indicators

Research Question 2

What is the relationship between juvenile delinquency and other academic (e.g., grade

level, standardized assessment outcomes in math and reading), social (e.g., residential

facility placement), and behavioral indicators (e.g. truancy, disciplinary placements,

grade retention)? Is this relationship affected by demographic factors (e.g. gender, race,

socio-economic status, LEP)?

A binary logistic regression was performed to determine the relative contribution of each

independent factor in explaining the outcome – delinquency status. The Nagelkerke R^2 for the

model was 0.229 so 22.9% of the total variation in the outcome (delinquent status) was explained

by the proposed sets of independent variables.

Table 4.5 presents the results of the binary logistic model in terms of odds ratios that

show the likelihood for an event to occur (i.e., be a delinquent) when the student is in the given

category as compared to being in the reference category of each independent variable. Based

upon results displayed in Table 4.5, only six of the 11 independent variables bring some

significant contributions to the model. Those include gender, LEP, Grade level, TAKS Math

Met, Truancy (failure to attend) and DAEP Placement. Thus, results show that male students are

almost 5.5 times more likely to be delinquent compared to male students (inverse odds ratio,

IOR= 5.5), and non-LEP students about 2.5 times more likely to be delinquent compared to

LEPs (inverse odds ratio, IOR=2.5).

Table 4.5

Logistic Regression for Delinquency Status (Non-delinquent=ref)

Variables (ref category)	Category	Odds Ratios	Sig.
Demographic Predictors			
Gender (Male=ref)	Female	.182	.000
Race (White=ref)	Asian	2.549	.074
	Black	1.405	.267
	Hispanic	1.641	.094
	American Indian	2.771	.214
	Two or more races	2.078	.220
Economically disadvantaged (No=ref)	Yes	1.104	.641
LEP (No=ref)	Yes	.413	.002
Academic Predictors			
Grade Level (Grade 9=ref)	Grade 10	.989	.966
	Grade 11	.851	.584
	Grade 12	.119	.000
TAKS Math Met (No=ref)	Yes	.560	.015
TAKS Reading Met (No=ref)	Yes	.725	.245
Retention (No=ref)	Yes	.653	.133
Social and Behavioral Predictors			
Residential Placement (foster) (No=ref)	Yes	.357	.322
Truancy – Fail to attend school (No=ref)	Yes	.152	.000
DAEP placement (No=ref)	Yes	2.116	.001

Although none of the racial categories is statistically significant at the .05 level, data show that all racial groups are more likely to be delinquent compared to White students. Also, students not identified as economically disadvantaged, are less likely to be delinquents.

Odds ratio of OR=.119 (IOR=8.5) indicates that Grade 12 students are about 8.5 times less likely to be delinquent when compared to Grade 9 students (reference category for grade level). Students who met TAKS Math standards are about two times less likely to be delinquent (IOR=1.8). Since Math and Reading TAKS tend to be closely associated with each other, it is not surprising that they had similar effects on delinquency (those meeting standards tend to be non-delinquent), although the TAKS Reading effect was not significant.

The Residential placement social variable was not statistically significant, but the two behavioral indicators are statistically significant. First, students with truancy cases (failure to attend school) are about 6.6 less likely to be delinquent (IOR= 6.6), result that was shown also through bivariate analysis. Meanwhile, DAEP Placement, which indicates students had behavioral issues, was positively associated with delinquency. Those who experienced behavioral problems and were placed in DAEP are more than two times more likely to be delinquent compared to those who were not placed in DAEP.

Predictors of Delinquency

Research Question 3

What combination of at-risk indicators is most predictive of delinquency?

Within the current study, a stepwise logistic regression allowed the researcher to examine a series of delinquency models to establish the contribution of the relevant independent variables while holding the others constant, and to report the proportion of variance accounted for by each model. While the six independent variables which best contribute to the full model were

previously identified, the stepwise regression helps identify them in order showing first the ones that contribute most to the model. This method helps address Research Question #3, namely which combination of at-risk indicators can be presented that is most predictive of delinquency.

Table 4.6 displays the 6 logistic regression models, indicating the odds ratios for variables /categories, and their significance. The Nagelkerke R^2 was presented for each model to indicate the variance explained by the sets of predictors.

Table 4.6

Logistic Regression Models Showing Predictors of Delinquency (Odds ratios)

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Grade: 10th	1.074	1.042	1.037	1.045	1.016	1.001
Grade: 11th	0.766	0.772	0.780	0.880	0.906	0.881
Grade: 12th	0.110***	0.116***	0.124***	0.139***	0.120***	0.125***
Gender		0.179***	0.199***	0.196***	0.190***	0.193***
DAEP			1.953**	2.274***	2.048**	1.989**
TAKS Math Met				0.487**	0.436***	0.448***
Truancy (failure to attend)					0.197**	0.173**
LEP						0.493**
Constant	0.075	0.117	0.117	0.115	0.144	0.171
Nagelkerke R Square	0.12	0.173	0.183	0.195	0.210	0.218

*$p< 0.05$ **$p<0.01$ ***$p<0.001$

Thus, Model 1 is based on the variable Grade level that explains about 12% of the variance in the model, with Grade 12 category producing a significant and consistent effect across all stepwise models. Gender is then adding to the variance explained (up to 17.3%) and

also maintains a significant effect across the stepwise models. The third relevant variable is

DAEP placement that brings a modest contribution increasing the variance explained to 18.3%,

followed by TAKS Math Met (up to 19.5%), Truancy (failure to attend school) up to 21% and

finally LEP status (up to 21.8%).

Chapter 4 Summary

Chapter 4 included a detailed description of the statistical analysis and the key study

findings, organized by research questions to provide information on relationships between

delinquency status (study outcome) and the variables of interest. Analysis included

crosstabulations, chi-squared tests of independence, and binary logistic regression models. The

final stepwise logistic regression models should be in particular useful to practice, because they

reveal combinations of most significant factors likely contributing to juvenile delinquency. In the

final chapter, findings will be connected with existing literature as presented in Chapter 2 of the

present work. Limitations, significance, implications for policy and practice, recommendations

for future research, and conclusions of the study will follow.

CHAPTER V

DISCUSSION AND CONCLUSION

The final chapter of this dissertation includes a discussion of key findings with emphasis on how they aligned or did not align with studies presented in the literature review. Implications are presented in terms of policy and practice, particularly in terms of how schools and districts can better position funds and resources to help students who meet the profile of a juvenile delinquent outlined in the present study. This major section includes limitations of the study and recommendations that flow out of the findings. Finally, a conclusion connected the present study to the broader context of research in the area of juvenile delinquency.

Key Findings: Significant Predictors of Delinquency

Within the current study, a series of chi-squared tests of independence determined that 11 of the original 14 independent variables (traditionally collected through PEIMS and associated with at-risk cases) could contribute to predicting delinquency status. Logistic regression models further confirmed and narrowed down the selection of most likely predictors of delinquency. These variables are briefly discussed in relation to the empirical research presented in Chapter 2. Discussion of key findings is organized by the four categories of predictors of delinquency, including a) demographic, b) academic, c) social, and d) behavioral, along with a final section on the predictive capacity of the overall model.

Demographic Predictors of Delinquency

Four demographic variables were included as potential predictors of delinquency, including gender, race, socioeconomic status, and limited English proficiency. Of the four demographic variables, only gender was significantly associated with delinquency in every

context, which aligns with Hagan, McCarthy, and Foster (2002), who found that delinquency takes different forms based on gender.

The findings for relationship between LEP status and delinquency are mixed, similar to the research. Although the chi-square test for independence shows a relationship exists between LEP status and delinquency, and the binary logistic model also found a significant measure of association between the two variables, the stepwise logistic regression indicated that LEP status had only a negligible effect on delinquency status with a 0.008% variation from the previous model. The current study clearly supports that LEP students are less likely to be delinquents and thus contributes to the debate on the relationship between delinquency and linguistic and/or ethnic identify.

For instance, Tam and Freisthler (2014) posited that because there is a connection between language and ethnic identity, maintaining the family language often serves as a buffer against delinquency. Similarly, Graif and Sampson (2009) found a positive association between language diversity and lower homicide rates. However, though Desmond and and Kubrin (2009) also noted significant association between delinquency and linguistic acculturation, they asserted that only first-generation English-language learners are protected against delinquency. As the linguistic barrier is broken, they argue, so is the protective shield of community.

Academic Predictors of Delinquency

Four academic variables were included as potential predictors of delinquency: grade level, TAKS reading standards met, TAKS math standards met, and retention. Using the data of Puzzanchera (2013) as an example, the Justice Department collects and reports statistics on juvenile crime in terms of age. School districts, on the other hand, tend to collect and report data by grade level, as evinced by the data in this research study. Age and grade level being

analogous in nature, given that there are legislative requirements for the enrollment of children in

Texas public schools, age is an acceptable proxy for grade level in this discussion. Compulsory

attendance law set forth by the Texas Education Code (§25.085) mandates any child who has

reached 6 years of age on or before September 1 of a given school year, unless otherwise

excepted, to attend school. Barring any extenuating circumstances, it would be safe to assume

the average 12-year-old student in Texas would be enrolled in the sixth grade and the average

12th grade student would be 18 years of age. Therefore, the association of grade level and

delinquency aligns with Puzzanchera (2013), who reported 17% of all serious violent crimes

reportedly involved a juvenile offender. In addition, Department of Justice (2019) indicated an

increase in criminal activity at the age of 12, doubling at 13 and 14, peaking at 16 and 17, then

dramatically dropping by age 18. The study findings align with these reports, showing a decrease

in the likelihood of offense for Grade 12 students. From a theoretical perspective, Strain Theory

attributes this to an increased responsibility of adulthood, arguing that adolescents have fewer

responsibilities and resources (Agnew, 2003), reiterating Brown and Males (2011) contention

that adolescents commit crime because they are "poorer" than their adult counterparts.

The two academic indicators of achievement are both statistically significant in bivariate

analyses, showing that delinquent students are less likely to meet test standards for both subjects.

The effect is stronger for TAKS math and persists when conducting multivariate analysis, TAKS

math being a significant predictor of delinquency. The significant finding in reading aligns with

research by suggesting that early deficits in reading are associated with subsequent behavioral

problems (Algozzine et al., 2011; Morgan et al., 2008). Most telling is the finding by Vacca

(2008) who showed that the typical 15-year-old juvenile offender reads at the fourth-grade level.

Since the current study dealt with high school students, the findings of Anderson, Howard, and

Graham (2009) on the connection between reading disabilities and delinquency for 18-year-olds

is also relevant to the current findings. Particularly relevant for the effect of TAKS math on

delinquency is the 2004 study by Nelson et al. who found that students with behavioral disorders

manifested academic deficits in math across grade levels. The significant finding in math also

aligns with Foley (2001), whose review of extant literature on profiles of incarcerated youth also

indicated profound deficits in math achievement. In research with students in grades 7-10 in the

state of Texas, Zamora (2005) found that 50% of delinquent students scored at the fourth-grade

level in math.

Social Predictors of Delinquency

Three social variables were considered as potential predictors of delinquency: foster care

placement (CPS), residential facility placement (psychiatric hospital), and residential facility

placement (group foster home), the latter being included in the regression model, with no

significant effect. Unfortunately, data did not permit me to draw conclusions regarding the first

two social indicators because of the small sample size of at-risk and delinquent students in the

district whose profiles included those indicators; this will be discussed further in the limitation

and delimitations of the study. Given the extant literature in this area, there is reason to proceed

with caution before removing the indicators from future inclusion in model replication. As

discussed previously, studies have shown an increased likelihood of children placed in foster

care and residential placements to become involved with the juvenile justice department

previously, during or after care (Cropsey et al., 2008; Bullock & Gaehl, 2012; Barrett &

Katsiyannis, 2017; Cutuli, et al., 2016). In a review of some 30 studies, Tarry and Emler (2007)

concluded that social background contributes to moral reasoning. Furthermore, they noted,

developing the ability to reason about moral questions such as right from wrong and behavioral

habits, is at the core of moral development.

Behavioral Predictors of Delinquency

Three behavioral variables were considered as potential predictors of delinquency:

truancy (parent contributing to non-attendance), truancy (failure to attend), and DAEP

placement. The truancy variable for parent contributing to non-attendance was eliminated from

the analysis because the data set returned no results for parent contributing to non-attendance.

This can be attributed to the Texas Education Code and Texas Family Code statutes for truancy.

Section 65.002 of the Family Code (2015, September 1) defines a child who has reached 12

years of age but not yet 19. Under the Texas Education Code, a child who is not otherwise

exempt from attendance under section 25.085 (2015, September 1) can be charged with truancy

for 10 or more absences without excuse in a six-month period, provided the district has

implemented a plan for truancy prevention under section 25.0915 (2015, September 1).

Generally speaking, high school-aged students are held accountable for their own attendance; it

is commonly believed that students are able to get up, dressed, and to school without the

assistance of a parent/guardian. Therefore, although TEC §25.093 (2015, September 1) allows a

school district to file truancy against a parent, the district data suggests that it is not common

practice.

So, of the three behavioral variables, only DAEP placement was significantly associated

with delinquency. This finding aligns with the work of Weerman at al. (2007), who found a

particularly strong correlation between misbehavior of seventh and ninth graders and

delinquency one year later. However, the present study included only high school students in the

sample. More relevant was the study by Fabelo et al. (2011), who found that 15% of Texas

students had 11 or more disciplinary infractions from grades 7-12, and half of those students had

subsequent contact with the juvenile justice system. The current study added to the literature by

looking at the specific association between DAEP placement and delinquency status, laying the

foundation for future research to build on this significant finding.

Overall, the current study was unique in that it tested several independent variables as

potential predictors of delinquency status, laying the foundation for future research into the

nature of those predictive relationships. Particularly relevant are variables that can be potentially

manipulated through interventions, such as math achievement and DAEP placement.

The Theory of Delinquency Revisited

Understanding what motivates a student to engage in delinquent behavior is an important

component in conceptualizing a model for delinquency identification, and for implementing

mitigating interventions in the school setting designed to prevent students from becoming

involved with the court systems. Not all students who lack the means or experience negative

influences (Agnew, 1992; Skrzypiec, 2013) engage in delinquent behavior just as not all students

with explicitly positive life experiences refrain from engaging in those activities. Given the

findings of this study, the notion of delinquency cannot be explained by a single theoretical

perspective, but rather, varies by student and circumstances.

From a policy perspective, the structure of district Disciplinary Alternative Educational

Programs feeds the narrative of Differential Association theorists. If interaction with others who

engage in problem behaviors perpetuates the cycle of delinquency (Skrzypiec, 2013), we must

investigate ways in which we can improve the disciplinary model before the intensity and

severity of behaviors escalate, in order to realize more pro-social outcomes. Moreover, student

codes of conduct combined with disciplinary policies and practices which assume all students

have been instilled with the same values and norms that encourage adherence to the law (Hirschi, 1969), fail to recognize differences in backgrounds and experiences, and thus lead to disproportionality in exclusionary discipline practices.

Limitations/ Delimitations of the Study

While there are additional variables in the state's at-risk indicators, the current study examined 14 predictors of delinquency found both in state statute and the extant literature. There are other social predictors of delinquency well documented in the literature, and since the overall model only explained 22% of the variance in delinquency, more variance could be accounted for through other variables, ideally flowing from existing literature in those other areas where data cannot be collected or examined by school districts. Keeping in mind that Senator Whitmire's charge was for districts to be able to predict delinquency, and school districts have access to limited types of data, in order to respond, districts are able to create a profile of a delinquent using only the information available. Data not accounted for in the current analysis is presumably found in social indicators collected by outside agencies not at our disposal. In addition, data limitations led to the use of 11 predictors in the current study, although the inclusion of the others was supported by the literature. This suggests that either lack of specific information not collected by school districts, or incomplete information by the school district under study, should be recognized as limiting the scope of the current study. The variables that were removed due to small sample size include CPS (foster care placement), Residential Placement Facility (Psychiatric Hospital) and Truancy (Parent Contributing to Non-Attendance).

Particularly in terms of academic indicators, the current study was limited by looking only at math and reading achievement; however, math and reading are the foundation for all other subject areas and the ones for which there is data in the literature. Another limitation was

the lag time between the data available in 2012-2013 and present research dissemination, specifically in terms of the use of TAKS math, rather than the STAAR/EOC assessments currently in place. When this study began, TAKS was the state assessment by which all students were measured. Since that time, the transition from TAKS to STAAR has been muddled by issues like bridge scores that equate to TAKS and the debate over whether scores demonstrating mastery is actually acquired through grade-level material. A better option for measuring student achievement may be the MAP (Measures of Academic Progress). The MAP measures students' progress over time and their ability to apply the knowledge and skills learned. It is considered an accurate measure of student progress at all levels and shows projected proficiency.

Collection of foster care data has improved tremendously since 2011; however, only students placed in foster care within the state of Texas are accounted for in our data. Accounting for students who have been previously placed in a residential placement facility is more difficult as it is not required enrollment data and parents do not always choose to share that information. This could explain why surprisingly not much data was available for the social indicators, while presumably these types of social services should be made available to at-risk and delinquent students.

Finally, the study was limited in terms of sample, which came from a single school district with a student demographic profile not perfectly representative of the state average. The indicators used in the study however, represent data that is collected and reported by every Texas public school district. Expanding the sample to multiple districts throughout the state of Texas would have increased the generalizability of the findings and can also be easily replicated by any district.

As a delimitation of the study, I purposefully included only students classified as at-risk for dropping out of school and did not extend the analysis to students who had not been identified as being at-risk. The purpose of the study was to focus on delinquency issues among students whose at-risk profiles included potential delinquency indicators. By including students who were not at-risk in the analysis, the focus of the study would have shifted toward at-risk rather than delinquency issues and did not address the critical question of what school-level characteristics made an at-risk student more likely to become delinquent.

Significance of the Study

Predicting delinquency in the educational setting has a major significance in improving schools and helping youth to avoid the path of delinquency. With students entering school at prekindergarten (age four) or kindergarten (age five) levels when studies have identified the root of school disengagement, it is easy to imagine how disengagement can lead to at-risk and delinquency cases. Early prediction of delinquency will give school officials the necessary tools to expose early symptoms of anti-social behaviors in order to construct and implement targeted intervention strategies for students at risk and avoid engaging in delinquent behavior (Stouthamer-Loeber & Loeber, 1988). Particularly among offenders who are below the age of criminal responsibility, of whom a relatively high proportion become chronic offenders, risk data can be used by school officials to gauge the risk of career criminal activity (Loeber & Stouthamer-Loeber, 1987).

Among incarcerated delinquents, studies have consistently reported lower rates of recidivism and higher rates of educational achievement for those who engaged in programs culminating in high school graduation or GED attainment (Blomberg, Bales, & Piquero, 2012; Stewart, 2003). Demonstrating extent to which the school disengagement warning index was

related to later negative consequences has implications for the development of intervention strategies. Providing resources and services to students and their families, when they are disengaged from school but still enrolled is certainly an easier task (Henry et al., 2012) than re-integrating a juvenile offender into the school system.

Although it may never be too late to reconnect dropouts and those needing educational assistance back into the educational system, and in turn, it may never be too late to help deter a juvenile delinquent from crime (Piquero, et al., 2010), prevention is always a better strategy. As Stouthamer-Loeber and Loeber (1988) posited, "The efforts to predict delinquency can serve several purposes, such as the formulation of theories about child development and the highlighting of early markers of deviancy that can be incorporated in prevention efforts for children at risk for delinquency" (p. 339). Recommendations from prior studies show a need for districts to develop a warning index to identify students at risk for engaging in delinquent behaviors; however, the extant literature does not limit itself to those indicators which can be collected and reported by school districts. In order to meet the aggregate needs of these students, the relationship between indicators for juvenile delinquency, for which the average age of identification is 15, and those school-level indicators, either contributory or concomitant, must be established. This study, using data which was readily available to school districts, included construction of a profile of delinquency through the examination of at-risk data for currently enrolled students with a history of involvement with law enforcement. The ultimate goal was to identify those demographic, academic, social, and behavioral characteristics which increased the probability of students becoming involved with law enforcement in order to take a proactive rather than reactive approach to delinquent behavior at the school level.

Implications for Policy and Practice

In terms of policy and practice implications, the current study added to existing literature by examining multiple predictors of delinquency, both independently and as a model. While demographic variables, such as gender, grade level, and LEP status cannot be manipulated, their presence in the model provides district leaders and policy-makers insight into groups of students who are relatively more at risk of delinquency behaviors. Similar to the school disengagement warning index (Henry, Knight, & Thornberry, 2012), which included many of the same predictive factors, the current study was able to create a profile that could be used to predict both dropout and serious delinquency. The current study, however, utilized only data collected and reported by the district, whereas the school disengagement warning index model included family and community data such as the mother's age at first birth, neighborhood crime rates, and neighborhood poverty rate. While crime and poverty rates can be obtained through local governments, personal familial data cannot be collected or retained by districts for inclusion in a predictive model. Policymakers should ensure that districts extend the scope of data collection and the duration of time for which data is reported.

While the association between academic indicators (reading and math achievement) with delinquency status is not surprising, the present work provides empirical evidence to support additional funding and resources in these areas, particularly for students who align with the profiles of delinquency presented in the current study. The current study added to literature by also examining social and behavioral predictors of delinquency, again providing empirical evidence of significant associations. Most relevant is the finding showing the positive association of DAEP placement and delinquency, adding to the debate on the long-term effects of exclusionary instructional programs that remove students from the traditional classroom setting.

More than denying students access to educational opportunity, policies which result in punitive systems and exclusion from the educational setting may intensify already existing social, economic, and health inequities and further impact a student's life-long well-being. School districts need to adopt policies which move away from zero-tolerance practices toward a restorative justice model of multi-tiered support which emphasizes building and maintaining positive relationships, respectful interaction with others, and personal responsibility. These policies should define behavioral interventions such as teaching social-emotional skills including the ability to manage disruptive behaviors, understanding one's own emotions or being able to empathize with the emotions of others, and problem solving (González, et al., 2019; Teasley, 2014).

Demands have been placed on public school to implement effective intervention strategies that address problem behaviors and academic success; however, the proposed initiatives often lack understanding of the innerworkings of schools (Greenberg, et al., 2003). Effective programs have been found to address the social-emotional needs of students. Specifically, programs that address social-emotional constructs such as empathy, self-monitoring, emotion regulation, and sociability, skill-building, and environmental-organizational change were found to decrease program behaviors and truancy and increase achievement. Research indicates that social-emotional learning-based programs that focus on targeted social skills intervention and environmental-organizational change have been found to decrease problem behaviors and truancy and increase achievement (Greenberg, et al., 2003; Mann & Reynolds, 2006).

Multi-tiered programs that target both academic and behavior intervention strategies grounded in empirical research have also been found to be an effective tool for decreasing

problem behaviors and increasing academic achievement. Such programs offer evidence-based practices and interventions anchored by clear data-driven rules for screening and assessment, continuous progress monitoring, and moving students along the continuum (Sugai & Horner, 2009; Nocera, Whitbread, & Nocera, 2014).

Recommendations and Considerations for Future Research

Data Collection

When we compare the findings of this study to the existing body of knowledge, we find similar results which would indicate that we may, indeed, be able to predict delinquency using the data collected by districts. However, in order to improve our predictive model and better explain the delinquency outcome, we must collaborate with outside agencies and improve our data collection processes. Each of the PEIMS at-risk indicators remains on a student's at-risk profile for a prescribed period of time; only the indicator for grade retention remains on the at-risk record permanently. Each of the remaining indicators are reported only for the current or preceding school year. Therefore, district and state data management systems should examine the issue of multiple data collection, long-term storage and data sharing to ensure the information can be used to better monitor at-risk students.

For instance, Table 5.1 shows the PEIMS indicators used in the study and the reporting period for each indicator, based on which I will provide brief comments on data availability and utility. Thus, one predictor of delinquency based upon both the literature and this study is reading proficiency. Of notable significance is the state at-risk indicator for reading readiness which is measured, and reported through PEIMS, in prekindergarten through grade three. Because it is recorded for the current year only, it is not included in this study but is an important data point that should be considered in future research examining younger students.

The only indicator reported on a permanent basis included in our study is grade retention. Students whose parents voluntarily retain a student at prekindergarten or kindergarten are not considered retained by state standards. The data not collected by the state for this indicator, is at what grade level a student is retained. Although not part of the study, it may be significant to consider the impact retention at particular grade levels has on delinquency. While this study found both retention and grade level to be predictors of delinquency, there are no data to determine if the grade level at which a student was retained is statistically significant.

Table 5.1

PEIMS Data Reporting for At-Risk Indicators

Indicator	Description	Reporting period
Retention	Not advanced from one year to the next	Permanent
TAKS failure	Did not perform satisfactorily on state assessment	Previous or current school year (or pass subsequent administration at 110%)
AEC	Placed in an alternative educational program (disciplinary)	Preceding or current school year
JJAEP	Expelled in accordance with TEC 37.007	Preceding or current school year
Probation, parole, deferred adjudication or other conditional release		Currently
LEP	Limited English Proficiency	Coding dependent
Foster Care	Care or custody of CPS	Current status
CPS	Reported to CPS by school official, officer of the juvenile court, or other law enforcement	Current year

Residential Placement Facility	Resides in detention facility, substance abuse treatment facility, emergency shelter, psychiatric hospital, halfway house, cottage home operation, specialized child care home, or general residential operation	Preceding or current year

The research exhibits the effect of foster care on delinquent behavior. The state at risk indicators for foster care include students who have been reported to CPS by school, court, and law enforcement officials as well as those who are in the care and custody of CPS. Students who are in the care and custody of CPS retain the indicator on their at-risk profile for as long as they remain in foster care. If a student is in foster care for only one year, that indicator is removed. This is contrary to longitudinal studies in the literature which follow children in foster care through adulthood.

The research exhibits the effect of foster care on delinquent behavior. The state at-risk indicators for foster care include students who have been reported to CPS by school, court, and law enforcement officials as well as those who are in the care and custody of CPS. Students who are in the care and custody of CPS retain the indicator on their at-risk profile for as long as they remain in foster care. If a student is in foster care for only one year, that indicator is removed. This is contrary to longitudinal studies in the literature which follow children in foster care through adulthood.

In order to compile the most comprehensive profile of students at risk for engaging in delinquent behavior, the data associated with those indicators identified as predictors should be collected longitudinally. By doing so, future research would be able to determine at what grade levels the predictors are most indicative of future delinquency as well as whether one year or multiple years are indicative of such behaviors. For example, longitudinal data would tell school

officials if one truancy case indicates a propensity to engage in delinquent behavior or if multiple

court filings are more likely to impel those behaviors. Collecting longitudinal data would drive

future research for developing targeted interventions.

Students who enroll new to a district may be identified in transfer documentation as being

at risk but the documentation needed to support that identification is not necessarily contained in

transfer records. All of the indicators included in the study are required by Texas Education

Code, if applicable; however, because not all of the data elements apply to all students, inclusion

is not mandatory for transmission (Texas Education Agency, 2019). Data are inadvertently

skewed by human error, for which we can train but will always face. It is also inadvertently

skewed by legal restrictions to access. It is currently skewed by lack of data collection processes,

which can be reconciled by extending the scope and duration of reporting.

Administrative Considerations

Public school officials should be able to predict delinquency and keep students out of the

court system, or so we were told during testimony before the Senate Criminal Justice Committee

public hearing. In an attempt to respond to Senator Whitmire's charge, this study focused on

using the resources already available to districts to predict delinquency. In order to ensure

accurate identification of students, school officials are faced with the task of training

administrators and data clerks on documentation and data collect procedures. Hiring and training

of data clerks, although not discussed in depth here, is of important note in any process involving

data entry, student records, and student identification. The Family Educational Rights and

Privacy Act (FERPA) allows school districts to provide personally identifiable information to

Child Protective Services and, under limited conditions, law enforcement agencies (U.S.

Department of Education). Those agencies, however, rarely provide information directly to

school districts. Schools may not be aware of a student's adjudication status unless the student commits a felony, or the probation or parole officer pays the student a visit on campus. Similarly, although the Texas Education Code (n.d.) mandates form 2085-E or a court order for student enrollment, foster parents frequently fail to document it on student enrollment forms or provide a copy to the district at the time of enrollment.

Future Research

Senator Whitmire, in his challenge to school district officials, declared that schools should be able to predict delinquency in order to keep kids out of the court system, and without requesting additional funding (2011, May 11). In order to answer that challenge, the study reviewed only the data collected and reported by school districts. However, this approach may not be enough and further research should focus on using more complete data from a variety of sources.

State assessments have a shelf life of 5-10 years. Future research should focus on when and how to test students' proficiency in math and reading so that the various iterations of state testing do not further obscure the data. In Texas, given the debates over grade-level proficiency using STAAR, further research should be conducted in the areas of math and reading to determine if the level of achievement required to pass the state assessment is truly indicative of being at-risk for delinquency (or dropout, for that matter) or if there is a different threshold for those key indicators. For Texas state achievement assessments, the current data collection method considers a student at-risk for dropping out of school only if they did not subsequently pass the state assessment. In order to accurately identify students who are at-risk for engaging in delinquent behavior, further studies should be conducted in order to develop a more precise data collection and methodology.

While the current study examined predictors of delinquency for high school students, future research should examine similar predictors of students at a younger age, allowing time for analysis and intervention prior to high school. Included in consideration for future research is the tracking of reports made by school personnel to CPS. The literature suggests a relationship between CPS and delinquency; however, the study did not. This discrepancy may be explained by the mobility rate of foster care students and the fact that the indicator is not permanently maintained on the at-risk profile. Additionally, reports of suspected abuse or neglected do not always result in removal from the home. Therefore, expanding the scope of data collection for CPS, to include reports made by school officials and permanent identification if removed from the home, may provide more robust data and a more accurate model for delinquency prediction.

Included in the discussion of transfer students is that of student mobility rates. Welsh (2017) posited that mobility rates are higher among low SES and minority students. The Texas Education Agency (1997) last produced a report providing data on student mobility rates by county, district, and campus in 1997; however, a 2010 Government Accountability Office (GAO) report on a cohort of kindergartners from 1998 to 2007 found that 13% of students in Grades K to 8 had changed schools four or more times, 18% changed schools three times, 34% changed schools twice, 31% changed schools once, and only 5% did not change schools at all by eighth grade (U.S. Government Accountability Office, 2010).

Of course, expanding the current study to multiple districts and multiple regions within the State of Texas would increase the generalizability of findings and provide a more complete profile of delinquency in the state. Finally, future research should expand the list of potential influencing factors, particularly those related to student discipline policies at the campus and

district levels. Researchers need to determine both the short- and long-term effects of programs like DAEP that may have unintended consequences.

Conclusion

The current study provided empirical evidence to construct a profile of delinquents, offering a predictive model that can assist district leaders and policy-makers in better understanding of this unique cross section of the population which they serve. Students who are designated *at risk* essentially place educators *on the clock* in terms of providing effective interventions before the student enter that pipeline into the criminal justice system.

Although the study shows that school-related indicators alone are not enough to develop a comprehensive profile for juvenile delinquency, it provides school officials a starting point from which to target those students, namely truant male students in grade 9 who have not performed satisfactorily on the state assessment in math and have a history of DAEP placement, for intervention. To meet the challenge of identifying these students without requesting additional funding, districts must extend the scope of data collection available and the duration of time for which data are reported. In order to assist school districts in meeting this challenge, legislators must expand the scope of state statute which identifies students as "at-risk" to include being at risk for delinquency. Additionally, the Texas Education Agency should consider extending the duration of reporting for those indicators where it has been determined a longer reporting period would increase the accuracy of at-risk identification.

The resulting decrease in delinquency rates will have a consequential impact on society as a whole. As discussed in Chapter Two, the cost of delinquency is reflected in the expense of operating courts, housing juveniles in detention facilities, and lost wages to the juvenile in future employment. The impact to the student is long-lasting in that they are less likely to find long-

term sustainable employment and earn less over time, on average, than their peers not involved with law enforcement. By keeping students out of the courts and in school, the presumption is that students will attain education or training in a competitive field that will contribute to the economic health of their communities, which will, in turn, relieve the social service agencies from providing care and support to the student and their families.

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APPENDIX

Institutional Review Board Approval

THE UNIVERSITY OF TEXAS AT ARLINGTON
INSTITUTIONAL REVIEW BOARD FOR THE PROTECTION OF HUMAN SUBJECTS

IRB FORM #1A:
PROPOSAL FOR RESEARCH INVOLVING HUMAN SUBJECTS
APPLICATION FOR EXEMPT RESEARCH

Faculty, staff, students, or employees who propose to engage in any research, demonstration, development, or other activity involving the use of human subjects must have review of that activity by the Institutional Review Board for the Protection of Human Subjects (IRB), prior to initiation of that project. Applications for exemption must be reviewed and documented as exempt by the IRB.   The IRB is responsible for safeguarding the rights and welfare of subjects who participate in the activity.If you require further assistance in completing this form or need additional information, please contact Research Administrationat 817-272-3723 or regulatoryservices@uta.edu.

This version of Form #1A is intended to be used in conjunction with a submission to the IRB via the electronic protocol submission system: https://www.uta.edu/ra/real/loginscreen.php?view=50.

SECTION A: GENERAL INFORMATION

1.   **Please list any NON-UTA Protocol Personnel that could not be entered via the electronic submission face page.**

Name:	Affiliation:	Participant Status (Co-Investigator, Collaborator, etc.):

2. **Expected Start Date:** 12/01/13*(You are not authorized to begin any research involving human subjects until the IRB has reviewed and approved the research protocol.)*

3. **Expected Completion Date:**   03/15/14

SECTION B: FUNDING*(If this research is not supported by funding, please skip to section C.)*

4. **Source:** ☐**FEDERAL (Specify Agency:**   **)**

    ☐**INDUSTRY SPONSORED (Specify Agency:**   **)**

    ☐**Departmental**   ☐**State(Specify Agency:**   **)**   ☐**Other:**

    Funded Grant/Contract Number:

    ☐ **Check here if grant is pending (Date of Grant Submission:**   **)**

SECTION C: EXEMPTION STATUS OF THE RESEARCH PROTOCOL

Human subject research qualifying as exempt must correspond with one or more of the exempt categoriesmandated by the human subject research federal regulations, Title 45 CFR Part 46.101. This section is intended to determine if your research project can appropriately be designated as exempt.

Special Note Regarding Prisoners as Subjects
*Human subject research involving prisoners as subjects is not eligible for exemption. Instead, please complete IRB Form #1 (Application for Non-Exempt Research) and IRB Form #2C (Application for Prisoner).*A Prisoner *is defined as any individual involuntarily confined or detained in a penal institution. The term is intended to encompass individuals sentenced to such an institution under a criminal or civil statute, individuals detained in other facilities by virtue of statutes or commitment procedures which provide alternatives to criminal prosecution or incarceration in a penal institution, and individuals detained pending arraignment, trial, or sentencing.*

Instructions

Please check the box of one or more of the categories below that apply to your research, then in Section D, provide specific details describing your research project in relation to the exemption category. If none of the exemption categories listed below apply to your research, please submit IRB Form #1 instead for non-exempt *human subject research.*

☐   **A.**   Research conducted in established or commonly accepted educational settings, involving normal
      educational practices, such as (i) research on regular and special education instructional strategies, or   (ii) research on the effectiveness of or the comparison among instructional techniques, curricula, or
      classroom management methods.

☐   **B.**   Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey
      procedures, interview procedures or observation of public behavior, **unless**:
      (i) information obtained is recorded in such a manner that human subjects can be
         identified, directly or
          through identifiers linked to the subjects; **and** (ii) any disclosure of the human
      subjects' responses outsidethe research could reasonably place the subjects at risk of
      criminal or civil liability or be damaging to the subjects' financial standing,
      employability, or reputation.*(Research must meet both conditions i and ii to be
      disqualified from this exemption.)*

Special Note Regarding Children as Subjects

If your research project includes children, ages 0-17, then exemption B only applies if, in addition to the conditions above, your research involves ONLY educational tests orpublic behavior when the investigator(s) do not participate in the activities being observed. The exemption for surveys or interviews does not apply to children as subjects.

☐   **C.**   Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior that is not exempt under paragraph B of this section, if:(i) the human subjects are elected or appointed public officials or candidates for public office; **or** (ii) federal statute(s) require(s) without exception that the confidentiality of the personally identifiable information will be maintained throughout the research and thereafter.

☒   **D.**   Research involving the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens, *if these sources are publicly available or if the information is recorded by the investigator in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects.*

☐ **E.** Research and demonstration projects which are conducted by or subject to the approval of department or agency heads, and which are designed to study, evaluate, or otherwise examine:
(i) *Public* benefit or service programs; (ii) procedures for obtaining benefits or services under those programs; (iii) possible changes in or alternatives to those programs or procedures; or (iv) possible changes in methods or levels of payment for benefits or services under those programs.

☐ **F.** Taste and food quality evaluation and consumer acceptance studies, (i) if wholesome foods without additives are consumed or (ii) if a food is consumed that contains a food ingredient at or below the level and for a use found to be safe, or agricultural chemical or environmental contaminant at or below the level found to be safe, by the Food and Drug Administration or approved by the Environmental Protection Agency or the Food Safety and Inspection Service of the U.S. Department of Agriculture.

SECTION D: RESEARCH PROCEDURES AND SUBJECT SELECTION

5. **Does your research involve mentally incapacitated subjects?**

   ☐**Yes** ☒**No**

   If yes, please also complete and submit IRB Form #2A.

6. **Does your research involve pregnant women, human fetuses, neonates of uncertain viability, or nonviable neonates?**

   ☐ **Yes** ☒ **No**

   If yes, please also complete and submit IRB Form #2B.

7. **Does your research involve children, ages 0-17?**

   ☐ **Yes** ☒ **No**

   If yes, please also complete and submit IRB Form #2D.

Please describe your research procedures in layman's terms. Specifically, describe how your research meets one or more of the exemption categories chosen above. This study is based on secondary data analysis of student administrative data available through the selected Texas school district, specifically those 13 indicators categorized as academic, behavioral, and social, along with demographic data including gender, race, and economically disadvantaged

status. As the Texas Education Code (TEC) §29.081 specifies that this data be collected and

reported through the Public Education Information System (PEIMS) which identifies students as

being at risk of dropping out of school, the researcher will have no direct contact with students;

rather, the data will be aggregated and then blinded by the research department of the selected

Texas school district, thus no student names or ID numbers will be available that would allow for

the identification of students.

How many subjects will be enrolled in this research project? Not applicable

Please describe how and where subjects will be recruited. Not applicable

Please describe your process/procedures for obtaining informed consent, if applicable. Not applicable

Office of Research Administration
Regulatory Services
817-272-3723
regulatoryservices@uta.edu
http://www.uta.edu/research/administration

Institutional Review Board

Notification of Exemption

February 7, 2014

Wendy Brower
Dr. Maria
Trache
Educational Leadership & Policy
Studies

Protocol Number: 2014-0258
Protocol Title: *Predictors of Juvenile Delinquency in the Public School Arena*

EXEMPTION DETERMINATION

The UT Arlington Institutional Review Board (IRB) Chair, or designee, has reviewed the above referenced study and found that it qualified for exemption under the federal guidelines for the protection of human subjects as referenced at Title 45CFR Part 46.101(b)(4).

- (4). Research involving the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens, if these sources are publicly available **or** if the information is recorded by the investigator in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects.

You are therefore authorized to begin the research as of **February 7, 2014**.

Pursuant to Title 45 CFR 46.103(b)(4)(iii), investigators are required to, "promptly report to the IRB _**any**_ proposed changes in the research activity, and to ensure that such changes in approved research, during the period for which IRB approval has already been given, are **not initiated without prior IRB review and approval** except when necessary to eliminate apparent immediate hazards to the subject." Please be advised that as the principal investigator, you are required to report local adverse (unanticipated) events to the Office of Research Administration; Regulatory Services within 24 hours of the occurrence or upon acknowledgement of the occurrence. All investigators and key personnel identified in the protocol must have documented Human Subject Protection (HSP) Training on file with this

office. Completion certificates are valid for 2 years from completion date.

The UT Arlington Office of Research Administration; Regulatory Services appreciates your continuing commitment to the protection of human subjects in research. Should you have questions, or need to report completion of study procedures, please contact Robin Dickey at 817-272-9329 or robind@uta.edu. You may also contact Regulatory Services at 817-272-3723 or regulatoryservices@uta.edu.

BIOGRAPHICAL INFORMATION

Wendy Brower first became interested in working with at risk youth as a military BRAT living in Europe after writing a research paper on the prevalence of child abuse in the military for a psychology class in high school. Wendy began her career in the field as an Educational Liaison with the Texas Juvenile Justice Department (then known as TYC). Upon return to public education, Wendy developed policies and procedures for truancy, dropout prevention, and recovery. As a lifetime member of the International Association for Truancy and Dropout Prevention (IATDP), Wendy served on the Executive Committee and was eventually elected to the office of President. During her tenure in the leadership of the IATDP, she worked to provide meaningful support and professional development to others serving at risk students bringing law enforcement and juvenile justice agencies into the fold of the organization and creating meaningful conversations. As a result of her testimony on SB 1489 during the 82th Regular Legislative Session, she was asked to participate on a subcommittee of the Senate Criminal Justice Committee in the drafting of new truancy legislation.

Wendy earned her Bachelor of Science degree in Spanish and French from Southwest Missouri State University. She went on to earn a Master of Arts degree in Educational Administration from Lindenwood University and Superintendent Certification from Texas A&M University at Commerce.

In the future, Wendy intends to continue to work on improving educational outcomes for all students. She plans to continue her research in delinquency prevention and work to improve interagency communications and intervention for students at risk of delinquency.