Level of Special Education Placement, Student Characteristics, and PLAN Assessment Results as Predictors of Graduation Outcome for Students with Disabilities

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Abstract

The purpose of the present study was to examine the relationships between graduation outcome and level of special education placement, student characteristics, and PLAN assessment results, for students with disabilities as mediated by socioeconomic status in a Midwestern suburban school district. The review of literature presents the history of special education beginning in 1965 with the creation of the Bureau of Education for the Handicapped through Individuals with Disabilities Education Act (IDEA) and subsequent reauthorizations, describes ways in which school districts define dropouts including calculation formulas, and is a review of research regarding factors influencing students with disabilities in relation to dropping out.

The research design was non-experimental and quantitative. The population for this study included all students with disabilities who enrolled as sophomores during the 2007-2008, 2008-2009, or 2009-2010 school years in the target district, a Midwestern suburban school district. Data were collected from archived records held within the target district.

Results from a chi-square test of independence indicated a statistically significant relationship between level of special education placement and graduation outcome. When mediated by socioeconomic status, the results indicated a statistically significant relationship between high socioeconomic status students and graduation outcome. Results from a chi-square test of independence indicated a marginally significant relationship between out of school suspensions and graduation outcome. When mediated by socioeconomic status, results did not indicate a statistically significant relationship between out of school suspensions and graduation outcome. Results from a chi-square

test of independence indicated a statistically significant relationship between disability category and graduation outcome. When mediated by socioeconomic status, results indicated a statistically significant relationship between students identified as high socioeconomic status and graduation outcome. Results from a chi-square test of independence did not indicate a statistically significant relationship between students over age for grade and graduation outcome. When mediated by socioeconomic status, results indicated a marginally significant relationship between students identified as low socioeconomic status and graduation outcome. Results from a chi-square test of independence indicated a statistically significant relationship between PLAN test scores and graduation outcome. When mediated by socioeconomic status, results indicated a statistically significant relationship between students identified as high socioeconomic status and graduation outcome.

It may benefit the target district to continue to collect data regarding students' level of placement and graduation outcome. According to the results of the present study students who were in the least restrictive environment, inside the regular classroom 80% or more of the day, were the most likely to graduate. These findings suggest the target district should continue to place students in the regular education classroom for as much of the school day as possible. The district should continue to collect data regarding the other variables to expand upon the findings of this study.

The researcher recommended that a subsequent study be conducted that expands the sample size. A larger sample size would allow for more students in each category, which would increase the study's validity. Another recommendation for future research is to add surveys for students, teachers, and parents. This would allow for the

examination of perceptions of the various groups and for the comparison of those

perceptions to graduation outcome, modeling the methodology more closely after the

National Longitudinal Transition Study and National Longitudinal Transition Study 2

(NLTS2: Frequently asked questions, 2010).

Dedication

This dissertation is dedicated to my husband, Angelo, who is my everything.

Your patience and continuous support have been invaluable throughout this journey.

Thank you for believing in me, listening to me, and most importantly… loving me.

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Lastly, I would like to thank my parents Jim and Margaret and my mother in law, Jo, for their support and love. Dad, you said you would call me Dr. Ortega only once so here is your chance.

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Chapter One

Introduction

Each day in America, approximately 7,000 students walk out the doors of their high schools, never to return, and become high school dropouts (Monrad, 2007). A disproportionate number of those students are identified as having a learning, physical, or emotional disability (National High School Center [NHSC], 2007). Though the overall rate of high school dropouts in America had decreased from 27.2% in 1991 to 8.1% in 2009, students with disabilities continue to leave high school at an alarming rate (Snyder & Dillow, 2010). As an example, during the 2001-2002 school year, the percentage of students with disabilities in the United States who dropped out of high school was a startling 37.6% (NHSC, 2007). More recent data have indicated the percentage of students with disabilities in the United States who dropped out of high school remained nearly double that of their nondisabled peers, 15.5% and 7.8%, respectively (Chatman, Laird, Ifill, & KewalRamani, 2011). For both students who have disabilities and those who do not, research findings identify certain characteristics of students who leave high school. Some of these characteristics include race, socioeconomic status, behavior issues, poor academic performance, retention, over age for grade, attendance, and special education qualification (Christle, Jolivette, & Nelson, 2007; Hammond, Linton, Smink, & Drew, 2007; MacMillian, 1991; Pinkus, 2008). Using these common characteristics to identify potential dropouts early and provide dropout prevention programs in schools may be the answer to further decrease the dropout rate for students enrolled in general education and special education (Dynarski & Gleason, 1998; Hammond et al., 2007; NHSC, 2007; Pinkus, 2008).

Chapter one introduces a problem facing many school districts: the number of students with disabilities who drop out of high school (Aud et al., 2010; Monrad, 2007; Planty et al., 2008; Thurlow, Sinclair, & Johnson, 2002). The purpose of this study, guiding research questions, delimitations of the study, and assumptions regarding the study are stated. The terms used in this study are defined and an overview of the methods of the study is discussed.

Background

Beginning with the Elementary and Secondary Education Act of 1965 (ESEA), signed by Lyndon B. Johnson, as part of the "war on poverty," the United States Government recognized a link between students' low socioeconomic status and struggling in school (Standerfer, 2006). Prior to the passing of ESEA, the federal government was careful not to tread on the rights of states to make decisions regarding curriculum and operations of schools. The federal funding for ESEA focused on schools considered to be in greatest need: schools that served low socioeconomic students (Standerfer, 2006).

Since its inception in 1965, there have been amendments to the ESEA, the most recent being the No Child Left Behind Act (NCLB) of 2001 (Kuenzi, 2007). The NCLB Act (United States Department of Education [USDE], 2004) added several provisions relating to high school completion, high school graduation, and high school dropouts. One such provision requires each state to identify data by dropout rate, graduation rate, or completion rate to allow for better consistency between districts and states (Kuenzi, 2007). Another provision of NCLB that has had a profound impact on school districts is the requirement that graduation rates be figured into districts' accountability systems and

reported at the state and federal levels (USDE, 2004). Prior to NCLB, states were free from the public scrutiny caused by dismal graduation rates because the rates did not have to be reported.

Also authorized by NCLB are two programs dedicated to the prevention of dropouts: the Neglected and Delinquent Program, and the Dropout Prevention Program (Kuenzi, 2007). The focus of the Neglected and Delinquent Program is to provide grants at the state and local levels to fund services for delinquent students, students in community day programs, students living in correctional facilities, and students identified as at risk of dropping out. The Dropout Prevention Program authorizes grants to state and local education agencies for the early identification and prevention of dropouts and for programs designed to persuade dropouts to return and complete high school (Kuenzi, 2007).

Another law, Public Law 108-446, the Individuals with Disabilities Education Improvement Act (IDEA), took requirements a step further in order for students to be considered disadvantaged. This law requires school districts to provide students with disabilities certain provisions, including academic and behavioral accommodations or modifications and disciplinary protections (Gartland & Strosnider, 2004). The IDEA of 1997 requires states to include dropout figures for students with disabilities in their reporting systems (McLaughlin & Thurlow, 2003). Prior to these laws, it was not required that students with disabilities be calculated in graduation or dropout rates. The NCLB formal assessment requirements mandated all students to be included in progress reporting and further stated that "95% of students with disabilities [must] participate in assessments that measure adequate yearly progress of schools, districts, and states"

(Gartland & Strosnider, 2004, p. 1). This prompted an increase in the number of students with disabilities completing coursework in the regular education classroom in order to ensure that they developed necessary skills to be successful on required assessments (Gartland & Strosnider, 2004).

The United States Government has cause to be concerned with the number of high school dropouts. Persons who do not graduate from high school will earn $260,000 less over the course of their lives and contribute $60,000 fewer tax dollars than an 18-year-old who completed high school (Monrad, 2007). Besides generating fewer tax dollars over their lifetimes, there are additional reasons to be concerned. Students who drop out are reported to have poorer health, a higher rate of unemployment, and make up a disproportionately larger number of prison inmates (Alliance for Excellent Education, 2006; Monrad, 2007; Sum, Khatiwada, McLaughlin & Palma, 2009; Thurlow, Sinclair, & Johnson, 2002; Wagner, 1991). According to the U.S. Department of Labor (2012), the unemployment rate for workers 25 years and older who are non-completers of high school was 13% as compared to 3.9% for workers with a bachelor's degree or higher. A female student who drops out of high school is nine times more likely to be a single parent than her cohorts who obtain high school diplomas (Sum et al., 2009). Monrad (2007) reported that "30% of federal inmates, 40% of state inmates, and 50% of persons on death row are high school non-completers" (p. 2). Whether through fewer taxes generated or the need for support from government programs, dropouts are a drain on the U.S. economy.

Research has linked several factors to the likelihood of a student dropping out of high school. Factors consistently connected to dropouts include race, socioeconomic

status, behavior issues, poor academic performance, retention, over age for grade, attendance, and special education qualification (Christle, Jolivette, & Nelson, 2007; Hammond et al., 2007; MacMillian, 1991; Pinkus, 2008). Similarly, researchers studying high school dropouts with disabilities concluded the following factors influence dropout patterns: ethnicity, socioeconomic status, behavior, and gender (Christle, Jolivette, & Nelson, 2007; Wagner, 1991). One factor influencing the dropout rate, examined exclusively in connection to students with disabilities, has been a student's disability category (Butler-Nalin & Padilla, 1989; Marder & D'Amico, 1992; Pinkus, 2008; Reschly & Christenson, 2006; USDE, 2005; Wagner, 1991). According to the National High School Center (2007), the national dropout rate for students with disabilities was 37.6% and the students with disabilities who were at the highest risk of dropping out of high school were those identified with a serious emotional disturbance (see Table 1).

Table 1

Percentage of Students with Disabilities Who Dropped Out of High School 2001-2002

Disability Category	Percentage
Serious emotional disturbance	61.2%
Speech/language impairments	35.8%
Specific learning disabilities	35.4%
Other health impairments	32.7%
Mental retardation	31.2%
Traumatic brain injury	24.6%
Hearing impairments	21.0%
Visual impairments	17.8%
Autism	17.6%
All disabilities	37.6%

Note. Adapted from "Dropout prevention for students disabilities: A critical issue for state education agencies," by the National High School Center, 2007. Copyright 2007 by the National High School Center.

Table 1 shows that students identified as having a serious emotional disturbance dropped out of high school at 61.2% in 2001-2002, more than one and a half times that of the average for all disabilities. Students with learning disabilities dropped out with lower percentages but still twice the rate of students with autism. Data in Table 1 indicates that on average at least one of every three students with disabilities who begin high school become dropouts.

Statement of the Problem

Since the 1960s, the U.S. has been studying high school dropouts. Research regarding dropouts without disabilities is extensive and includes studies on socioeconomic status (Brooks, 2010), the effects of block scheduling (Wilson, 2008),

reading levels in middle school (Fountain, 2009), early warning data (Pinkus, 2008), and

dropout risk factors (Hammond et al., 2007). According to Kortering and Braziel (1999)

and Wolman, Bruininks, and Thurlow (1989), there are fewer studies focused on students

with disabilities who drop out. Research in the area of high school dropouts with

disabilities exploring educational placement as a predictor of graduation outcome is rare

(Gonzalez, 2010; Landrum, Katsisyannis, & Archwamety, 2004), but important,

considering the impact laws such as the Individuals with Disabilities Education Act (U.S.

Department of Education, 2010) and No Child Left Behind (U.S. Department of

Education, 2004) have on students with disabilities. The results of this study will add to

the limited body of literature regarding students with disabilities, their educational

placement, and their graduation outcome.

Purpose Statement

According to Pinkus (2008), the detection of accurate early warning signs can

help school districts focus their resources in order to lessen the dropout rate. The purpose

of this study was to examine the relationships between graduation outcome and level of

special education placement, student characteristics, and PLAN assessment results, for

students with disabilities as mediated by socioeconomic status in a Midwestern suburban

school district. The researcher also intended for this study to add to the body of research

regarding special education placement and graduation outcome for students with

disabilities. The independent variables analyzed in this study were a student's level of

special education placement, socioeconomic status, number of days of out of school

suspension, disability category, over age for grade, and results on the PLAN assessment,

a formative test administered by districts to predict student performance on the American

College Testing (ACT) test (ACT Inc., 2011). The student's graduation outcome, whether or not the student met high school graduation requirements, was the dependent variable.

Significance of the Study

The United States ranks 21st for high school graduation rates among developed countries (Alliance for Excellent Education [AEE], 2011). School attrition influences individuals and society at a national level (Marder & D'Amico, 1992). Students who drop out are reported to have poorer health, a higher rate of unemployment, and make up a disproportionately larger number of prison inmates (Alliance for Excellent Education, 2006; Monrad, 2007; Sum, Khatiwada, McLaughlin & Palma, 2009; Thurlow, Sinclair, & Johnson, 2002; Wagner, 1991). With the dropout problem being exposed through high stakes test accountability, it is essential that districts identify educational practices that may contribute to the problem and invest in programs that may reverse the dropout trend (Thurlow, Sinclair, & Johnson, 2002).

The lack of research regarding the relationship between students with disabilities, special education placement, and graduation outcome led the researcher to conduct this study. The results of this study will provide information regarding potential relationships between students' level of special education placement, student characteristics, PLAN assessment results, and graduation outcome for students with disabilities. Results from this study will extend the target district's knowledge of characteristics of students with disabilities who drop out. The practical application is to provide data to support the identification of students with disabilities for entry into dropout prevention programs. Early identification of potential dropouts will allow the target district to put preventative

measures in place. The results of this study will also increase the body of literature regarding students with disabilities and graduation outcome.

Delimitations

Lunenburg and Irby (2008) described delimitations as "self-imposed boundaries set by the researcher on the purpose and scope of the study" (p. 134). One delimitation of this study was that participants attended high school in a Midwestern suburban school district; therefore, the results of this study could be generalized only to districts with a similar size and demographic makeup as the target district. Only students enrolled in grades 10 through 12 during the timeframe of 2007-2012 were included in this study. Study participants were identified as special education students who received services and attended one of the target district's two high schools or the target district's therapeutic day school.

Assumptions

Lunenburg and Irby (2008) described assumptions as "postulates, premises, and propositions that are accepted as operational for purposes of the research" (p. 135). A relevant assumption was that demographic data provided by the district were entered into the data system accurately. In addition, it was assumed that students had been placed in the least restrictive environment to meet their educational needs. Another assumption for this study was that students put forth their best effort while taking PLAN assessments. The final assumption was that the PLAN assessment provides an accurate measure of the students' academic abilities.

Research Questions

The following research questions guided this study. The focus was to examine relationships between special education placement, student characteristics, and graduation outcome of students with disabilities.

R1. To what extent does the level of special education placement affect the graduation outcome of students identified with a disability?

R2. To what extent is the effect of the level of special education placement on graduation outcome of students identified with a disability mediated by socioeconomic status?

R3. To what extent does the number of days of out of school suspensions affect the graduation outcome of students identified with a disability?

R4. To what extent does the number of days of out of school suspensions affect graduation outcome of students identified with a disability mediated by socioeconomic status?

R5. To what extent does the student's disability category affect the graduation outcome of students identified with a disability?

R6. To what extent is the effect of the student's disability category on graduation outcome of students identified with a disability mediated by socioeconomic status?

R7. To what extent does being over age for grade affect the graduation outcome of students identified with a disability?

R8. To what extent is the effect of being over age for grade on graduation outcome of students identified with a disability mediated by socioeconomic status?

R9. To what extent do the results of the PLAN test affect the graduation outcome of students identified with a disability?

R10. To what extent is the effect of the PLAN test scores on graduation outcome of students identified with a disability mediated by socioeconomic status?

Definition of Terms (Operationalization of Variables)

For the purpose of this study, the following definitions were used:

Disability category. Disability category refers to the classification under which a student qualifies for special education services based on meeting federally outlined criteria (i.e., autism, emotional disturbance, learning disability, mental retardation, other health impaired, speech/language impaired) (K. D. Parry, personal communication, September 28, 2012).

Autism. Autism is a disability category that students qualify for when disturbances are documented in the following areas: communication process, capacity to relate appropriately, developmental rates and sequences, and responses to sensory stimuli. These disturbances must have an adverse effect on educational performance (Missouri Department of Elementary and Secondary Education [DESE], 2010).

Emotional disturbance (ED). Emotional disturbance refers to a condition exhibiting one or more of the following characteristics over a prolonged period of time and to a marked degree, that adversely affects a child's educational performance:

Inability to learn that cannot be explained by intellectual, sensory, or health factors; inability to build or maintain satisfactory interpersonal relationships with peers and teachers; inappropriate types of behavior or feelings under normal circumstances; general pervasive mood of unhappiness or depression; tendency to

develop physical symptoms or fears associated with personal or social problems. (Missouri DESE, 2010, p. 1)

Language impairment (LI). Language impairment refers to a discrepancy between cognitive ability and performance in "one or more of the following structures of language: morphology, syntax, semantics, or pragmatics" (Missouri DESE, 2010, p. 1).

Learning disability (LD). Learning disability refers to a discrepancy between achievement and intellectual ability in one of the following areas: basic reading skills, reading comprehension, reading fluency skills, written expression, mathematics calculation, mathematics problems solving, listening comprehension, or oral expression. According to Missouri's state guidelines, a student can also be identified as having a learning disability in one of the aforementioned areas if a discrepancy was not met but the team used professional judgment (Missouri DESE, 2010).

Mental retardation/intellectual disability (MR/ID). Mental retardation and intellectual disability are identified by IQ scores of 70 or below on a cognitive measure. Academic achievement and adaptive behavior should be consistent with cognitive abilities (Missouri DESE, 2010).

Other health impairment (OHI). An OHI disability category is reserved for conditions, generally diagnosed by a medical doctor or licensed health care professional through a comprehensive evaluation, which adversely affect educational performance (Missouri DESE, 2010). For the purpose of this study, OHI included hearing impairments and orthopedic impairments.

Dropout rate. The formula used to calculate the dropout rate is provided by the Missouri DESE (2012). It is calculated by dividing the number of dropouts reported by a

district by the total number of students in the district, then multiplying the number by 100 (Dropouts / 14-21 Child Count x 100). Included in the dropout rate are students who received a General Educational Development certificate (GED), reached maximum age (21), moved and were not known to be continuing special education services, or dropped out.

  Graduation rate. According to the Missouri DESE (2011) the formula for graduation rate is calculated by dividing the total number of graduates from a district by the sum of the total number of graduates and the number of students who drop out, then multiplying this number by 100 (Graduates / [Graduates + Dropouts] x 100).

  High school dropout. High school dropout refers to the population between the ages of 16 and 24 who are not attending high school and who have not earned a regular high school diploma (NCES, 2011).

  Individualized education program (IEP). An IEP is created by a team of school professionals and parents who outline the strengths and weaknesses, goals, educational placement, accommodations and modifications, and specific services a student with a disability will receive (Skrtic, Harris, & Shriner, 2005).

  Least restrictive environment. A least restrictive environment requires "to the maximum extent appropriate, children with disabilities are to be educated with children who do not have disabilities" (Missouri DESE, 2008, p. 14). In many cases, the least restrictive environment means education in the general education setting.

  PLAN assessment. PLAN is the second part of a testing system that starts with EXPLORE, administered to 8th and 9th graders, and ends with the ACT, which is administered to 11th graders. The PLAN is administered to 10th grade students. It

measures achievement in the areas of English, math, reading, and science. It is designed to be a predictor of success on the ACT test. Scores range from 1-32 and in 2010, the national average was 17.2 (ACT Inc., 2011).

Over age for grade. Students classified as over age for grade are a minimum of one year older than their peers in the same grade (Educational Policy and Data Center, 2009). For the purpose of this study, if a student was 17 or older anytime during their sophomore year, he or she was classified as over age for grade.

Socioeconomic status. Socioeconomic status is defined by a combination of income, education, and occupation (American Psychological Association, 2012). For the purpose of this study, students qualifying for the free or reduced lunch program when exiting school, either by graduating or dropping out, were identified as low socioeconomic status.

Special education placement. Special education placement refers to the level of special education assistance as identified by a student's Individualized Education Program (IEP). According to IDEA, students are to be educated in the Least Restrictive Environment (LRE) (National Dissemination Center for Children with Disabilities [NICHY], 2010). The identifying placements for this study are: inside the regular class at least 80% of time; inside the regular class 40-79% of time, inside the regular class less than 40% of time, or in a public separate day facility.

Overview of Methodology

The research design was non-experimental and quantitative. It involved data analysis utilizing pre-existing data. The population consisted of students enrolled in high school in the target district and identified as having a disability. The sample was enrolled

as a sophomore during the 2007-2008 school year, 2008-2009 school year, or the 2009-2010 school year, and identified as eligible for and receiving special education services. The variables of interest in this study included level of special education placement, socioeconomic status, number of days suspended, disability category, over age for grade, results on the PLAN assessment, and graduation outcome. Data were collected through the district's data warehouse, organized into a spreadsheet, and uploaded into Statistical Package for the Social Sciences (SPSS) for analyses. Chi-square tests of independence were used to test for statistically significant relationships.

Summary and Organization of the Study

This chapter provided a rationale for the study comprising a statement of the problem, purpose statement, and significance of the study. Delimitations and assumptions for this study were included. The terms used in this study were defined in chapter one and an overview of the methodology was included.

Chapter two begins with the history of special education and the current trend to include students with disabilities in general education. Next, the various ways to define a dropout are discussed. Chapter two concludes by presenting research regarding students with disabilities who drop out, including predictors found in previous studies. In chapter three the methodology of this study including the research design, population and sample, instrumentation used, data collection, and data analyses will be outlined. Results of this study are presented in chapter four. The findings, conclusions, and recommendations for future research are discussed in chapter five.

Chapter Two

Review of Literature

The review of literature for this study is organized into three main sections. The first section includes the history of special education, presents a summary of major laws, and provides information regarding the roots of special education and the movement to instruct students with disabilities in the least restrictive environment. Next, there is a discussion of the various dropout calculation formulas and a review of research studies regarding dropouts with disabilities. The chapter concludes by summarizing current research and outlining future chapters.

History of Special Education

In the early 18th century, individuals with exceptionalities tended to be disregarded, concealed, or put to death (Salend & Garrick Duhaney, 2011). First attempts at the education of students with disabilities focused on those with sensory deprivations such as blindness or deafness (Salend & Garrick Duhaney, 2011). During the 1800s and early 1900s, schools dedicated to the education of blind and deaf students appeared across Europe and the United States. The American public awakened to the possibility of education for individuals with disabilities due to the highly publicized story of Helen Keller. In 1887, Helen's teacher, Anne Sullivan, refused to give up on the deaf, blind, five-year-old Helen and was successful in teaching her to communicate (Ashbaker, 2011). Still, prior to 1965, no public services were available for students with disabilities and attendance at school for individuals with severe disabilities was prohibited (Ashbaker, 2011). Institutions housed many children with severe disabilities. Countless students with mild disabilities who were unable to make it through high school without

assistance, simply dropped out of high school (Salend & Garrick Duhaney, 2011). The history of education in a public school setting for students with disabilities in the United States goes back only 47 years. To understand the current movement to place students with disabilities in the regular education classroom, there must be an understanding of the legislation that led the way.

A civil rights case, Brown v. Topeka Board of Education, took place in 1954. In the case, parents of black students fought for their children to be educated with white students, stating that separate but equal is not equal. The ruling from this case became a foundation for future legal action brought forth by families trying to guarantee a free appropriate public education (FAPE) for students with disabilities (Ashbaker, 2011). In 1965, a Bureau of Education for the Handicapped was created when Congress added Title VI to the Elementary and Secondary Education Act of 1965. Today, this bureau is the Office of Special Education Programs (OSEP). The OSEP is "dedicated to improving results for infants, toddlers, children and youth with disabilities ages birth through 21 by providing leadership and financial support to assist states and local districts" (USDE, 2012). In 1972, the Supreme Court decided two significant court cases that directly affected special education, Pennsylvania Association for Retarded Children (PARC) v. Commonwealth of Pennsylvania and Mills v. D.C. Board of Education. In the case of PARC v. Pennsylvania, the association challenged a state law that denied disabled students the right to an education if it was believed that they would be unable to benefit from attending public school. The lawyers argued that simply because a student was intellectually impaired did not mean they were unable to be educated or trained (Ashbaker, 2011). The state could not rationally defend their position, and the courts

granted the students a free public education (Ashbaker, 2011). In the case involving

Mills v. D.C. Board of Education, the school excluded a 12-year-old, fourth grade black

boy who allegedly had a behavior problem. The district stated they did not have the

funds to provide special education services for such children. The courts took the

position that lack of funds is an unacceptable excuse for not educating children. The

court ordered that the district readmit the student and pay for special programs

(Ashbaker, 2011). While these cases demonstrate certain states' early efforts to educate

students with disabilities, no federal law mandated the education of disabled students at

that time.

Congress passed a law that mandated the education of students with disabilities in

1975, the Education for All Handicapped Children Act (EAHCA) or Public Law (P.L.)

94-142. This law mandated that school districts create an individual education program

(IEP) for students with disabilities (Ashbaker, 2011). The law also guaranteed a free,

appropriate public education and due process rights and ensured that students receive

services in the least restrictive environment (USDE, 2010). Prior to 1975, many children

with disabilities were denied access to a public education because of their disabilities

(USDE, 2010). As a result of PL-142, at the start of the 1977-1978 school year, districts

were provided mandates to follow concerning the education of students with disabilities

(USDE, 2010).

In 1990, two laws brought disabilities to the forefront, the Americans with

Disabilities Act (ADA) and the Individuals with Disabilities Education Act (IDEA),

formerly called the Education for All Handicapped Children Act. The ADA prohibited

discrimination based on an individual's disability. The IDEA called for an expansion of

funding for districts, mandated transition services for students with disabilities as they shift from high school into a postsecondary setting (Skrtic, Harris, & Shriner, 2005), and added autism as well as traumatic brain injury to the list of eligible disability categories (Ashbaker, 2011).

A reauthorization of IDEA occurred in 1997. This reauthorization named six fundamental principles as essential components of special education programs. These principles included: (a) free and appropriate public education; (b) individualized education program including a process for being identified and requiring regular education teacher to be part of the IEP team; (c) least restrictive environment; (d) appropriate evaluations; (e) parent and student participation; and (f) procedural safeguards (Patterson, 2005). The reauthorization also required that students with disabilities be included in taking state and district wide assessments (Schiller & O'Reilly, 2003), but did not require that states report how students with disabilities performed on those tests (Cole, 2006).

A law that mandated students with disabilities be included and reported on state testing was No Child Left Behind (USDE, 2004). To date, this law is "arguably the most significant piece of federal education legislation in history" (Yell, Katsiyannas, & Shriner, 2006). This law required that by the end of the 2013-2014 school year, all students attending public school be proficient in reading and math (USDE, 2004). It mandated that states measure the success of student achievement and that milestones, called adequate yearly progress (AYP), be set annually to progress toward 100% proficiency. No Child Left Behind means exactly that. For this reason, NCLB provided a further push for the inclusion of students with disabilities into the general education

classroom because it requires "student achievement results to be disaggregated into subgroup categories based on race/ethnicity, income, limited English proficiency, and includes a subgroup category for students with disabilities" (Cole, 2006, p. 1). If the subgroup of students with disabilities did not achieve the set state milestone for the year, the school would not make AYP and could risk consequences determined by the state (Hardman & Dawson, 2008). This new accounting system did not just focus on the success of the entire student body. By breaking students into subcategories, NCLB put a spotlight on the groups of students the schools were failing to reach (Yell, Katsiyannas, & Shriner, 2006).

In 2004, another reauthorization of IDEA occurred. Part of the additional directives of this reauthorization expanded upon the 1997 IDEA focus on least restrictive environment (LRE). This focus on LRE mandated that students with disabilities be educated with their non-disabled peers unless their disabilities prohibit them from receiving an appropriate education with supplementary aides and services in the general education classroom (Patterson, 2005). The reauthorization of IDEA (2004) indicated that education for students with disabilities could be more effective by using the 30 years of research in education techniques, experience, high expectations, and access to the regular curriculum. It further pushed for instruction in the general education classroom to the maximum extent appropriate (Individuals with Disabilities Education Act [IDEA], 2004). According to Hardman and Dawson (2008), NCLB and IDEA (2004) clearly relay that access to the general education program is the key to success for students with disabilities. Though the reauthorization of IDEA included mandates that pushed students

with disabilities into the regular education classroom, it did not directly target high school dropouts with disabilities.

Defining Dropouts

The degree of the dropout problem in America is largely unknown due to variances in the definition of a dropout and how these figures are calculated (Christle, Jolivette, & Nelson, 2007; Kemp, 2006; Pinkus, 2006). The Census Bureau and Department of Education have reported high school completion rates as great as 86.5%, but according to Pinkus (2008), researchers report a more accurate on time graduation rate would be near 70%. The difference lies in the method of calculation used as well as the method of data collection.

Thurlow et al. (2002) and Kemp (2006) outlined the most popular methods of calculating graduation and dropout rates including event rate, status rate, and cohort rate. The rate measuring the proportion of students who drop out in a single year is the event rate. The event rate results in the smallest number of dropouts and is therefore favored by districts (Kemp, 2006). The results of Kemp's (2006) study indicated that 86.5% of the secondary principals responding to the questions used the event method to calculate the dropout rate. The next rate defined is the cohort rate. Kemp (2006) described this rate as the most accurate but is less favored by districts as it results in the largest number of dropouts reported. The cohort rate follows a single group of students over time and is also called average freshman graduation rate (Phelps, 2009). The average freshman graduation rate for public high school students in the United States during the 2007-2008 school year was 74.7% (Aud et al., 2011). Lastly, status rate is a measure of the percentage of high school students who have not fulfilled the graduation requirements

and are not enrolled on a given day. The results from the status rate fall somewhere

between the event rate and the cohort rate. The status dropout rate for public high school

students in the United States for 2009 was 8.1% and ranged from 5.2 for white students to

13.2 for American Indian students (Aud et al., 2011).

Kuenzi's (2007) report to Congress stated that the National Center for Education

Statistics (NCES) was charged with collecting rates of high school completion through

the Education Sciences Reform Act of 2002 (P.L. 107-279). Starting with the passing of

NCLB, states were required to include graduation rates in their state developed standards

of AYP (Kuenzi, 2007). Graduation rate is defined as "the percentage of students who

graduate from secondary school with a regular diploma in the standard number of years

(ESEA, section 1111 (b)(2)(C)(vi)). Kuenzi (2007) described the NCES graduation rates,

including event rate and average freshman graduation rate, but added a new completion

rate called Current Population Survey (CPS). This rate used by the NCES represents the

percentage of 18-24 year olds who have not earned a high school diploma or equivalent

and are not enrolled in high school. According to Kuenzi (2007), the CPS rate varies

from the NCLB graduation rate in three distinct ways: (a) it includes all persons with a

high school diploma or equivalent, (b) it does not require that students complete high

school in four years, and (c) it results from an estimate of "survey data taken from a large

nationally representative sample" (p. 5). The vast differences in graduation and dropout

numbers reported are explained, given the number of ways in which they can be

calculated.

Recognizing the differences in graduation rate calculation, in 2008, the USDE

required that by the 2011-2012 school year, states institute a common definition of high

school graduation rate. The USDE decided that the common graduation rate would be a

four year adjusted cohort rate (Schifter, 2011). This graduation rate is part of the

accountability system put into place under NCLB and districts are responsible for

meeting graduation rate goals, set by the state, for the aggregate student body and the

subgroups, including special education students, or face improvement sanctions from the

state (AEE, 2012). In an interesting twist, as of July 2012, the District of Columbia and

32 states applied for and received NCLB waivers from the government. According to the

states applying for the waivers, the purpose of these waivers was to move the

accountability system toward college and career readiness. These approved waivers may

be at the expense of students at risk for dropping out (AEE, 2012). Allowing states to

change the weight of accountability that a district's graduation rate carries, creates an

environment in which schools push out low achieving students to concentrate more on

high stakes testing (AEE, 2012).

Research Regarding Dropouts with Disabilities

There are two major studies in the literature that focus on students with

disabilities and secondary education: the National Longitudinal Transition Study (NLTS),

and the National Longitudinal Transition Study – 2 (NLTS2). The NLTS occurred from

1985 to 1993, and NLTS2 took place from 2000 to 2009. An independent, nonprofit

research institute, SRI International, designed and conducted NLTS and NLTS2 for the

Office of Special Education Programs. Secondary students with disabilities across the

United States comprised the more than 8,000 participants in the NLTS. The NLTS2

included 11,270 participants with disabilities from 500 school districts (NLTS2, 2010).

The random selection of participants based on their age and disability category created a

representative sample. The data for both studies were collected through phone interviews

with students and parents, through analyzing school records from multiple years, and

through surveys of teachers and administrators who worked with these students (NLTS2,

2010). There were numerous subsequent studies completed regarding students with

disabilities using the information collected from NLTS and NLTS2, some of which are

described in the following sections. Several of these included studies regarding gender

differences, adult services after graduation, dropout information, dropout prevention, and

the difference in disability categories.

Level of special education placement. The push for inclusion of students with

disabilities in the regular education classroom has increased through the passing of

NCLB and IDEA. According to the USDE (2010), there has been a "16-point increase in

the percentage of students with disabilities graduating from high school since school year

1996-97" (p. 4). During this same period, a 21-point decrease in dropouts for students

with disabilities was noted (USDE, 2010). Schiller and O'Reilly (2003) pointed out that

though the USDE reports success, students with disabilities continued to drop out of high

school at a rate nearly twice that of their nondisabled peers. McLaughlin and Tilstone

(2000) reported that the efforts put forth to improve student outcome "have centered on

increasing inclusion of students with disabilities in general education classrooms and,

most recently, ensuring access to the general education curriculum and assessments" (p.

50).

Research regarding the inclusion of students with disabilities in the regular

education classroom and dropout rates are limited. Using NTLS data, Wagner's (1991)

report examined bivariate relationships between student outcome and characteristics of

students' school programs. The study included a nationally representative sample of more than 8,000 students with disabilities from across the nation who ranged from 13 to 21 years of age. The hypothesis was that students who had higher percentages of time in special education, as opposed to inclusion in regular education, would have better graduation outcomes due to individualization of programming. Instead, the study found no significant relationship between the percentage of time in regular education and the probability of dropping out (Wagner, 1991).

A 2010 study conducted by Gonzalez examined the impact of school related variables, including inclusion, on graduation for urban students with disabilities. The study included 573 students with disabilities (LD or ED) from four high schools in the Miami-Dade County Public Schools. To identify differentiating factors, information from students with LD or ED who graduated was compared to information from students with LD or ED who dropped out. The results of this study revealed no significant relationship between the time students with disabilities spent in the regular education class and their graduation rate (Gonzalez, 2010). The results indicated academic history as the only significant predictor of graduation. Of the students served in an inclusive setting, 93% achieved passing grades and had greater behavioral success (Gonzalez, 2010).

Goodman, Hazelkorn, Bucholz, Duffy, and Kitta (2011) conducted an additional study focusing on inclusive practices that achieved similar results as Gonzalez (2010). The six-year study examined the effect that time in regular education classes had on graduation rates of students with disabilities. Using Georgia's 2003-2008 state-reported district data, this study reviewed the records of 67,749 students identified as having mild

disabilities (Goodman et al., 2011). The data indicated an increase in the number of students served in inclusionary settings from 37% in 2002 to 60% in 2008 (Goodman et al., 2011). From 2003- 2008, data demonstrated a significant increase of students with mild disabilities educated in the regular education classroom; however, the overall graduation rate of the same students remained less than 30% (Goodman et al., 2011). During this same period, graduation rate for students without disabilities increased 8.1%, from 70.8% to 78.9% (Goodman et al., 2011). The consensus of these studies indicated that increasing students' time in the regular education setting alone did not result in a higher graduation rate for students with disabilities.

Landrum, Katsiyannis, and Archwamety (2004) conducted a study and had different results than Goodman et al. (2011). Utilizing data from the USDE's Annual Reports to Congress, they examined placement and graduation outcomes for students with emotional disturbances. They studied data reported by all 50 states and the District of Columbia and spanned from 1989 to 1998. Throughout the span of the study, placement of students identified as ED served in the general education classroom showed a steady increase across the nation from 19% to 27% (Landrum et al., 2004). Though the most likely way for students with emotional disturbances served in any setting to exit high school remained dropping out, the study found a negative association with ED students served in self-contained programs dropping out ($r = -.13$). These results would appear to indicate that students served in self-contained programs are more likely to graduate than those served in the general education setting (Landrum et al., 2004). A noted limitation to the study was the exclusion of disability categories beyond emotional disturbances.

Socioeconomic status. Another factor often studied in conjunction with high school dropouts is socioeconomic status. Wagner's (1991) report on dropouts with disabilities based on the approximately 8,000 youth included in the five-year NLTS study indicated a relationship between SES and dropouts. The NLTS data examined found that the dropout rate "was significantly higher for poorer students (11% vs. 6%; $p < .001$)" (Wagner, 1991, p. 22). The NLTS2 (http://nlts2.org/index.html) also examined SES data and included 11,280 students with disabilities. Data for the study spanned from 2000-2009. The students included in the NLTS2 were a nationally representative sample of students with disabilities who fell in the 12 federal special education categories. According to NLTS2 data examined by Newman et al. (2011), the high school completion rate for students with a household income of more than $50,000 was 82% compared to 64% for students with a household income of $25,000 or less. Results from Newman et al. (2011) corroborate the original NLTS findings regarding socioeconomic impact on dropout rates.

The NCES examined characteristics of General Educational Development (GED) recipients in high school from 2002-2006. This information was drawn from the Education Longitudinal Study (ELS) of 2002 which contained data from a nationally representative sample of both public and private school students who were in the 10th grade in the spring of 2002. The study reported three socioeconomic categories for subjects: those in the lowest quarter, those in the middle two quarters, and those in the highest quarter. Findings indicated that students whose SES fell in the lowest quarter had the smallest percentage of high school graduates (22.2%) and the highest rate of high school dropouts (55.2%) (USDE, 2011).

An additional study examined predictors of dropouts for students with mild disabilities (Reschly & Christenson, 2006). Among other factors, this study explored the impact of SES on dropout rates for students with LD and ED (Reschly & Christenson, 2006). Using data collected from the National Educational Longitudinal Study (NELS) from 1988 to 2000, this study included 1,498 students identified by their parents as LD, ED, or both and compared them to the 13,302 students without disabilities. Conducted by the NCES, the NELS was the third major longitudinal study for the USDE (Reschly & Christenson, 2006). The study results indicated that when examining students with LD, higher SES related to a decrease in the likelihood of dropping out (Reschly & Christenson, 2006). For each standard deviation above the mean, there was a 71% reduction in odds for a student dropping out (Reschly & Christenson, 2006).

A 2008 compendium report completed by Laird, Cataldi, KewalRamani, and Chapman examined Common Core of Data (CCD) collections across the nation for 2006. Information for CCD is gathered from all state education entities and represents all public school students in the United States. Though not exclusive to students with disabilities, an examination of CCD information revealed students from low-income families were significantly more likely (4.5 times) to drop out than were students from higher-income families (Laird et al., 2008).

Zablocki (2009) examined several factors related to high school dropouts with disabilities. The sample included 5,018 students who participated in the NLTS2 study. Independent variables identified were classified into four areas: disability classification, individual characteristics (gender, race, household income), academic experiences (student grades, retention of a grade or grades, school suspension or expulsion), and

emotional engagement factors (believes the school has caring adults, enjoys school, is pleased with their education) (Zablocki, 2009). The results related to individual characteristics indicated that each increase in standard deviation of household income ($17,500) decreased the odds of a student dropping out by 33% (Zablocki, 2009).

Behavior. In addition to level of special education placement and socioeconomic status, studies link behavior, in and out of school, to dropouts (Hammond, Linton, Smink, & Drew, 2007; Reschley & Christenson, 2006; Wagner, 1991; Zablocki, 2009). A 1991 report used NLTS data to examine school behavior and dropout rates for students with disabilities (Wagner, 1991). Utilizing the five-year NLTS data, which included more than 8,000 students with disabilities from across the nation, this study used a logistic regression model to predict probability of graduation (Wagner, 1991). Students with disabilities who experienced school discipline problems or exhibited negative social behavior (i.e., being fired from a job, being arrested) were more likely to drop out (28%) than peers without discipline issues (4%) (Wagner, 1991). The findings also revealed that students with discipline issues were absent almost twice as many days (23 days) as students without discipline issues (13 days) (Wagner, 1991).

Hammond et al. (2007) conducted a review of literature for The National Dropout Prevention Center at Clemson University to determine risk factors for dropping out. This review examined ERIC literature from 1980 to 2005 focusing on articles dedicated to high school graduation or dropouts (Hammond et al., 2007). Only studies that collected longitudinal data over at least two years and included a sample size of at least 30 students were included. Twenty-one articles met the criteria. The summary of the literature review indicated:

- There is no single risk factor that can be used to accurately predict who is at risk of dropping out.

- The accuracy of dropout predictions increases when combinations of multiple risk factors are considered.

- Dropouts are not a homogeneous group. Many subgroups of students can be identified based on when risk factors emerge, the combinations of risk factors experienced, and how the factors influence them.

- Students who drop out often cite factors across multiple domains and there are complex interactions among risk factors.

- Dropping out of school is often the result of a long process of disengagement that may begin before a child enters school.

- Dropping out is often described as a process, not an event, with factors building and compounding over time. (Hammond et al., 2007, pp. 1-2)

The findings revealed dropout factors fitting into four domains: individual, family, school, and community. School behavior, specifically misbehavior, comprised one of the 25 significant risk factors for school dropouts identified by the group (Hammond et al., 2007).

A study focusing on school characteristics related to high school dropouts with disabilities used logistic regression to analyze data from NLTS2 and found significant relationships between suspensions and the probability of dropping out (Zablocki, 2009). The researcher created a subset of 5,018 students taken from the original 11,270 students in the NLTS2 study (Zablocki, 2009). Participants were included in this study if all independent variable data were available. Independent variables included academic

experiences, disability classification, emotional engagement factors, and individual characteristics. Logistic regression analysis determined effects of variable factors as a predictor of dropouts. The results of that study, according to Zablocki (2009), indicated that the odds of dropping out of high school increased 270% for those students with disabilities who had been expelled or suspended while in high school.

Reschly and Christenson (2006) conducted a study that examined data from the NELS. This study employed an examination of variables including socio-economic status and behavior related to dropout rates for 1,498 LD and ED students when compared to their average-achieving peers. Results of the study indicated that for ED students, "each unit increase of school misbehavior was associated with 19% greater odds of dropping out" (Reschley & Christenson, 2006, p. 284).

Disability category. Another factor studied has been the relationship between a student's special education disability category and the likelihood of dropping out. The results of the NLTS study found that of the 3,045 students with disabilities who left school, 36.4% dropped out while 56.2% graduated. Students with the eligibility labels of emotional disturbance and learning disability dropped out at a higher rate than their disabled peers with other eligibility labels (Butler-Nalin & Padilla, 1989). To identify significant relationships related to dropping out, the Butler-Nalin & Padilla (1989) study utilized logistic regression and examined background characteristics, abilities and disabilities, behavior and experiences, and performance in high school. In a subsequent study, Wagner (1991) utilized the NLTS data and logistic regression to conclude that ED students had a 50% probability of graduating, LD students had a 68% chance of completing high school, and OHI students had a 75% chance of graduating with a

diploma. The results of data from NLTS2 corresponded with the NLTS and indicated that students with the disability category of emotional disturbance (ED) were the least likely to graduate. The high school completion rate of students with ED from NLTS2 was 56%, while students labeled as OHI completed high school at a rate of 77%, and students identified as having a learning disability had a high school completion rate of 75% (USDE, 2005). Results of both NLTS and NLTS2 indicated that students identified as having an emotional disturbance had the lowest likelihood of graduation.

Goodman et al. (2011) completed a study that reviewed the records of 67,749 students identified as having disabilities. The study utilized data from the state of Georgia collected over a six year period and focused on inclusion and graduation outcomes. Disability categories studied included Other Health Impaired (OHI), Learning Disability (LD), Mental Retardation/Intellectually Deficient (MR/ID), and Emotional Disorders (ED). Cohort rate, following a group of students over time, served as the graduation rate in this study. The total graduation rate for students with disabilities who graduated with a diploma was 26.3% (Goodman et al., 2011). Students with intellectual disabilities (MR/ID) had the lowest rate of graduation during the study, which decreased from 4.6% in 2003 to 3.8% in 2008 (Goodman et al., 2011). The graduation rate for emotionally disturbed students increased slightly from 15.6% in 2003 to 16.6% in 2008. For students identified with learning disabilities, graduation rates decreased from 37.1% to 36.1% and from 48.8% to 36.3% for students identified with other health impairments during the 2003-2008 timeframe (Goodman et al., 2011).

Zablocki (2009) examined disability classification as one of four independent variables during his study. Utilizing 5,018 students' data from the NLTS2 study,

Zablocki compared students with disabilities who completed high school to students with disabilities who did not complete high school. The research indicated that the odds of a student dropping out when identified with ED increased by 183% when compared to students with disabilities who completed high school. When a student was identified as OHI the odds of dropping out increased by 29%, and when a student was identified as having a mental impairment (MR/ID) the odds of dropping out decreased by 17% (Zablocki, 2009).

Over age for grade. Several studies that focused on students with disabilities included the variable of student retention or over age for their grade level. Utilizing the data collected for the NLTS, Wagner (1991) examined dropout characteristics of students with disabilities. This study took place in waves and included in excess of 8,000 students with disabilities from across the nation. The results of this study indicated that students who were older than grade level peers due to retention or repetition were more than twice as likely to drop out of high school, 11% vs. 5% (Wagner, 1991).

Research conducted by Reschly and Christenson (2006) included 1,498 students identified as LD or ED and compared them to average achieving, non-disabled peers. This study examined data collected for NELS using logistic regression analysis to identify significant relationships that determined variables that act as predictors of dropouts. Among parent-identified students with emotional disturbances, repeating a grade showed as the strongest predictor of dropping out. Students with ED who were not retained a grade were found to be 73% less likely of becoming a dropout than ED students who had been retained a grade (Reschly & Christenson, 2006). Among students with learning disabilities, students who were not retained were found to have 33% lower

odds of becoming a dropout when compared to average achieving peers (Reschly &
Christenson, 2006).

An additional study that examined data from the follow up NLTS2, also indicated
that students with disabilities who had repeated a grade or been retained were more likely
to drop out (Zablocki, 2009). Using four independent variables for the research
(academic experiences, disability classification, emotional engagement factors, and
individual characteristics) grade retention was examined under academic experiences to
determine the effect it had on dropouts. Zablocki examined records from 5,018 students
who were included in the NTLS2 study. The research results indicated that the odds of
becoming a high school dropout increased by 144% for students held back a grade when
compared to students with disabilities who completed high school (Zablocki, 2009).

The previous research regarding students with disabilities and graduation outcome
supports the focus of this study. Three of the four studies that examined level of special
education placement and graduation outcome for students with disabilities found no
relationship (Gonzalez, 2010; Goodman et al., 2011; Wagner, 1991). Whether students
received services in regular education or special education, there was not an impact on
the probability of graduating. Research studies that examined socioeconomic status
found relationships between a student's socioeconomic status and graduation outcome
(Laird et al., 2008; NCES, 2011; Newman et al., 2011; Reschley & Christenson, 2006;
Wagner, 1991; Zablocki, 2009) revealing that students from lower socioeconomic
households were less likely to graduate. All studies identified a significant relationship
between poor behavior in school and a lower graduation rate (Hammond et al., 2007;
Reschley & Christenson, 2006; Wagner, 1991; Zablocki, 2009). Regarding a student's

disability label, three of the four studies surveyed identified a relationship between the eligibility label of ED and a decreased likelihood of graduation (Butler-Nalin & Padilla, 1989; Goodman et al., 2011; Wagner 1991; Zablocki, 2009). Lastly, when examining the relationship between students older than their same grade peers and graduation outcome, the research indicated that students older than peers were less likely to graduate (Reschley & Christenson, 2006; Wagner 1991; Zablocki, 2009).

Summary

Chapter two presented the history of special education beginning in 1965 with the creation of the Bureau of Education for the Handicapped through IDEA and the reauthorizations, described ways in which school districts define dropouts including calculation formulas, and reviewed research regarding factors influencing students with disabilities in relation to dropping out. Chapter three presents the methodology of the study. The population of the present study and sampling procedures are included. Chapter three discusses validity and reliability of instrumentation used in the study, data collection, and hypotheses tests along with limitations of the study. Chapter four presents the results of the hypotheses testing. Chapter five summarizes the findings, relates the results to literature, and provides recommendations for future research.

Chapter Three

Methods

The purpose of this study was to examine the relationships between graduation outcome and level of special education placement, student characteristics, and PLAN assessment results, for students with disabilities in a Midwestern suburban school district. This chapter presents the research design and procedures used to address the research questions. The population and sample, sampling procedures, instrumentation, data collection procedures, data analyses, and limitations of this study are presented.

Research Design

The research design was non-experimental and quantitative. Independent variables in this study included student's level of special education placement, socioeconomic status, number of days suspended, disability category, over age for grade, and PLAN assessment results. For the purpose of this study, the independent variable of a student's level of special education placement was defined by the amount of time spent in the regular education classroom and included the Missouri Department of Elementary and Secondary Education's four least restrictive environments: (a) inside the regular classroom 80% or more of the day, (b) inside the regular classroom 40-79% of the day, (c) inside the regular classroom less than 40% of the day, and (d) public separate school (day) facility (Missouri DESE, 2010). Socioeconomic status was determined by the qualification for free or reduced lunch. Participants qualifying for free or reduced lunch at the time they left school were classified as low socioeconomic status. The out of school suspensions for participants were calculated and placed into one of two categories: zero out of school suspension days, or one or more out of school suspension days. The

independent variable of disability category was determined by the special education

disability code listed in Power School. Student disability categories utilized in this study

included autism, emotional disturbance, language impairment, learning disability, mental

retardation/intellectually deficient, or other health impaired (which included hearing

impaired and orthopedic impairments). Students with a different disability category were

omitted from the study. For the over age for grade variable, the average cohort age was

calculated based on participants beginning kindergarten at age five. Participants who

were 17 or older at any time during their sophomore year were classified as over age for

grade. Though the national average composite score on the PLAN was 17.1, the PLAN

assessment results variable was categorized by composite scores 9 to 12, 13 to 15, and 16

to 32. The dependent variable, graduation outcome, was defined as the completion or

noncompletion of high school.

Population and Sample

The population for this study included all students with disabilities who enrolled

as sophomores during the 2007-2008, 2008-2009, or 2009-2010 school years in the target

district, a Midwestern suburban school district. The school district served 9,879 students

in grades pre-K to 12 during the 2007-2008 school year with 810 of those students

comprising the sophomore class. Of the 810 students, there were 80 sophomores

identified as having a disability during the 2007-2008 school year, and 52 of them met

the criteria for inclusion in this study. During the 2008-2009 school year the district

served 10,106 students with 801 of those students being sophomores. Of the 801

students, there were 53 sophomore students identified as having a disability during the

2008-2009 school year, and 48 of them met criteria for inclusion in this study. Lastly, for

the 2009-2010 school year the district served 10,159 students and the sophomore class comprised 812 of those students. Of the 812 sophomores, 63 were identified as students with a disability, and 50 of them met criteria for inclusion in this study. The sample consisted of 150 total students selected from the population for the span of the study.

Sampling Procedures

The researcher utilized purposive sampling to select participants. According to Lunenburg and Irby (2008), purposive sampling "involves selecting a sample based on the researcher's experience or knowledge of the group to be sampled" (p. 175). Students were included in the study if they met the following criteria:

- Enrolled in high school or therapeutic day school within the target district.

- Identified as a student with a disability of autism, emotional disturbance, hearing impairment, language impairment, learning disability, mental retardation/intellectual disability, other health, or orthopedic impairment in the target district's data management system.

- Enrolled as a sophomore during the 2007-2008, 2008-2009, or 2009-2010 school years.

- Took the PLAN Tests of Educational Achievement in 10th grade.

- Placed inside the regular classroom 80% or more of the day, placed inside the regular classroom 40-79% of the day, inside the regular classroom less than 40% of the day, or attended a public separate day school facility.

- Enrolled in the target district as a sophomore and remained until leaving school by either graduating or dropping out.

Students with special education placement levels falling in DESE's four most restrictive environments were excluded from the study due to receiving services outside of the target district's boundaries.

Instrumentation and Measurement

The variables analyzed for this study were measured using archived district data. Independent variables included level of special education placement, socioeconomic status, number of days suspended, disability category, over age for grade, and PLAN assessment results. The dependent variable, graduation outcome, was defined as the completion or noncompletion of high school. The level of special education placement was one of the following (a) inside the regular classroom 80% or more of the day, (b) inside the regular classroom 40-79% of the day, (c) inside the regular classroom less than 40% of the day, and (d) public separate school (day) facility. This information was retrieved from the school district's core data report uploaded for DESE. The variable of socioeconomic status was determined by the qualification for free or reduced lunch and was coded as (1) free/reduced or (0) unsubsidized. The number of out of school suspensions for each participant was calculated. Due to the low number of participants who accumulated one or two days of out of school suspensions, the researcher chose to collapse categories to provide numbers that were more reliable. Out of school suspensions were placed into one of two categories: (0) zero out of school suspension days, or (1) one or more of out of school suspension days. A participant's disability category was determined by the special education disability code listed in Power School which coincides with DESE guidelines: (01) mental retardation, (02) emotional disturbance, (09) learning disability, and (10) other health impairment, (13) autism, and

(17) language impairment. Due to low numbers of students with the disability categories of orthopedic impairment and hearing impairment, the researcher chose to include those students under the label of other health impairment. Participants who were 17 or older anytime during their sophomore year were classified as over age for grade. Students were classified as (1) over age for grade or (0) not over age for grade. Participants' results from the PLAN test administered during the sophomore year included categories of composite scores: 9 to 12, 13 to 15, and 16 to 32. The results on the PLAN assessment were obtained from the target district's archived data but were not part of the DESE database. The dependent variable, graduation outcome, was defined as the (1) completion or (0) noncompletion of high school.

The only instrument utilized in this study was the PLAN Tests of Educational Achievement. The PLAN test "helps 10th-grade students make the most of their opportunities and helps guide them in future educational and career planning" (American College Testing [ACT] Inc., 2011, p. 1). Created by the makers of the ACT assessment, the PLAN can be used as a stand-alone test or as the midpoint of ACT's College and Career Readiness System, which includes EXPLORE for 9th graders, PLAN for 10th graders, and ACT for 11th graders (ACT Inc., 2011). The target district subscribes to all three programs.

Piloted in 1987, the PLAN Tests of Educational Achievement include multiple-choice tests in the areas of English, math, reading, and science and collect information about the students' interests, future plans, needs, and selected background characteristics (ACT Inc., 2011). The purpose of PLAN is to provide students with an indicator of their educational progress toward college or a post high school career. The PLAN also acts as

a predictor of ACT scores (ACT Inc., 2011). Scores on the PLAN test range from 1 to 32, with 17.2 being the national average (ACT Inc., 2011).

The four multiple-choice PLAN tests undergo continuous revision in a cycle taking as long as two and one half years and involving several stages, including a review of content and statistical test specifications (ACT Inc., 2011). Creating items for the EXPLORE, PLAN, and ACT assessments involved a process that included studying the objectives of instruction in states across the nation and examining state-approved textbooks used in grades 7-12 coursework (ACT Inc., 2011). Educators in grades 7-12 and at the postsecondary level were chosen from across the nation to serve as consultants to determine the skills to be considered as the prerequisites to success in high school and beyond (ACT Inc., 2011).

The English test contains 50 items to be completed in 30 minutes and measures an individual's understanding of the conventions of standard English (e.g., grammar and usage, punctuation, and sentence structure) as well as rhetorical skills (e.g., organization, strategy, and style) (ACT Inc., 2011). The English test requires participants to read a passage and determine which option is the best response to the item posed. Students receive a subscore for conventions, referred to as usage/mechanics, and a subscore for rhetorical skills (ACT Inc., 2011). Table 2 outlines the content specifications of the PLAN English test.

Table 2

Content Specifications for the PLAN English Test

Content/Skills	Proportion of Test	Number of Items
Usage/Mechanics	.60	30
Punctuation	.14	7
Grammar and Usage	.18	9
Sentence Structure	.28	14
Rhetorical Skills	.40	20
Strategy	.12	6
Organization	.14	7
Style	.14	7
Total	1.00	50

Note. Adapted from "2011/2012 PLAN Technical Manual," by ACT Inc., 2011, p. 7. Copyright 2011 by ACT Inc.

Punctuation, grammar, and sentence structure comprise the usage and mechanics portion of the English test, while strategy, organization, and style make up the rhetorical skills portion. The area of the English test with the greatest focus and 14 items is sentence structure. The purpose of sentence structure is to test participants' "understanding of relationships between and among clauses, placement of modifiers, and shifts in construction" (ACT Inc., 2011, p. 7). Strategy, by contrast, is the area of the English test with the least focus and only six items.

The PLAN mathematics test measures an individual's mathematical reasoning and focuses on the ability to solve practical quantitative problems typically taught in first and second year high school courses such as pre-algebra, algebra, and geometry (ACT Inc., 2011). Areas included in the mathematics test are "knowledge and skills, direct

application, understanding concepts, and integrating conceptual understanding" (ACT

Inc., 2011, p. 5). Students receive subscores in Pre-Algebra/Algebra and Geometry

(ACT Inc., 2011). Participants have 40 minutes to complete the 40 multiple-choice items

for the mathematics test (ACT Inc., 2011). Table 3 outlines the content specifications for

the PLAN Mathematics test.

Table 3

Content Specifications for the PLAN Mathematics Test

Mathematics content area	Proportion of test	Number of items
Pre-Algebra/Algebra	.55	22
Pre-Algebra	.35	14
Elementary Algebra	.20	8
Geometry	.45	18
Coordinate Geometry	.18	7
Plane Geometry	.27	11
Total	1.00	40

Note. Adapted from "2011/2012 PLAN Technical Manual," by ACT Inc., 2011, p. 8. Copyright 2011 by ACT Inc.

The mathematics area is comprised of four content areas: pre-algebra, elementary

algebra, coordinate geometry, and plane geometry. The area of the mathematics test with

the greatest emphasis and 14 items is pre-algebra. The focus of pre-algebra is to test

participants' skills on basic operations covering all areas of math used prior to algebra

(ACT Inc., 2011). Coordinate geometry, by contrast, is the area of the mathematics test

with the least emphasis and only seven items. The skills tested are based on graphing and

the relationship between graphs and equations.

The reading portion of the PLAN test measures an individual's level of reading comprehension using skills in referring and reasoning. Referring is defined as "referring to what is explicitly stated" (ACT Inc., 2011, p. 6). Participants must use skills in referring and reasoning to locate and interpret information, define main ideas, draw generalizations, sequence events, make comparisons, and determine author's voice or technique (ACT Inc., 2011). The test includes three prose passages, typical of passages common in 10th grade curricula (ACT Inc., 2011). Participants have 20 minutes to complete 25 multiple-choice items on the reading portion (ACT Inc., 2011). Table 4 details the genres of writing that comprise the three prose passages.

Table 4

Content Specifications for the PLAN Reading Test

Reading passage content	Proportion of test	Number of items
Prose Fiction	.32	8
Humanities	.36	9
Social Sciences	.32	8
Total	1.00	25

Note. Adapted from "2011/2012 PLAN Technical Manual," by ACT Inc., 2011, p. 8. Copyright 2011 by ACT Inc.

The reading test places almost equal emphasis on prose fiction, humanities, and social sciences. Prose fiction focuses on passages from short stories or novels. The humanities content is based on passages from personal essays or memoirs, and the social sciences passages are similar to what students would encounter in their academic textbooks.

The science portion of the PLAN measures scientific reasoning skills learned by the sophomore year of high school (ACT Inc., 2011). The specific areas included for science are biology, earth and space sciences, physics, and chemistry (ACT Inc., 2011). To answer the science multiple-choice items requires that participants interpret information including data representation, research summaries, and conflicting viewpoints as outlined in Table 5. Participants have 25 minutes to complete the 30-item test (ACT Inc., 2011).

Table 5

Content Specifications for the PLAN Science Test

Format	Proportion of test	Number of items
Data Representation	.33	10
Research Summaries	.47	14
Conflicting Viewpoints	.20	6
Total	1.00	30

Note. Adapted from "2011/2012 PLAN Technical Manual," by ACT Inc., 2011, p. 9. Copyright 2011 by ACT Inc.

The format with the greatest emphasis and 14 items is research summaries. Students are to answer items based "on the design of experiments and the interpretation of experimental results" (ACT Inc., 2011, p. 9). The format with the least emphasis and six items is conflicting viewpoints. The items focus "on the understanding, analysis, and comparison of alternative viewpoints or hypotheses" (ACT Inc., 2011, p. 9).

The PLAN assesses a wide variety of knowledge and skills. According to ACT Inc. (2011), the PLAN scores "are intended to be used as measures of college-bound and non-college-bound students' academic development in early high school, and to provide

an estimate of the students' future performance of the ACT test" (p. 41). In order to qualify as a predictor of students' performance on the ACT test, statistically significant relationships between scores on the PLAN and scores on the ACT have been established (ACT Inc., 2011).

Validity and reliability

Lunenburg and Irby (2008) stated "validity is the degree to which an instrument measures what it purports to measure" (p. 181), and reliability is "the degree to which an instrument measures whatever it is measuring" (p. 182). According to the PLAN technical manual, extensive procedures have been put in place to establish the content validity and reliability of the PLAN assessment (ACT Inc., 2011).

To establish content validity, the creators of the PLAN examined the objectives of instruction for grades 7-12 (ACT Inc., 2011) by conducting a review of textbooks on state-approved lists for grades 7–12. Educators in grades 7-12 and at the postsecondary level were chosen from across the nation to serve as consultants to determine the skills considered as prerequisites to success in high school and college or trade school (ACT Inc., 2011). Data from a 2005 study of all students who took the EXPLORE, PLAN, and ACT assessments indicated "correlations between tests suggest that performance on the three test batteries is related" (ACT Inc., 2011, p. 42). The observed correlations of the four subject area tests (English, mathematics, reading, and science) are in the range of .53 to .80 and disattenuated correlations range from .77 to .94.

Table 6 presents the estimated reliabilities and standard errors of measurement from the Grade 10 national sample. The PLAN manual states that researchers used the Kuder-Richardson formula 20 (KR-20) to determine the test's internal consistency

reliability (ACT Inc., 2011). According to Lunnenburg and Irby (2008), "An internal

consistency coefficient of .80 is acceptable for an instrument containing 40 items" (p.

183). Further, "instruments containing fewer items and subscales will typically have

smaller reliability coefficients" (Lunnenburg & Irby, 2008, p. 183).

Table 6

Estimated Reliabilities and Standard Error of Measurement for Grade 10 National

Sample

	Scale Scores Reliability	*SEM*
English	0.87	1.59
Usage/ Mechanics	0.84	1.14
Rhetorical Skills	0.72	1.62
Mathematics	0.80	2.08
Pre-Algebra/ Algebra	0.80	1.55
Geometry	0.65	1.74
Reading	0.85	1.85
Science	0.82	1.64
Composite	0.95	0.90

Note. Adapted from "2011/2012 PLAN Technical Manual," by ACT Inc., 2011, p. 37. Copyright 2011 by ACT Inc.

Of the four content areas covered by the PLAN, all but the area of English have 40 items

or less. This helps to explain why the subtest reliability scores for rhetorical skills and

geometry are lower than the recommended .80 coefficient. The English and mathematics

composite internal consistency scores are within the acceptable range. The scale scores

of the PLAN reliability range from .65 in geometry to .87 in English. The PLAN's

composite scale score reliability of .95 is evidence for strong internal consistency reliability.

Data Collection Procedures

The researcher applied for study approval from the Institutional Review Board (IRB) at Baker University on October 2, 2012 (see Appendix A). Approval from the IRB at Baker University was granted on October 5, 2012 (see Appendix B). An Application to Conduct Research (Appendix C) was completed on October 9, 2012 for the target district and permission to conduct research was given on October 18, 2012 (see Appendix C) through the district's Director of Research, Evaluation, and Assessment before data collection began.

The archival data used for this study, including graduation outcome, came from the target district's data warehouse, Power School. The researcher presented the target district a list of qualifiers to assist in creating a report in Power School in order to gather raw data for analysis. Additionally, the researcher created a list of qualifying characteristics in order to identify subjects for inclusion. To be included in the study, students met the following criteria:

- high school sophomore in the target district during the 2007-2008 school year, 2008-2009 school year, or the 2009-2010 school year;

- identified as a student with a disability and receiving special education services;

- had one of four special education placement levels determined by the amount of time spent in the general education setting: a) inside the regular classroom 80% or more of the day, b) inside the regular classroom 40-

79% of the day, c) inside the regular classroom less than 40% of the day, or d) public separate day facility, and

- had a PLAN composite score.

Student characteristic information retrieved through Power School and entered into an Excel spreadsheet included level of special education placement, socioeconomic status, number of days suspended, disability category, date of birth, and graduation outcome. In 2007, the target district began using Power School to warehouse information for the purposes of sharing data with the state and storing and accessing student information electronically in a centralized location. Collected from archives not located in Power School were the PLAN composite results. The PLAN results for the three selected years were found in two locations. For the 2008-2009 school year and the 2009-2010 school year, results were located on the computer hard drive of the Director of Research, Evaluation, and Assessment for the target district. The PLAN results from 2007-2008 were located on a compact disc in the target district's main office. Cross-referencing by student identifying information, PLAN results for students were retrieved and entered into the existing Excel spreadsheet. Data were uploaded into Statistical Package for the Social Sciences (SPSS) for analysis.

Data Analysis and Hypothesis Testing

Presented next are the research questions for this study along with a hypothesis formulated from each question.

R1. To what extent does the level of special education placement affect the graduation outcome of students identified with a disability?

H1. The level of special education placement affects the graduation outcome of students identified with a disability.

R2. To what extent is the effect of the level of special education placement on graduation outcome of students identified with a disability mediated by socioeconomic status?

H2. The effect of level of special education placement on the graduation outcome of students identified with a disability is mediated by socioeconomic status.

R3. To what extent does the number of days of out of school suspensions affect the graduation outcome of students identified with a disability?

H3. The number of days of out of school suspensions affect graduation outcome of students identified with a disability.

R4. To what extent does the number of days of out of school suspensions affect graduation outcome of students identified with a disability mediated by socioeconomic status?

H4. The effect of the number of days of out of school suspensions on graduation outcome of students identified with a disability are mediated by socioeconomic status.

R5. To what extent does a student's disability category affect the graduation outcome of students identified with a disability?

H5. The student's disability category affects the graduation outcome of students identified with a disability.

R6. To what extent is the effect of the student's disability category on graduation outcome of students identified with a disability mediated by socioeconomic status?

H6. The effect of the student's disability category on graduation outcome of students identified with a disability is mediated by socioeconomic status.

R7. To what extent does being over age for grade affect the graduation outcome of students identified with a disability?

H7. Being identified as over age for grade affects the graduation outcome of students identified with a disability.

R8. To what extent is the effect of being over age for grade on graduation outcome of students identified with a disability mediated by socioeconomic status?

H8. The effect of being over age for grade on graduation outcome of students identified with a disability is mediated by socioeconomic status.

R9. To what extent do the PLAN composite scores affect the graduation outcome of students identified with a disability?

H9. The PLAN composite scores affect the graduation outcome of students identified with a disability.

R10. To what extent is the effect of the PLAN test scores on graduation outcome of students identified with a disability mediated by socioeconomic status?

H10. The effect of PLAN test scores on graduation outcome of students identified with a disability is mediated by socioeconomic status.

The students' level of special education placement was determined by the amount of time throughout the day spent in the regular education classroom. A chi-square test of independence was used to test for a statistically significant relationship between level of special education placement and graduation outcome.

The number of out of school suspension days was determined by the total number of days students were suspended from school starting with their sophomore year until leaving high school. A chi-square test of independence was used to test for a statistically significant relationship between out of school suspensions and graduation outcome.

The student's disability category was determined by how a student qualified for special education services. A chi-square test of independence was used to test for a statistically significant relationship between disability category and graduation outcome.

Student identification as over age for grade was determined by age during their sophomore year. Students who were 17 or older at any point during their sophomore year were identified as over age for grade. A chi-square test of independence was used to test for a statistically significant relationship between a student's identification as over age for grade and graduation outcome.

Participants' results from the PLAN test administered during the sophomore year included categories of composite scores: 9 to 12, 13 to 15, and 16 to 32. Data regarding PLAN test results were collected from the target district's data bank and graduation outcome were collected from Power School. A chi-square test of independence was used to test for a statistically significant relationship between PLAN assessment results and graduation outcome.

The variable of socioeconomic status was determined by the qualification for free or reduced lunch. Chi-square tests of independence were used to test for statistically significant relationships between each variable and graduation outcome as mediated by socioeconomic status. One test examined students identified as high socioeconomic status and one examined students identified as low socioeconomic status.

Limitations

Lunenburg and Irby (2008) defined a study's limitations as "factors that may have an effect on the interpretation of the findings or on the generalizability of the results" (p. 133). The generalizability of this study could be limited by the following:

- The student preparation for taking the PLAN assessment, including pretesting or test taking strategies provided by teachers for students with disabilities, is unknown.

- Factors outside of the school setting (e.g., pregnancy, family issues, work) may influence graduation outcome.

- Reason for student being over age for grade (retention, parents starting students at a later age) is unknown.

Summary

Chapter three revisited the purpose for the study and revealed hypotheses to the research questions. It included a description of the sample population and conditions for inclusion in the study. The researcher examined the instrumentation for validity and reliability and explained data collection, data analyses, and limitations of the study. Chapter four contains the results of the data analyses. Chapter five comprises a discussion of findings and conclusions as well as provides recommendations for future research.

Chapter Four

Results

This study examined the relationships between the independent variables and graduation outcome for students with disabilities as mediated by socioeconomic status through ten research questions. The previous three chapters provided background information, reviewed pertinent literature, presented the research questions, and described the methodology for this study. The purpose of chapter four is to present the results of the hypotheses testing.

Hypothesis Testing

This study examined the relationships between the independent variables and graduation outcome for students with disabilities as mediated by socioeconomic status in a Midwestern suburban school district. The students' level of special education placement was determined by the amount of time throughout the day spent in general education classes. The number of out of school suspensions was determined by the total number of days students were suspended from school starting with their sophomore year until leaving high school. The student's disability category was determined by which eligibility area the student met criteria in which qualified them for special education services. Student identification as over age for grade was determined by age during their sophomore year. Participants' results from the PLAN test administered during the sophomore year included categories of composite scores: 9 to 12, 13 to 15, and 16 to 32. The variable of socioeconomic status was determined by the qualification for free or reduced lunch. Presented next are the research questions, hypotheses formulated, and results from the analysis for each question.

R1. To what extent does the level of special education placement affect the graduation outcome of students identified with a disability?

H1. The level of special education placement affects the graduation outcome of students identified with a disability.

A two-way table (see Table 7) was constructed with level of placement as the row variable and graduation outcome as the column variable. To test Hypothesis 1, the researcher employed a chi-square test of independence. The level of significance for the hypothesis test was $\alpha = .05$. A chi-square test of independence compares observed numbers to numbers that would be expected by chance. The results of the analysis ($\chi^2 = 9.602$, $df = 3$, $p = .022$) indicated a statistically significant relationship between the level of placement and graduation outcome.

Table 7

Special Education Placement and Graduation Outcome

Placement	Graduation Outcome	Did Not Graduate	Graduated
Inside reg. class at least 80%	Observed	10	66
	Expected	16.2	59.8
Inside reg. class 40-79%	Observed	13	35
	Expected	10.2	37.8
Inside reg. class < than 40%	Observed	5	14
	Expected	4.1	14.9
Public separate day school	Observed	4	3
	Expected	1.5	5.5
Total		32	118

A larger number of students (66) than expected by chance (59.8) were inside the regular classroom more than 80% of the time and graduated. More students (13) than expected by chance (10.2) were inside the regular class 40-79% of the time and did not graduate. Likewise, more students (4) than expected by chance (1.5) were attending a public separate day school and did not graduate. The results supported Hypothesis 1.

R2. To what extent is the effect of the level of special education placement on graduation outcome of students identified with a disability mediated by socioeconomic status?

H2. The effect of level of special education placement on the graduation outcome of students identified with a disability is mediated by socioeconomic status.

To test Hypothesis 2, the three more restrictive placements, "inside the regular class 40-79% of the day", "inside the regular class less than 40% of the day", and "public separate day school", were collapsed into one category since there were not enough students in each category to conduct a reliable statistical test. The level of significance for the hypothesis test was $\alpha = .05$. Two-way tables (see Tables 8 and 9) were constructed differentiating students by high or low SES with level of placement as the row variable and graduation outcome as the column variable. To test Hypothesis 2, the researcher employed two chi-square tests of independence.

Table 8

Low SES Students, Placement, and Graduation Outcome

Placement	Graduation Outcome	Did Not Graduate	Graduated
Inside reg class at least 80%	Observed	12	20
	Expected	10.7	21.3
Other placements	Observed	2	8
	Expected	3.3	6.7
Total		14	28

The results of the first analysis ($\chi^2 = 1.050$, $df = 1$, $p = .306$) indicated that for low SES students there was not a statistically significant relationship between the level of special education placement and graduation outcome. Student placement did not impact graduation outcome for low SES students. These results did not support Hypothesis 2.

Table 9

High SES Students, Placement, and Graduation Outcome

Placement	Graduation Outcome	Did Not Graduate	Graduated
Inside reg class at least 80%	Observed	10	32
	Expected	7.0	35.0
Other placements	Observed	8	58
	Expected	11.0	55.0
Total		18	90

The results of the second analysis ($\chi^2 = 2.525$, $df = 1$, $p = .112$) indicated that for high SES students there was a marginally significant relationship between placement and graduation outcome. A greater number of students (10) than expected by chance (7) were inside the regular classroom more than 80% of the time and did not graduate. More students (58) than expected by chance (55) were in other placements and graduated. The results provided marginal support for Hypothesis 2.

R3. To what extent does the number of days of out of school suspensions affect the graduation outcome of students identified with a disability?

H3. The number of days of out of school suspensions affect graduation outcome of students identified with a disability.

A two-way table (see Table 10) was constructed with out of school suspensions as the row variable and graduation outcome as the column variable. To test Hypothesis 3, the researcher employed a chi-square test of independence. The level of significance for the hypothesis test $\alpha = .05$. The results of the analysis ($\chi^2 = 3.218$, $df = 1$, $p = .073$) indicated a marginally significant relationship between out of school suspension days and graduation outcome.

Table 10

Out of School Suspensions and Graduation Outcome

Out of School Suspension Days	Graduation Outcome	Did Not Graduate	Graduated
None	Observed	22	98
	Expected	25.6	94.4
One or more	Observed	10	20
	Expected	6.4	23.6
Total		32	118

Though not statistically different, a larger number of students (98) than expected by chance (94.4) had no days of out of school suspension and graduated. Table 10 indicates that more students (10) than expected by chance (6.4) had one day or more of out of school suspensions and did not graduate. The results provided marginal support for Hypothesis 3.

R4. To what extent does the number of days of out of school suspensions affect graduation outcome of students identified with a disability mediated by socioeconomic status?

H4. The effect of the number of days of out of school suspensions on graduation outcome of students identified with a disability is mediated by socioeconomic status.

Two-way tables (see Tables 11 and 12) were constructed differentiating students by low or high SES. For Tables 11 and 12, out of school suspension days served as the row variable and graduation outcome as the column variable. To test Hypothesis 4, the

researcher employed two chi-square tests of independence. The level of significance for

the hypothesis tests was $\alpha = .05$.

Table 11

Low SES Students, OSS Days, and Graduation Outcome

Out of School Suspension Days	Graduation Outcome	Did Not Graduate	Graduated
None	Observed	8	19
	Expected	9.0	18.0
One or more	Observed	6	9
	Expected	5.0	10.0
Total		14	28

The results of the first analysis ($\chi^2 = .467$, *df* = 1, *p* = .495) indicated that for low

SES students there was not a statistically significant relationship between the number of

out of school suspension days and graduation outcome. Out of school suspensions did

not impact graduation outcome for low SES students. The results did not support

Hypothesis 4.

Table 12

High SES Students, OSS Days, and Graduation Outcome

Out of School Suspension Days	Graduation Outcome	Did Not Graduate	Graduated
None	Observed	14	79
	Expected	15.5	77.5
One or more	Observed	4	11
	Expected	2.5	12.5
Total		18	90

The results of the second analysis ($\chi^2 = 1.254$, *df* = 1, *p* = .263) indicated that for high SES students there was not a statistically significant relationship between the number of out of school suspension days and graduation outcome. Out of school suspensions did not impact graduation outcome for high SES students. The results did not support Hypothesis 4.

R5. To what extent does the disability category affect the graduation outcome of students identified with a disability?

H5. The disability category affects the graduation outcome of students identified with a disability.

A two-way table (see Table 13) was constructed with disability category as the row variable and graduation outcome as the column variable. To test Hypothesis 5, the researcher employed a chi-square test of independence. The level of significance for the hypothesis test was α = .05. The results of the analysis ($\chi^2 = 22.465$, *df* = 3, *p* < .001)

indicated a statistically significant relationship between disability category and

graduation outcome.

Table 13

Disability Category and Graduation Outcome

Disability	Graduation Outcome	Did Not Graduate	Graduated
Emotionally Disturbed	Observed	10	8
	Expected	3.8	14.2
Learning Disability	Observed	17	45
	Expected	13.2	48.8
Other Health Impairment	Observed	3	47
	Expected	10.7	39.3
Other Categories	Observed	2	18
	Expected	4.3	15.7
Total		32	118

Table 13 results indicate that fewer students (8) than expected by chance (14.2)

were emotionally disturbed and graduated. More students (47) than expected by chance

(39.3) were identified as other health impaired and graduated. More students (17)

identified as having a learning disability did not graduate than would be expected by

chance (13.2). The results supported Hypothesis 5.

R6. To what extent is the effect of the disability category on graduation outcome

of students identified with a disability mediated by socioeconomic status?

H6. The effect of disability category on graduation outcome of students

identified with a disability is mediated by socioeconomic status.

Two-way tables (see Tables 14 and 15) were constructed differentiating students by low or high SES. For Tables 14 and 15, disability category served as the row variable and graduation outcome as the column variable. To test Hypothesis 6, the researcher employed two chi-square tests of independence. The level of significance for the hypothesis test was $\alpha = .05$.

Table 14

Low SES Students, Disability, and Graduation Outcome

Disability	Graduation Outcome	Did Not Graduate	Graduated
Emotionally Disturbed	Observed	3	4
	Expected	2.3	4.7
Learning Disability	Observed	10	12
	Expected	7.3	14.7
Other Health Impairment	Observed	0	6
	Expected	2.0	4.0
Other Categories	Observed	1	6
	Expected	2.3	4.7
Total		14	28

The results of the first analysis ($\chi^2 = 5.883$, $df = 3$, $p = .117$) indicated that for low SES students there was a marginally significant relationship between disability category and graduation outcome. Though not statistically different, fewer students (12) than expected by chance (14.7) were emotionally disturbed and graduated. More students (6) than expected by chance (4.7) were other health impaired and graduated. The results provided marginal support for Hypothesis 6.

Table 15

High SES Students, Disability, and Graduation Outcome

Disability	Graduation Outcome	Did Not Graduate	Graduated
Emotionally Disturbed	Observed	7	4
	Expected	1.8	9.2
Learning Disability	Observed	7	33
	Expected	6.7	33.3
Other Health Impairment	Observed	3	41
	Expected	7.3	36.7
Other Categories	Observed	1	12
	Expected	2.2	10.8
Total		18	90

The results of the second analysis ($\chi^2 = 21.319$, $df = 3$, $p < .001$) indicated that for high SES students there was a statistically significant relationship between disability category and graduation outcome. Results indicate that more students (7) than expected by chance (1.8) were emotionally disturbed and did not graduate. More students (41) than expected by chance (36.7) were identified as other health impaired and graduated. More students (12) than expected by chance (10.8) had disabilities in other categories and graduated. The results supported Hypothesis 6.

R7. To what extent does being over age for grade affect the graduation outcome of students identified with a disability?

H7. Being identified as over age for grade affects the graduation outcome of students identified with a disability.

A two-way table (see Table 16) was constructed with over age for grade as the row variable and graduation outcome as the column variable. To test Hypothesis 7, the researcher employed a chi-square test of independence. The level of significance for the hypothesis test was $\alpha = .05$.

Table 16

Over Age for Grade and Graduation Outcome

Over Age	Graduation Outcome	Did Not Graduate	Graduated
Yes	Observed	16	68
	Expected	17.9	66.1
No	Observed	16	50
	Expected	14.1	51.9
Total		32	118

The results of the analysis ($\chi^2 = .594$, $df = 1$, $p = .441$) indicated that there was not a statistically significant relationship between being over age for grade and graduation outcome. Being over age for grade did not impact graduation outcome. The results did not support Hypothesis 7.

R8. To what extent is the effect of being over age for grade on graduation outcome of students identified with a disability mediated by socioeconomic status?

H8. The effect of being over age for grade on graduation outcome of students identified with a disability is mediated by socioeconomic status.

Two-way tables (see Tables 17 and 18) were constructed differentiating students by low or high SES. For Tables 17 and 18, over age for grade served as the row variable and graduation outcome as the column variable. To test Hypothesis 8, the researcher

employed two chi-square tests of independence. The level of significance for the

hypothesis test was $\alpha = .05$.

Table 17

Low SES Students, Over Age for Grade, and Graduation Outcome

Over Age	Graduation Outcome	Did Not Graduate	Graduated
Yes	Observed	7	21
	Expected	9.3	18.7
No	Observed	7	7
	Expected	4.7	9.3
Total		14	28

The results of the first analysis ($\chi^2 = 2.625$, $df = 1$, $p = .105$) indicated that for low

SES students there was a marginally significant relationship between over age for grade

and graduation outcome. Results indicate that more students (21) than expected by

chance (18.7) were over age for grade and graduated. More students (7) than expected by

chance (4.7) were not over age for grade and did not graduate. The results provided

marginal support for Hypothesis 8.

Table 18

High SES Students, Over Age for Grade, and Graduation Outcome

Over Age	Graduation Outcome	Did Not Graduate	Graduated
Yes	Observed	9	47
	Expected	9.3	46.7
No	Observed	9	43
	Expected	8.7	43.3
Total		18	90

The results of the second analysis ($\chi^2 = .030$, $df = 1$, $p = .863$) indicated that for high SES students there was not a statistically significant relationship between over age for grade and graduation outcome. Being over age for grade did not impact graduation for students with high SES. The results did not support Hypothesis 8.

R9. To what extent do the PLAN composite scores affect the graduation outcome of students identified with a disability?

H9. The PLAN composite scores affect the graduation outcome of students identified with a disability.

A two-way table (see Table 19) was constructed with PLAN composite scores as the row variable and graduation outcome as the column variable. To test Hypothesis 9, the researcher employed a chi-square test of independence. The level of significance for the hypothesis test was $\alpha = .05$.

Table 19

PLAN Scores and Graduation Outcome

PLAN Composite Scores	Graduation Outcome	Did Not Graduate	Graduated
9-12	Observed	17	26
	Expected	9.2	33.8
13-15	Observed	8	58
	Expected	14.1	51.9
16 and above	Observed	7	34
	Expected	8.7	32.3
Total		32	118

The results of the analysis ($\chi^2 = 12.269$, $df = 2$, $p = .002$) indicated a statistically significant relationship between the PLAN composite scores and graduation outcome. More students (17) than expected by chance (9.2) had PLAN composite scores from 9 to 12 and did not graduate. More students (58) than expected by chance (51.9) had PLAN composite scores from 13 to 15 and graduated. The results supported Hypothesis 9.

R10. To what extent is the effect of the PLAN test scores on graduation outcome of students identified with a disability mediated by socioeconomic status?

H10. The effect of PLAN test scores on graduation outcome of students identified with a disability is mediated by socioeconomic status.

Two-way tables (see Tables 20 and 21) were constructed differentiating subjects by low or high SES. For Tables 20 and 21, PLAN composite scores was the row variable and graduation outcome was the column variable. To test Hypothesis 10, the researcher

employed two chi-square tests of independence. The level of significance for the

hypothesis test was $\alpha = .05$.

Table 20

Low SES Students, PLAN Scores, and Graduation Outcome

PLAN Composite Scores	Graduation Outcome	Did Not Graduate	Graduated
9-12	Observed	8	9
	Expected	5.7	11.3
13-15	Observed	4	16
	Expected	6.7	13.3
16 and above	Observed	2	3
	Expected	1.7	3.3
Total		14	28

The results of the first analysis ($\chi^2 = 3.141$, $df = 2$, $p = .208$) did not indicate a

statistically significant relationship between the PLAN composite scores and graduation

outcome for low SES students. The results did not support Hypothesis 10.

Table 21

High SES Students, PLAN Scores, and Graduation Outcome

PLAN Composite Scores	Graduation Outcome	Did Not Graduate	Graduated
9-12	Observed	9	17
	Expected	4.3	21.7
13-15	Observed	4	42
	Expected	7.7	38.3
16 and above	Observed	5	31
	Expected	6.0	30.0
Total		18	90

The results of the second analysis ($\chi^2 = 8.335$, *df* =2, *p* = .015) indicated a statistically significant relationship between the PLAN composite scores and graduation outcome for high SES students. More high SES students (9) than expected by chance (4.3) had PLAN composite scores ranging from 9 to 12 and did not graduate. More high SES students (42) than expected by chance (38.3) had composite scores ranging from 13 to 15 and graduated. The results supported Hypothesis 10.

Summary

Results from a chi-square test of independence indicated a statistically significant relationship between level of special education placement and graduation outcome. When mediated by socioeconomic status, the results indicated a statistically significant relationship between high socioeconomic status students and graduation outcome. Results from a chi-square test of independence indicated a marginally significant

relationship between out of school suspensions and graduation outcome. When mediated by socioeconomic status, results did not indicate a statistically significant relationship between out of school suspensions and graduation outcome. Results from a chi-square test of independence indicated a statistically significant relationship between disability category and graduation outcome. When mediated by socioeconomic status, results indicated a statistically significant relationship between students identified as high socioeconomic status and graduation outcome. Results from a chi-square test of independence did not indicate a statistically significant relationship between students over age for grade and graduation outcome. When mediated by socioeconomic status, results indicated a marginally significant relationship between students identified as low socioeconomic status and graduation outcome. Results from a chi-square test of independence indicated a statistically significant relationship between PLAN test scores and graduation outcome. When mediated by socioeconomic status, results indicated a statistically significant relationship between students identified as high socioeconomic status and graduation outcome. A study summary including an overview of the problem, purpose statement, review of methodology, and major findings of this study are reviewed in chapter five. Next, the findings are related to the literature. Finally, implications for action and recommendations for future research are included.

Chapter Five

Interpretation and Recommendations

Chapter one provided a rationale for the study including a statement of the problem, purpose statement, and significance of the study. Chapter two was comprised of a literature review that began with the history of special education, discussed various ways to define a dropout, and concluded by discussing specific studies about students with disabilities who drop out. In chapter three the research design, including the population and sample, instrumentation used, data collection, data analyses, and limitations were outlined. The results of the hypothesis testing were presented in chapter four. Chapter five summarizes the study, relates findings to the literature, directs implications for actions, and makes recommendations for future research.

Study Summary

Research has linked several factors to the likelihood of a student dropping out of high school. Factors consistently connected to dropouts include race, socioeconomic status, behavior issues, poor academic performance, retention, over age for grade, attendance, and special education qualification (Christle, Jolivette, & Nelson, 2007; Hammond et al., 2007; MacMillian, 1991; Pinkus, 2008). Similarly, researchers studying high school dropouts with disabilities have concluded the following factors influence dropout patterns: ethnicity, socioeconomic status, behavior, and gender (Christle, Jolivette, & Nelson, 2007; Wagner, 1991). The purpose of this study was to examine the extent of a relationship between graduation outcome and level of special education placement, out of school suspensions days, disability category, over age for grade, and

PLAN assessment results, for students with disabilities as mediated by SES in a Midwestern suburban school district.

Overview of the problem. Since the 1960s, the U.S. has been studying high school dropouts. Research regarding dropouts is extensive and ranges from studies on the effects of socioeconomic status (Brooks, 2010), block scheduling (Wilson, 2008), and reading level in middle school (Fountain, 2009), to identifying early warning data (Pinkus, 2008) and dropout risk factors (Hammond et al., 2007). According to Kortering and Braziel (1999) and Wolman, Bruininks, and Thurlow (1989), there are fewer studies focused on students with disabilities who drop out than those focused on their non-disabled peers. Research about high school dropouts with disabilities that focuses on educational placement as a predictor of graduation outcome is rare (Gonzalez, 2010; Landrum, Katsisyannis, & Archwamety, 2004) but important considering the impact laws such as Individuals with Disabilities Education Act (U.S. Department of Education, 2010) and No Child Left Behind (U.S. Department of Education, 2004) have had on students with disabilities.

Purpose statement and research questions. The purpose of this study was to examine the extent of a relationship between graduation outcome and level of special education placement, student characteristics, and PLAN assessment results for students with disabilities as mediated by socioeconomic status. The level of special education placement was determined by examining how much of a student's day was spent in the regular classroom. The socioeconomic status, which served as a mediator for other variables, was determined by the qualification for free or reduced lunch. The number of out of school suspensions was determined by counting the days a student was suspended

out of school. Special education disability category was determined by how a student

qualified for special education services. The variable of over age for grade was

determined if a student was 17 or older at any point during their sophomore year. In this

study the results of the PLAN test was utilized as a measure of academic achievement.

Finally, graduation outcome was identified by the completion or noncompletion of high

school graduation requirements.

Review of the methodology. The research design was non-experimental and

quantitative. It involved data analysis utilizing preexisting data. The population

consisted of students enrolled in high school in the target district and identified as having

a disability. Students in the sample were enrolled as a sophomores during the 2007-2008,

2008-2009, or 2009-2010 school years, and identified as eligible for and receiving special

education services. The variables of interest in this study included level of special

education placement, socioeconomic status, number of days suspended, disability

category, over age for grade, results on the PLAN assessment, and graduation outcome.

Data were collected through the district's data warehouse, organized into a spreadsheet,

and uploaded into Statistical Package for the Social Sciences (SPSS) for analysis. Chi-

square tests of independence were used to identify statistically significant relationships.

Major Findings

Results of this study indicated a statistically significant relationship between level

of special education placement and graduation outcome; however, when the relationship

was mediated by socioeconomic status the results were mixed. No statistically

significant relationship was found between level of special education placement and

graduation outcome among students identified as high socioeconomic status, and a

marginal relationship was found among students identified as low socioeconomic status. The results indicated a marginally significant relationship between out of school suspensions and graduation outcome, but when the relationship was mediated by socioeconomic status, results did not indicate a statistically significant relationship between out of school suspension and graduation outcome. The study results indicated a statistically significant relationship between disability category and graduation outcome. When the relationship between disability category and graduation outcome was mediated by socioeconomic status, a statistically significant relationship was found for high socioeconomic status students and a marginally significant relationship for low socioeconomic status students. There was not a statistically significant relationship indicated between the variable of over age for grade and graduation outcome. Regarding the extent of a relationship between students over age for grade and graduation outcome mediated by socioeconomic status, the results revealed a marginally significant relationship of the low socioeconomic status student group. Finally, results from this study indicated a statistically significant relationship between PLAN test scores and graduation outcome, but when mediated by socioeconomic status, results were mixed.

Findings Related to the Literature

The statistically significant relationship between the level of special education placement and graduation outcome revealed by the results of this study contrast with research conducted by Wagner (1991), Gonzalez (2010), and Goodman et al. (2011), which revealed no significant relationships between percentage of time in a regular education classroom and probability of dropping out. Goodman et al. (2011) examined records of students with mild disabilities to determine the relationship between time in

the regular classroom and graduation outcome. Study results indicated that though the number of students served in the regular classroom increased over the six-year span, the overall graduation rate of students with disabilities stayed stable or slightly decreased. Wagner (1991), and Gonzalez (2010) found that students who spent less time in regular education were less likely to fail classes.

In contrast, the study conducted by Landrum et al. (2004) revealed ED students in a more restrictive setting to be more successful completing high school and receiving a diploma. Though the present study's results indicated a statistically significant relationship between placement and graduation outcome, caution is warranted when relating these results to the study conducted by Landrum et al. (2004) for several reasons. The Landrum et al. (2004) study focused solely on students with an emotional disturbance whereas the present study examined data from many disability categories. Another caution when comparing results lies in the placement of students. The present study found that students in the least restrictive environment, inside the regular class at least 80% of the time, had the best graduation outcome and students served in the most restrictive environment, public separate day facility, were less likely to graduate.

In the present study, socioeconomic status was utilized as a mediator between other variables and was not tested independently. A significant relationship was found between disability category and graduation outcome for students from the high socioeconomic status subgroup. A statistically significant relationship was not found between disability category and graduation outcome for students from the low socioeconomic status subgroup. Results also indicated a significant relationship between PLAN assessment results and graduation outcome for students from the high

socioeconomic status subgroup. The results of the present study contrast with those from earlier studies (Laird et al., 2008; Newman et al., 2011; Wagner, 1991), which linked low socioeconomic status and dropout rate. The studies by Laird et al. (2008), Newman et al., (2011), and Wagner (1991) cannot be compared precisely to the present study because they examined socioeconomic status as a predictor of graduation outcome and the present study did not.

Out of school suspensions and graduation outcome were examined in the present study. Results from the hypotheses testing indicated a marginally significant relationship between out of school suspensions and graduation outcome. The findings of the present study are somewhat similar to literature reviewed in chapter two. Hammond et al. (2007), Reschley and Christenson (2006), Wagner (1991), and Zablocki (2009) found school behavior strongly related to graduation outcome. Wagner (1991) using NLTS data found that students with disciplinary problems were more likely to drop out (28%) than students without disciplinary issues (4%). Zablocki (2009) revealed results that indicated odds of dropping out increased by 270% for students suspended or expelled in high school. Though the results of the present study were not as strong as those in the literature, the findings were somewhat similar.

Another variable examined in this study was disability category. The results from the hypothesis testing indicated a statistically significant relationship between disability category and graduation outcome. The present study's results align with results from the study using NLTS data conducted by Wagner (1991), which indicated a statistically significant relationship between disability category and graduation. Butler-Nalin and Padilla (1998) and Zablocki (2009) presented results that indicated a significant

relationship between disability category, specifically ED, and graduation outcome. The results from the study by Goodman et al. (2011) indicated that students identified as MR/ID were the least likely to graduate followed by students identified as ED.

The present study also examined the variable over age for grade. The results of the hypotheses testing did not indicate a statistically significant relationship between the variable over age for grade and graduation outcome. In contrast to the present study's results, Reschley and Christenson's (2006) data indicated that repeating a grade was the strongest predictor of dropping out. Utilizing data from the NLTS, Wagner (1991) found that students who repeated a grade were more than twice as likely to drop out. The results of the present study regarding repeating a grade or being older than peers do not align with previous studies.

Results indicated a statistically significant relationship between PLAN test scores and graduation outcome. No previous studies were found comparing PLAN scores and graduation outcome for students with disabilities. Due to the lack of research in this area, the findings from the present study cannot be compared to previous studies.

There were mixed results when comparing the findings of the present study to the reviewed literature. The results of the present study aligned with reviewed literature indicating a statistically significant relationship when examining disability category and graduation outcome. Concerning relationships between both socioeconomic status and out of school suspensions relating to graduation outcome, the present study somewhat aligned with the reviewed literature. In contrast to the reviewed literature, the results of the present study did not find statistically significant relationships between either special

education placement and graduation outcome or over age for grade and graduation

outcome.

Conclusions

The results indicate that graduation outcome for students with disabilities is

impacted by their level of special education placement, disability category, and PLAN

assessment results. The impact of socioeconomic status as a mediating factor could not

be definitively determined using the results of the present study. In the next section,

implications for action are made, followed by recommendations for future research and

concluding remarks.

Implications for action. Results from this study indicated that for students with

disabilities, level of placement influences their graduation results. It may benefit the

target district to continue to collect data regarding students' level of placement and

graduation outcome. According to the results of the present study students who were in

the least restrictive environment, inside the regular classroom 80% or more of the day,

were the most likely to graduate. These findings suggest the target district should

continue to place students in the regular education classroom for as much of the school

day as possible.

A marginally significant relationship was found between the number of out of

school suspensions and graduation outcome. The results of the present study differed

from the previous literature in which there was a strong relationship between negative

school behavior and graduation outcome. The present study examined data from three

separate cohorts of students beginning their sophomore year until they left high school,

and included 150 students with disabilities. Studies in the body of literature included

student sample sizes from 1,498 to more than 11,000 participants and spanned as many as five years in length. Since the present study's sample size was smaller and the length of study shorter than those in the literature, it may be beneficial for the target district to continue to collect data and monitor the extent of the relationship between out of school suspensions and dropouts.

Results from the present study indicated a statistically significant relationship between disability category and graduation outcome. Students identified as ED and LD did not graduate with numbers as high as would be expected. The target district should examine research studies regarding successful programs for ED and LD students. It may also be beneficial for the target district to examine programs for ED and LD students in districts similar and replicate those programs to improve graduation probability for those students.

This study's results did not indicate a statistically significant relationship between the variable of over age for grade and graduation outcome. Again, the relatively small sample size and shorter duration of the present study may account for the contrast from results found in the literature. The target district should continue to collect data regarding students who are over age for grade and monitor their graduation outcome.

A statistically significant relationship was found between the PLAN assessment results and graduation outcome. The target district should continue to collect data regarding PLAN assessment results and graduation outcome for future cohorts. This data will add to the body of information presented in the present study and can be used to identify students with disabilities at risk of dropping out.

Recommendations for future research. After an examination of the results of this study, the researcher recommends that a subsequent study be conducted that expands the sample size. One way to accomplish this would be examining data from additional cohort years from the target district. The number of students included in the present study (n = 150) was small when compared to the sample size of studies in the literature, which ranged from 1,498 to over 11,000. A larger sample size would allow for more students in each category, which would increase the study's validity and reliability.

Another recommendation for future research is to add surveys for students, teachers, and parents. This would allow for the examination of perceptions of the various groups and for the comparison of those perceptions to graduation outcome, relating the methodology more closely to NLTS and NLTS2. Adding these surveys would allow the district to gain valuable information concerning the perceptions of teachers in the district regarding students with disabilities served in general education classrooms. The NLTS2 study surveys asked teachers questions about the number of modifications provided and participation level of students with disabilities (Newman, 2006). Parent information from surveys included in NLTS2 provides information relating to the school experiences of their child and detailed information about their family life (NLTS2: Frequently asked questions, 2010). The NLTS2 student surveys included questions related to academic coursework, self-concept, and their perception of school and learning (NLTS2: Frequently asked questions, 2010). The addition of the surveys in a future study would provide the district with a more global perspective of their special education program.

A subsequent study could be completed that focuses on other potential mediators regarding students with disabilities and graduation outcome. Similar to the study

completed by Wilson (2008), a study that examines block scheduling and graduation

outcome would provide the district with data to compare to studies completed regarding

nondisabled peers. Fountain (2009) conducted a study of regular education students that

focused on the reading levels in middle school as a predictor of graduation outcome. The

district could replicate this study using information from students with disabilities and

add to the body of predictors of graduation.

     Concluding remarks. Among developed countries, the United States in 2011

ranked 21st for high school graduation (Alliance for Excellent Education [AEE], 2011).

School attrition in the United States influences individuals and society at a national level

resulting in dropouts who are more likely to be incarcerated, unemployed, and rely on

welfare or some other form of public assistance (Monrad, 2007; Sum et al., 2009). Of the

population who drop out, students with disabilities continue to do so at a rate nearly

double that of their nondisabled peers (Chatman, Laird, Ifill, & KewalRamani, 2011).

Using characteristics to identify and provide support for students at risk of dropping out

through prevention programs may further decrease the dropout rate for students with

disabilities.

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Appendices

Appendix A: Baker University Proposal for Research

BAKER
UNIVERSITY

Date: 9/28/2012

SCHOOL OF EDUCATION
GRADUATE DEPARTMENT

IRB PROTOCOL NUMBER _____
(IRB USE ONLY)

IRB REQUEST
Proposal for Research
Submitted to the Baker University Institutional Review Board

I.　　　Research Investigator(s) (Students must list faculty sponsor first)

Department(s)　　　<u>School of Education Graduate Department</u>

Name	Signature
1.　Dr. Patricia Bandre	*Patricia Bandre'*　Major Advisor
2. Margaret Waterman	*Margaret Waterman*　Research Analyst
3.	University Committee Member
4.	External Committee Member

Principal Investigator:　Celeste Ortega　*Celeste Ortega*
Phone: ███████████████████████
Email: ██████████████████████
Mailing address:　████████████████████████

Faculty sponsor:　Dr.　Patricia Bandre
Phone: ██████████████████
Email: Patricia.Bandre@bakeru.edu

Expected Category of Review: _X_ Exempt ___ Expedited _ _Full

II: Protocol:　(Type the title of your study)

Level of Special Education Placement, Demographic Information, and PLAN
Assessment Results as a Predictor of Graduation Outcome for Students with Disabilities

Summary

In a sentence or two, please describe the background and purpose of the research.

There is a great deal of research available regarding high school dropouts (Brooks, 2010; Fountain, 2009; Hammond et al., 2007; Pinkus, 2008; Walker, 2008; Wilson, 2008) but the number of studies that focus on students with disabilities who drop out are much fewer (Kortering & Braziel, 1999; Wolman, Bruininks, & Thurlow, 1989). Research in the area of high school dropouts with disabilities and educational placement as a predictor of graduation is even more rare (Gonzalez, 2010; Landrum, Katsisyannis, & Archwamety, 2004). The lack of research regarding the relationship between students with disabilities, special education placement, and dropouts led the researcher to this study.

Briefly describe each condition or manipulation to be included within the study.

The independent variables utilized are a student's level of special education placement, socioeconomic status, number of days suspended, disability category, over age for grade, and results on the PLAN assessment, a test given by districts to predict students' performance on the ACT test (ACT, 2011). The student's graduation outcome, whether or not the student met high school graduation requirements, is the dependent variable.

What measures or observations will be taken in the study? If any questionnaire or other instruments are used, provide a brief description and attach a copy.
Will the subjects encounter the risk of psychological, social, physical or legal risk? If so, please describe the nature of the risk and any measures designed to mitigate that risk.

This study will measure the relationships between a student's level of special education placement, socioeconomic status, number of days suspended, disability category, over age for grade, results on the PLAN assessment, and graduation outcome.

Due to the use of archival data, the subjects would not encounter any psychological, social, physical, or legal risks.

Will any stress to subjects be involved? If so, please describe.

Due to the use of archival data, there will be no stress to subjects.

Will the subjects be deceived or misled in any way? If so, include an outline or script of the debriefing.

The subjects will not be deceived or misled in any way; therefore, a debriefing session will not be necessary.

Will there be a request for information which subjects might consider to be personal or sensitive? If so, please include a description.

Some subjects may consider information collected (graduation outcome, special education identification, free/reduced lunch status, discipline, over age for grade, or PLAN assessment results) as sensitive and personal information. Individual students will remain anonymous due to the use of assigned numbers and summarized data.

Will the subjects be presented with materials which might be considered to be offensive, threatening, or degrading? If so, please describe.

The subjects will not be presented information that may be considered offensive, threatening, or degrading.

Approximately how much time will be demanded of each subject?

Due to the use of archival data, there will be no time demanded of subjects.

Who will be the subjects in this study? How will they be solicited or contacted? Provide an outline or script of the information which will be provided to subjects prior to their volunteering to participate. Include a copy of any written solicitation as well as an outline of any oral solicitation.

No participants were contacted or solicited for participation. The subjects of this study include high school students from a Midwestern suburban district (i.e., the target district) who began their 10th grade year in 2007, 2008, or 2009, were identified as having a disability, received special education services, and took the PLAN assessment. The researcher will present the target district a list of qualifiers to assist in creating a report for the data warehouse to pull raw study data for analyses.

What steps will be taken to insure that each subject's participation is voluntary? What if any inducements will be offered to the subjects for their participation?

Participation is not requested because this study uses archival data, available to the researcher as an employee of the target district. PLAN assessments are not voluntary as they are part of the school district's board approved assessments and are part of the district's mandated assessment schedule. No inducements will be offered to the participants.

How will you insure that the subjects give their consent prior to participating? Will a written consent form be used? If so, include the form. If not, explain why not.

No consent will be needed as this study will be using archival data.

Will any aspect of the data be made a part of any permanent record that can be identified with the subject? If so, please explain the necessity.

The data retrieved for this study is part of the subject's permanent record kept in the target district's data warehouse. None of the findings from the study will be included in the student's permanent records.

Will the fact that a subject did or did not participate in a specific experiment or study be made part of any permanent record available to a supervisor, teacher or employer? If so, explain.

No record of a subject's participation or non-participation in this study will be documented.

What steps will be taken to insure the confidentiality of the data? Where will it be stored? How long will it be stored? What will be done with it after the study is completed?

To ensure the confidentiality of data, only the researcher and research analysts will have access to the researcher's computer and data. Data used for the study will be uploaded to SPSS using student identification numbers and stored on the researcher's password protected computer. The data from this study will be kept the required three years before being destroyed.

If there are any risks involved in the study, are there any offsetting benefits that might accrue to either the subjects or society?

No risks have been identified in conjunction with this study. The results of the study will provide information regarding relationships between students' level of special education placement, student characteristics, PLAN assessment results, and graduation outcome for students with disabilities as mediated by socioeconomic status. Results from the study will extend the target district's knowledge of characteristics of students with disabilities who drop out. The practical application is to provide data to support the identification of students with disabilities for entry into dropout prevention programs. Early identification of potential dropouts can allow the target district to put preventative measures in place.

The results of this study will increase the body of literature related to students with disabilities and graduation outcome.

Will any data from files or archival data be used? If so, please describe.

Data for this study (i.e., graduation outcome, special education identification, free/reduced lunch status, discipline, over age for grade, and PLAN assessment results) will be retrieved from Power School, the target district's data warehouse, which also provides information to the Missouri Department of Elementary and Secondary Education (DESE).

This study examines the relationships between the level of special education placement, student characteristics, PLAN assessment results, and graduation outcome for students with disabilities.

Appendix B: Baker University IRB Approval Letter

October 5, 2012

Celeste Ortega

Dear Ms. Ortega:

The Baker University IRB has reviewed your research project application (M-0149-0928-1004-G) and approved this project under Exempt Review. As described, the project complies with all the requirements and policies established by the University for protection of human subjects in research. Unless renewed, approval lapses one year after approval date.

The Baker University IRB requires that your consent form must include the date of approval and expiration date (one year from today). Please be aware of the following:

1.   At designated intervals (usually annually) until the project is completed, a Project Status Report must be returned to the IRB.
2.   Any significant change in the research protocol as described should be reviewed by this Committee prior to altering the project.
3.   Notify the OIR about any new investigators not named in original application.
4.   Any injury to a subject because of the research procedure must be reported to the IRB Chair or representative immediately.
5.   When signed consent documents are required, the primary investigator must retain the signed consent documents for at least three years past completion of the research activity. If you use a signed consent form, provide a copy of the consent form to subjects at the time of consent.
6.   If this is a funded project, keep a copy of this approval letter with your proposal/grant file.

Please inform Office of Institutional Research (OIR) or myself when this project is terminated. As noted above, you must also provide OIR with an annual status report and receive approval for maintaining your status. If your project receives funding which requests an annual update approval, you must request this from the IRB one month prior to the annual update. Thanks for your cooperation. If you have any questions, please contact me.

Sincerely,

Carolyn Doolittle, EdD
Chair, Baker University IRB

Appendix C: Suburban School District IRB Proposal and Approval

October 18, 2012

Dear Ms. Ortega:

Per ~~~~~~~~~~~~~~~ Board Policy, external agencies or individuals desiring to conduct research studies involving either students or staff members during the school day must submit a written prospectus to the Superintendent, or designee, for approval prior to initiation of the study. To be approved, all such research proposals must demonstrate that the projected findings will have value to either the District as a whole or to a unit within the District, and not be unduly disruptive or time consuming to the normal educational process.

The ~~~~~~~~~~~~~~~~~~~~~~~~~~~ recognizes the importance of research as a means of improving the instructional program for the District's students and also recognizes the need to monitor and control the amount of time and energy expended by both staff and students on research projects.

I have had the opportunity to review the prospectus for the research project entitled *Level of Special Education Placement, Demographic Information, and PLAN Assessment Results as Predictors of Graduation Outcome for Students with Disabilities*. It is my pleasure to approve the project *Level of Special Education Placement, Demographic Information, and PLAN Assessment Results as Predictors of Graduation Outcome for Students with Disabilities* and the use of relevant ~~~~~~~~~~~~~~~ data, classrooms and students within the project. I find the project to have value to the district, support the goals of the district, and not be unduly disruptive or time consuming to the educational process.

Please contact me if you have any questions.

Cordially,

Director of Research, Evaluation, & Assessment

Research Checklist and Approval

Date: _____10/09/2012_____

Submitted to: Director of Research, Evaluation & Assessment

Submitted by: _____Celeste M. Ortega_____

Research Proposal Title:___ Level of Special Education Placement, Demographic Information, and PLAN Assessment Results as Predictors of Graduation Outcome for Students with Disabilities_____

Principal Investigator(s):__Celeste M. Ortega_____

Checklist

☑ Completed "Application to Conduct Research in

☐ Copy of "Informed consent" letter to study population/parents (Not Applicable)

☑ Copies of measurement instruments

☑ Approval from university human subjects committee (IRB) if applicable

☑ Three (3) copies of your complete application package (e-mailed)

Approval of this research is contingent on adherence to district procedures as outlined in the document entitled "Application to Conduct Research" and the information provided with the application. The district must be notified of any substantive changes to the information contained in the application. The district reserves the right to withdraw approval of research if the research is deemed to no longer be in the best interests of the students, staff, or the district.

Research Application: ☑ Approved ☐ Denied Date: _10/18/2012_

Signatures ▇▇▇▇▇▇▇▇▇▇▇▇▇▇▇▇▇
_____
Director of Research, Evaluation, and Assessment

_____
Principal

_____
Principal

_____
Principal

Application to Conduct Research

Name **Celeste M. Ortega**	Organization	Department **Special Education - Diagnostician**		
Address		City	State	Zip Code
Phone Number	Fax Number		E-mail **ortegac**	

I have read and understand the process of application to conduct research in the _____ District. I also verify that the information provided in this application is accurate to the best of my knowledge.
 	
_____
Signature   Date
	Is this study part of your work for a degree?
	     ☑ Yes ☐ No
	If Yes, complete the following:
	     ☐ Ph.D. ☑ Ed.D. ☐ M.A./M.S
	     ☐ Undergraduate ☐ Other
	University or College__**Baker University**____
	Date of IRB Approval (or date of application if pending)____**10/05/2012**_____
	Advisor's Name__**Dr. Patricia Bandre**_____
	Advisor's Telephone Number__**913-**_

Attach a concise, yet thorough, response to each of the following items.

1) **Title and purpose of study**
2) **Timeline**
   When do you plan to start your study? What is the estimated total length of time?
3) **Benefits to the district**
   How will this study benefit the   School District?
4) **Research Design Summary**
   Give specific information on the methods to be used during the course of the study. Please include your research questions, instruments, sampling and data collection methodologies, and proposed analyses. Samples of instruments may include survey questions, observation forms, and interview questions. Finally, describe any tasks students or staff will be asked to complete. Describe procedures you will use to secure and acknowledge informed consent of all participants, including active or passive consent. If passive, please provide a rationale. Please attach copies of any letters. Outline how subjects will be identified and criteria used for recruitment, who will make the initial contact with subjects, and whether or not inducements will be used to secure participation.
5) **Assurance of anonymity of   students & staff**
   How will the anonymity of   students and staff be protected?
6) **Risks of the research**
   List any known risks of the proposed investigation to students, staff, or the district.
7) **District involvement**
   What request are you making of the   District and the Director of Research, Evaluation, and Assessment? Specify numbers of students and staff to be involved, length of time, and time line for completion of your investigation.
8) **Funding Sources**
9) **IRB approval**
   If applicable, give the date and copy of IRB approval letter, or application if IRB review is in process.   District will not allow study to begin until we have an approval letter on file.

Title and purpose of study

Title

Level of Special Education Placement, Demographic Information, and PLAN Assessment Results as Predictors of Graduation Outcome for Students with Disabilities

Purpose

There is a great deal of research available regarding high school dropouts (Brooks, 2010; Fountain, 2009; Hammond et al., 2007; Pinkus, 2008; Walker, 2008; Wilson, 2008) but the number of studies that focus on students with disabilities who drop out are much fewer (Kortering & Braziel, 1999; Wolman, Bruininks, & Thurlow, 1989). Research in the area of high school dropouts with disabilities and educational placement as a predictor of graduation is even more rare (Gonzalez, 2010; Landrum, Katsisyannis, & Archwamety, 2004). The lack of research regarding the relationship between students with disabilities, special education placement, and dropouts led the researcher to this study.

According to Pinkus (2008), the detection of accurate early warning signs can help school districts focus their resources in order to lessen the dropout rate. The purpose of this study was to examine the relationship between the level of special education placement, student characteristics, PLAN assessment results, and graduation outcome for students with disabilities as mediated by socioeconomic status in a Midwestern suburban school district.

2) Timeline

The study will use archival data from the district's data warehouse. Only students enrolled in grades 10 through 12 during the timeframe of 2007-2012 will be included in this study. Study participants were identified as special education students who receive services and attend one of the target district's two high schools or the target district's therapeutic day school during the above timeframe.

3) Benefits to the district

The results of this study will provide information regarding relationships between students' level of special education placement, student characteristics, PLAN assessment results, and graduation outcome for students with disabilities as mediated by socioeconomic status. Results from this study will extend the target district's knowledge of characteristics of students with disabilities who drop out. The practical application is to provide data to support the identification of students with disabilities for entry into dropout prevention programs. Early identification of potential dropouts will allow the target district to put preventative measures in place. The results of this study will increase the body of literature related to students with disabilities and graduation outcome.

4) Research Design Summary

Research Questions:

The following research questions guided this study. The focus was to examine relationships between student special education placement, student characteristics, and student graduation outcome of students with disabilities.

To what extent does the level of special education placement affect the graduation outcome of students identified with a disability?

To what extent is the effect of the level of special education placement on graduation outcome of students identified with a disability mediated by socioeconomic status?

To what extent do out of school suspensions affect the graduation outcome of students identified with a disability?

To what extent is the effect of out of school suspensions on graduation outcome of students identified with a disability mediated by socioeconomic status?

To what extent does the disability category affect the graduation outcome of students identified with a disability?

To what extent is the effect of the disability category on graduation outcome of students identified with a disability mediated by socioeconomic status?

To what extent does being over age for grade affect the graduation outcome of students identified with a disability?

To what extent is the effect of being over age for grade on graduation outcome of students identified with a disability mediated by socioeconomic status?

To what extent do the results of the PLAN test affect the graduation outcome of students identified with a disability?

To what extent is the effect of the PLAN test scores on graduation outcome of students identified with a disability mediated by socioeconomic status?

Measures Used During the Study

The independent variables utilized were a student's level of special education placement, socioeconomic status, number of days suspended, disability category, over age for grade, and results on the PLAN assessment, a test given by districts to predict student performance on the ACT test (ACT, 2011). The student's graduation outcome, whether or not the student met high school graduation requirements, was the dependent variable.

Subject Participation

Participation is not requested because this study uses archival data. No participants were contacted or solicited for participation. The subjects of this study include high school students from the   District who began their 10th

grade year in 2007, 2008, or 2009, were identified as having a disability, received special education services, and took the PLAN assessment. PLAN assessments are not voluntary as they are part of the school district's board approved assessments and are part of the district's mandated assessment schedule. No inducements will be offered to the participants.

Subject Identification

Individual students will remain anonymous due to the use of assigned numbers and summarized data. To ensure the confidentiality of data, only the researcher and research analysts will have access to the researcher's computer and data. Data used for the study will be uploaded to SPSS using student identification numbers and stored on the researcher's password protected computer. The data from this study will be kept the required three years before being destroyed.

5) Assurance of anonymity of   students & staff

Individual students will remain anonymous due to the use of assigned numbers and summarized data. No students will be identified by name or identifying marker throughout the study. The district will be referred to as the target district.

6) Risks of the research

No risks have been identified in conjunction with this study. The results of the study will provide information regarding relationships between students' level of special education placement, student characteristics, and graduation outcome for students with disabilities as mediated by socioeconomic status. Results from the study will extend the target district's knowledge of characteristics of students with disabilities who drop out. The practical application is to provide data to support the identification of students with disabilities for entry into dropout prevention programs. Early identification of potential dropouts can allow the target district to put preventative measures in place. The results of this study will increase the body of literature related to students with disabilities and graduation outcome.

7) District involvement

The district involvement in this study will consist of providing the researcher with the data required to complete the study. There is no foreseeable need for more than guidance provided to the principal investigator by the Director of Research, Evaluation, and Assessment.

8) Funding Sources

This study requires no funding sources as the data required to complete the study is available through the district's data warehouse, PowerSchool.

9) IRB approval

IRB approval was granted by Baker University on October 5, 2012.