AN INVESTIGATION OF THE RELATIONSHIPS AMONG RACIAL FRACTIONALIZATION, SCHOOL DISTRICT RESOURCES, AND SPECIAL EDUCATION IDENTIFICATION, PRACTICES, AND OUTCOMES

BY

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DISSERTATION

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Abstract

Despite the manner in which special education services have evolved in the United States, research suggests that special education services disproportionately label and segregate minority students, often rely upon practices that have weak relationships to outcomes, and only increase the achievement gap between students with and without disabilities. As school districts represent increasingly diverse populations, leaders must be prepared to serve all of the students in an equitable manner. By considering the relationships among diversity, resources, and special education practices, school leaders may be better prepared to serve the multiple needs present within their communities in an equitable manner.

The purpose of this study was to examine the relationship among racial fractionalization, school district resources, and special education identification, proportionality, and outcomes in Illinois school districts. The fractionalization index (Alsesina & Glaeser, 2009) provides researchers with one way to quantify diversity and examine the relationship between a population's heterogeneity and the provision of public resources. This study investigated the relationship between school district diversity, as measured through the fractionalization index, and special education patterns in Illinois school districts, along with district wealth and funding effort. Data were analyzed using descriptive statistics in order to explore the study variables in depth as well as consider which variables related to one another.

Findings demonstrated that in some aspects of special education identification, placement, and outcomes, there is a relationship with racial fractionalization. The fractionalization index also related to districts' wealth and resources, and negatively correlated to district effort. The percent of low income students was seen as a predictive variable when considering many of the dependent variables, including special education identification, placement, and outcomes. The

findings of this study suggest that the vast variability which is present in the resources and student demographics of Illinois school districts can also be seen in the special education experiences of students with disabilities, including the risk of disability identification, placement in general education, and student outcomes.

Dedicated to Connor Davy Bowers

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Chapter One: Introduction

In order to meet the needs of children and young adults with disabilities, special education is often recognized as a way to help these students overcome their deficits, develop essential skills, and maximize their capacity to succeed in life. However, despite this perception, numerous studies indicate that special education is often host to a myriad of problems that contribute to the marginalization of students with disabilities. Despite the ongoing proposals and strategies for improvement, practices and outcomes for students with disabilities vary significantly among public school districts. Segregation into separate classrooms, instruction from ill-prepared teachers, and negative post-school outcomes occur widely across America, according to numerous studies. Research suggests that special education identification, practices, and outcomes vary greatly based on a number of student patterns and factors.

Educational services for children with disabilities have evolved significantly over hundreds of years in America, from institutional settings to segregated schools and classrooms, to a movement for more inclusive practices (Crockett, 2002; Winzer, 1993; Shapiro, 1993; Skiba et al., 2008). Currently, public schools in America are required to provide all students with disabilities a free and appropriate education in the least restrictive environment (Skiba et al., 2008; U.S. Department of Education). Despite this evolution and government mandate, American public schools are routinely criticized for special education practices with problematic identification procedures, low-quality educational methods, and poor student outcomes. When considering special education services, it is critical that three components are evaluated: the identification procedures

(who is being identified as having a disability), the practices (what services are provided and where these services are taking place), and outcomes (how students are performing on tests, and what occurs once the students are out of school).

Abundant studies over the past several decades identify a relationship between a student's race, ethnicity, and socioeconomic status and special education identification practices (Coutinho & Oswald, 2000; Macmillan & Reschly, 1998; Coutinho, Oswald, & Best, 2002; Artiles, Harry, Reschly, & Chinn, 2002; Knotek, 2003; Hosp & Reschly, 2004; Ferri & Connor, 2005; Sullivan & Artiles, 2011). For example, many studies have concluded that African American students are far more likely than their White peers to be identified with two specific educational disabilities: intellectual (mental retardation) and emotional. Since 1970, the United States Office for Civil Rights has acknowledged the overrepresentation of minority students in certain special education categories, predominantly intellectual disability and emotional disability (Coutinho & Oswald, 2000; Artiles et al., 2002; Ferri & Connor, 2005; Artiles, Rueda, Salazar, & Higareda, 2005).

Educational services and practices, including the quality and location of services, are often tied to students' races, economic conditions, and available local resources. While the overall rate of placement into a segregated, self-contained classroom for children with disabilities continues to be very high, it is significantly higher for African American students than European American students with the same disabilities (Serwatka, Deering, & Grant, 1995; Cartledge, 2005). African American students are more often relocated into segregated placements and classrooms, where they are separated from White peers and students without disabilities (Zion & Blanchett, 2011). Through over-

identifying and excluding students of color from general education, special education only contributes to the continued segregation of public schools (Ferri & Connor, 2005).

Research suggests that outcomes for many students with disabilities, regardless of race, often reflect limited educational attainment and few options for adulthood, but Black students with disabilities fare much worse. All students with disabilities receiving special education services, regardless of race, are more likely to drop out of school than their peers and more likely to experience lower teacher expectations than their peers without disabilities (Ferri & Connor, 2005). African American students are marginalized through school discipline practices that impart suspensions at a rate much higher than their White peers, leading to less access to the classroom and resulting in higher dropout rates. A number of studies that examined school discipline have found that African American students are disproportionately suspended and expelled from school for discipline problems (Skiba et al., 2000; Booker & Mitchell, 2011).

Numerous studies conclude that outcomes for students in special education are dire, with low achievement levels, low rates of school completion, and high dropout rates (Artiles, Harry, & Chamberlain, 2005). Through a higher representation in special education, African American students identified as having disabilities are marginalized and their futures are limited.

While students with disabilities are represented in every public school district, the services and outcomes for this subgroup of students vary greatly. As diversity has the potential to present both benefits and challenges to schools and communities, it also often requires a change in resources and educational practices. Each Illinois school district

represents a different balance of student characteristics. One way to measure this balance is through the fractionalization index, which has been used within many studies to understand and quantify a group's heterogeneity and better examine the relationship between diversity and the use of public resources (Alsesina & Glaeser, 2009).

The fractionalization index can provide researchers with a quantifiable method of evaluating a population's heterogeneity. With this value, researchers are afforded the opportunity to examine the relationship between diversity and other factors, including economic performance, conflict, school resources, and student performance (Feddereke, Luiz, & de Kadt, 2008; Alesina & Glaeser, 2009; Alesina & La Ferrarra, 2005; Rodrik, 1999; Lind, 2007). Through the use of this index, the effect of heterogeneity on institutional or societal practices and outcomes can be evaluated.

Statement of the Problem

Despite the growth made in services and supports for students with disabilities, research indicates that special education services disproportionately label and segregate minority students, rely upon practices that have weak relationships to outcomes, and only increase the achievement gap between students with and without disabilities.

Numerous researchers have concluded that minority students are over-identified as having disabilities when compared to their White peers. At the same time, there is a great disparity in special education practices and services for students that is based on race, socioeconomic status, and district resources. As a result, many minority students who have been over-identified as having disabilities are then given sub-par educational

supports and services. Research also recognizes issues in the outcomes of students receiving special education services.

Purpose of the Study

The purpose of this study was to examine the relationship between racial fractionalization and special education identification, proportionality, placement, spending, and outcomes in public school districts within the state of Illinois. Research indicates that inequities exist in special education identification, practices, and outcomes for minority students with disabilities in many parts of the country. However, the over 800 school districts in Illinois represent varied populations and are equipped with different resources. By evaluating the relationship between school district diversity, as measured through the fractionalization index, and special education identification, practices, and outcomes, this study will identified any correlation among these factors based on Illinois school districts.

Research Questions and Hypotheses

Based on the research surrounding the issues of racial disproportionality and special education practices, a number of questions and hypotheses were developed. The results of the hypotheses were used in order to better understand the relationship between racial fractionalization and special education practices within the state of Illinois.

- Question One: Does a school district's fractionalization index relate to the risk of a minority student being identified with a disability?

Hypothesis One: There is a positive correlation between a school district's fractionalization index and the risk ratio of minority students within the school district.

- Question Two: Does a school district's fractionalization index relate to the performance gap between students with and without disabilities?

  Hypothesis Two: There is a positive correlation between a school district's fractionalization index and the performance gap between students with and without disabilities.

- Question Three: Does a school district's fractionalization index relate to the placement of students into general education environments for greater than 80% of the school day?

  Hypothesis Three: There is a positive correlation between a school district's fractionalization index and its placement of students into general education environments for greater than 80% of the school day.

- Question Four: Is there a relationship between a school district's fractionalization index and disaggregated data demonstrating placement of student subgroups into general education environments for greater than 80% of the school day?

  Hypothesis Four: There is a positive correlation between the school district's fractionalization index and the district's placement of student subgroups into general education environments for greater than 80% of the school day.

- Question Five: Does a school district's fractionalization index relate to its wealth, effort, and resources?

Hypothesis Five: There is a negative correlation between a district's fractionalization index and its wealth, effort, and financial resources.

- Question Six: Does a school district's fractionalization index relate to its gap in the dropout rate between students with and without disabilities?

  Hypothesis Six: There is a positive correlation between a school district's fractionalization index and its dropout rate gap between students with and without disabilities.

- Question Seven: If relationships exist among a district's fractionalization index and any of the other study variables, which factors serve as the strongest predictors?

  Hypothesis Seven: A district's fractionalization index serves as the strongest predictor of the risk ratio.

Overview of the Methodology

Using a variety of data sources, this study examined the relationship between Illinois school districts' diversity (as quantified through the fractionalization index) and their special education identification rates, practices, and outcomes. Quantitative data were analyzed in order to test the hypotheses. Data sources included:

- Illinois State Board of Education District Special Education Profiles from 2011-12 school year (http://webprod1.isbe.net/LEAProfile/SearchCriteria1.aspx), including:
  - number of students with IEPs in each school district,
  - percentage of students with IEPs,

  - percentage of students with IEPs by race/ethnicity,
  - discrepancy in state assessments between students with and without IEPs,
  - percentage of students with IEPs in general education for over 80% of the school day,
  - percentage of students with IEPs in general education for over 80% of the day by race/ethnicity,
  - unit and high school districts' dropout rate gap between students with and without IEPs.
- Illinois State Board of Education 2011-12 Fall Enrollment Count, District Summary (http://www.isbe.net/research/htmls/fall_housing.htm),
- Illinois State Board of Education Summary Report of Special Education Expenditures and Receipts for Fiscal Year 2012 (http://www.isbe.net/sfms/sp_ed/sped-annual-12.pdf).

Data analysis utilized descriptive and inferential statistics in order to evaluate each research question. The fractionalization index was calculated for each school district; the full list can be found in appendix B. Throughout the paper, I utilized the racial classifications used by the Illinois State Board of Education: American Indian, Asian, Black, Hispanic, Other Pacific Islander, Two or More Races, and White.

Limitations

There are a number of factors that can potentially influence the conclusions obtained by a research study. In this proposed study, not all of the data being collected represented the most recent school year. Illinois Special Education Profiles are also

delayed by one school year. At the time the research commenced, the most recent special education profiles were from the 2011-12 school year. Data were also limited due to the fact that research was analyzed on a district basis, as opposed to per school. It is possible that within a school district some variance occurs, and district schools may represent different populations and engage in different practices. In this study, the overall district practices were considered. Finally, the fractionalization index itself has some limitations. While the index provides a meaningful value of racial diversity, it is based on the categories available. In this study, it was based on the seven race categories used defined by the Illinois State Board of Education, thus not considering other aspects of diversity. Consideration needs to be given to the meaning of diversity, as a school district that is 95% White and 5% Hispanic will have the same value as a district of the same size that is 95% Black and 5% Hispanic.

Delimitations

The research was delimited through the exclusion of one large public school district, Chicago Public Schools (CPS), as well as school districts serving fewer than 600 students. This was due to the size and scope of CPS, which serves over 400,000 students in over 600 schools, as well as the lower populations of students with disabilities found in smaller school districts.

Definition of Terms

Effort: Effort is a value for each school district representing their use of local property taxes to fund public schools. This was obtained by using the values for Equalized Assessed Value, Average Daily Attendance, and Local Revenue. Local

Revenue per student was divided by Equalized Assessed Value per student, and this value provides a measure of Effort.

Emotional Disorder: One of the 13 disabilities recognized under the Individuals with Disabilities Education Act (IDEA) (NICHCY, 2010).

Fractionalization Index: A value used to describe one group's heterogeneity, making it possible to compare practices, services, and other components based on diversity (Alsesina & Glaeser, 2009). The fractionalization index is calculated through this equation:

$$= 1 - \sum_{\text{races or ethnicities}} \left(\frac{\text{population in race or ethnicity}}{\text{total population}} \right)^2$$

Free, Appropriate Public Education (FAPE): IDEA defines FAPE as special education and related services that are provided at public expense, meet the standards of the state education agency and the IDEA, include preschool, elementary, and secondary school education, and are provided in conformity with an individualized education program (IEP) (NICHCY, 2010).

Individualized Education Plan (IEP): The Individuals with Disabilities Education Act (IDEA) defines IEP as a written statement for a child with a disability that is developed, reviewed, and revised at least annually, includes how the child's disability impacts his/her progress in the general education curriculum, includes measureable goals,

describes the supplementary aids, accommodations, and services the child needs to meet his/her goals, and describes his/her participation in state testing (NICHCY, 2010).

Individuals with Disabilities Education Act (IDEA): Federal law mandating special education services for students with disabilities in American public schools (NICHCY, 2010).

Intellectual Disability: One of the thirteen disability categories recognized by IDEA and the Illinois State Board of Education, also referred to as Mental Retardation and Cognitive Disability (NICHCY, 2010).

Learning Disability: One of the thirteen disability categories recognized by IDEA and "a disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written," manifested in deficits in listening, thinking, speaking, reading, writing, math, or spelling performance (NICHCY, 2010).

Least Restrictive Environment (LRE): LRE refers to the IDEA requirement that students with disabilities are educated with nondisabled students to the maximum extent possible, and that removal from general education occurs "only if the nature or severity of the disability is such that education in regular classes with…supplementary aids and services cannot be achieved satisfactorily" (NICHCY, 2010). The Illinois State Board of Education collects LRE data to evaluate the percentage of the day students with disabilities are educated in special education environments versus general education environments with nondisabled peers.

Risk Ratio: This is a value that defines a subgroup's proportion of students with disabilities compared to another group. Risk ratio was obtained by calculating the risk index for both White students, Black students, and Hispanic students. The risk index is the percent of students in each category (White, Black or Hispanic) identified as having a disability. The risk ratio value is a measure of the target groups, Black and Hispanic, compared to the White students. A ratio of 1.0 indicates that no discrepancy between the target minority group and the White student group exists. Districts without any White students were excluded from this sample, as well as districts that did not have any Black students or Hispanic students.

Special Education: IDEA defines special education as specially designed, at no cost, to meet the child's unique needs (NICHCY, 2010).

Student with a Disability: IDEA defines a child with a disability as having been evaluated as having mental retardation, "a hearing impairment (including deafness), a speech or language impairment, a visual impairment (including blindness), a serious emotional disturbance…, an orthopedic impairment, autism, traumatic brain injury, an other health impairment, a specific learning disability, deaf-blindness, or multiple disabilities, and who…needs special education and related services" (NICHCY, 2010).

Wealth: In order to quantify a district's wealth, the Equalized Assessed Value per student (as obtained through Average Daily Attendance) was calculated for each district. This provides a measure of district wealth, based on local resources.

Significance of the Study

Extensive research suggests that minorities, particularly African Americans, are over-identified with disabilities, excluded more often than White peers from general education, and subject to more negative outcomes than their White peers. This lack of equity has proven widespread. However, much of the research only focuses on one element, such as identification or services or outcomes related to diversity and special education. All of these elements are related and must be explored as such. Problems in over-identification may not necessarily be detrimental if the services are high quality, do not promote segregation, and are tied to positive student outcomes. As a result, these three elements are not isolated and should be examined together. Further, it is clear that school districts have tremendous variance in their special education practices. Methods for identification and placement often rely on subjective measures. Given the overwhelming research concluding that African American students are over-identified with disabilities on a national scale, questions are raised about the identification patterns in smaller communities. Fractionalization research has concluded that as diversity within a community increases, often times fewer resources are made available to individuals in need. As a result, it is critical that the role of diversity in special education practices be investigated.

As school districts represent diverse racial, socioeconomic, and cultural backgrounds, leaders must be prepared to serve all of the students in an equitable manner. By examining the relationship between diversity and equity issues in special education,

school leaders will be better prepared to serve the multiple needs present within their communities.

Summary

This chapter provided a rationale for the proposed investigation of the relationship between a school district's diversity and its special education practices. The goal of the study was to identify any relationship between school district diversity and its special education identification patterns, placement practices, and student outcomes. Specifically, recommendations can assist school leaders and policy makers in implementing practices and safeguards that protect students, especially those from at-risk populations. In the next chapter, an overview of relevant literature will provide the history of special education services in America, equity issues within special education, and racial fractionalization practices. Following the review of literature, the third chapter will describe the proposed study's methodology.

Chapter Two: Review of Literature

Horace Mann envisioned education as the great equalizer, but as schools are faced with even more challenges and obstacles, student outcomes demonstrate great disparity based on available resources and school factors. As students' needs increase, schools must find ways to adapt and address the changing populations present in their classrooms. Special education services are perceived by many to be a means to provide individualized instruction and support in order to address students' unique needs and disabilities, maximizing their capacities and preparing them to lead fulfilling lives as productive members of society. However, issues and problems within special education leading to the marginalization of students with disabilities are well documented. Numerous solutions have been proposed in research, including inclusive practices, response to intervention (RTI), and research-based instruction. Yet, practices and outcomes for students with disabilities vary significantly among public school districts.

Students with disabilities exist in every school district across the state, represented within every racial and ethnic group. While this may be a constant, the outcomes and practices for students with disabilities throughout the state of Illinois and the United States vary greatly. Diversity brings potential benefits and challenges to schools, relating to economics, language, learning, and resources. As the diversity of a community or school district increases, it is possible that there is a need for resources to shift and practices and outcomes to change. In Illinois, each school district represents a different balance of student characteristics. A number of studies have attempted to understand and quantify the relationship between public resources and practices and a population's

diversity within a population. The fractionalization index is one way to measure diversity by providing a value to describe one group's heterogeneity (Alsesina & Glaeser, 2009).

The purpose of this chapter is to explore education for students with disabilities, including a historical review and critique of current practices, as well as the use of fractionalization to examine social practices. In order to examine these topics, I will discuss the conclusions obtained from a number of sources, including peer-reviewed research articles and published texts. First, I will discuss the history of special education services in America, followed by a critical review of the current challenges and problems. I will highlight the overrepresentation of minority students in special education, along with issues in practices and outcomes for minority students with disabilities. Then, I will discuss fractionalization, a tool for evaluating diversity. I will conclude with information about school funding in Illinois. This chapter aims to contribute to a greater study of the relationship between school district diversity and special education identification, practices, and outcomes.

History of Special Education

In order to understand the current state of services for students with disabilities in American public schools, the historical context must be explored. The evolution of special education services in America has spanned hundreds of years, often shaped by court rulings and federal legislation, and regularly driven by conflicting factors. Although special education practices first originated in the United States 200 years ago, services for children and adolescents with disabilities were extremely scarce for more than 100 years (McLeskey & Landers, 2006; Trent, Artiles, & Englert, 1998). Individuals with

disabilities have a long history of segregation and discrimination. Disabilities have always existed, and before 1700, people with disabilities were consistently abused, deprived of rights, excluded from private and public organizations, and victimized in wars and conflicts (Winzer, 1993). As the Common School movement occurred in America in the 1800s, recognition for education and social responsibility began to impact students with disabilities, and society began to recognize the need for access among students with disabilities (Crockett, 2002; Winzer, 1993). However, this did not mean students with disabilities were afforded the opportunity to attend the public schools that their siblings and neighbors attended. Rather, segregated schools and institutions serving the needs of people with disabilities were developed (Winzer, 1993). Society accepted this isolation and exclusion of children with disabilities for a long period of time.

The early twentieth century in America brought compulsory attendance laws and an increased recognition of the need for education for people with disabilities. At the same time, the intelligence testing movement brought a reduction in support for the treatment and outcomes for individuals with disabilities. The widespread credibility given to intelligence testing led to a common notion that intelligence could not be changed, which meant that there was little motivation to improve the lives of certain people through education. As a result, "warehouses for the storage of human beings" increased (Winzer, 1993, p. 280). Students with significant needs were labeled as "untrainable" and "uneducable" and placed in separate schools (McCarthy, Wiener, & Soodak, 2012). As recently as 1930, individuals with disabilities were institutionalized, placed in prisons and asylums, and forced to become sterilized (Winzer, 1993). In Europe, Nazis were engaged

in eugenics experiments that destroyed the lives of people with disabilities (Shapiro, 1993). Although Americans were not eliminating individuals with disabilities in such a horrific fashion, they were institutionalizing them with limited treatment or planned outcomes (Shapiro, 1993).

After World War II, improvements in services and opportunities for students with disabilities began to increase. Educational programs for students with mild disabilities increased and compulsory attendance laws were enforced (Winzer, 1993). The year 1958 brought Public Law 85-926, which provided grants for the training of special education teachers to work with students with disabilities (Tyler, Monreoaaw, & Smith, 2012; Winzer, 1993). In 1962, President Kennedy commissioned the President's Panel on Mental Retardation to bring more attention to the issues and needs of people with disabilities (Winzer, 1993). At this time, the Civil Rights Movement was bringing attention to other marginalized groups of Americans and the need for equity, which also contributed to an increased recognition of individuals with disabilities (Artiles, 2011). By the 1970s, the public knowledge that a quarter of a million American children between the ages of seven and 13 were not attending school due to disability influenced the development of legislation to protect the rights of students with disabilities (Etscheidt, 2012; Shapiro, 1993). In addition, litigation surrounding racial inequity such as 1972's Mills v. Board of Education contributed to the development of legislation that provided rights to students with disabilities in American public schools (Skiba et al., 2008).

In 1975, Public Law 94-142, the Education for All Handicapped Children Act (now known as the Individuals with Disabilities Education Act, or IDEA), mandated a

free, appropriate public education for every child in America with a disability (Etscheidt, 2012; McCarthy et al., 2012; Winzer, 1993). Public Law 94-142 initiated the model of least restrictive environment, allowing many students with disabilities to be educated in a general education classroom with their typical peers, and also required individual programming and due process rights for students with disabilities (Artiles & Bal, 2008; Etscheidt, 2012; Kavale & Forness, 2000; Shapiro, 1993; Sindelar, Shearer, Yendol-Hoppey, & Liebert, 2006). The primary goal of the Education for All Handicapped Children Act was to provide support and instructions that would "meet the unique needs of students with disabilities and prepare them for further education, employment, and independent living" (Etscheidt, 2012, p. 195). Subsequent reauthorizations of this law emphasized the importance of educating students with disabilities within general education environments (Etscheidt, 2012; McCarthy et al., 2012; Kavale & Forness, 2000). This requirement continues today, through the legislation named since 1990 the Individuals with Disabilities Education Act (McCarthy et al., 2012; U.S. Department of Education).

Through IDEA, students with many disabilities qualify for individualized instruction designed to meet their areas of need. However, the term "disability" is very general and encompasses a tremendous range of impairments, from blindness to emotional disorders (Anastasiou & Kauffman, 2012). In order for a student to qualify for special education services, he or she must not only have a condition that meets the federal definition of disability, but there must also be a documented need for additional support services in school in order for the student to make progress (Anastasiou & Kauffman,

2012; Forness, Freeman, Paparella, Kauffman, & Walker, 2012). Eligibility can be complex, relying on interpretation and some degree of judgment and subjectivity. Following a student's eligibility for services, the student's educational team will develop and implement an individualized plan that outlines goals, supports, and the location of services. Federal law continues to require that students with disabilities be educated in the least restrictive environment that is able to help them make gains (Katsiyannis, Losinski, & Prince, 2012). However, both eligibility and the provision of services, with their individualized nature and need for teacher judgment, can be seen as nebulous and open to interpretation. According to Katsiyannis et al. (2012), "Ensuring the provision of a free appropriate public education (FAPE) for students with disabilities is often challenging and controversial," often relying on the use of litigation for student advocacy (p. 24). In the next section, I will discuss the challenges associated with eligibility, services, and outcomes for students with disabilities in public schools.

Equity Issues within Special Education

Despite the evolution and government mandate of services and supports designed to serve and protect students with disabilities, a number of equity issues exist. Extensive research has concluded that American public schools engage in special education practices with identification procedures, educational practices, and student outcomes that marginalize students.

Identification Procedures

In order for a student to be eligible for special education services, federal law requires the identification of an educational disability. This practice is not straightforward,

but rather introduces issues of subjectivity and inequality. Research has suggested that special education services continue to be based on a medical model, which recognizes disabilities as individual, pathological, abnormal, and something that must be identified and fixed (Baglieri & Knopf, 2004; Capper, Rodriguez, & McKinney, 2009; Christensen & Dorn, 1997; Frattura & Topinka, 2006). Through the medical model of special education, students who are not successful in traditional schools are chosen for testing in order to identify an intrinsic abnormality (Baglieri & Knopf, 2004). The challenges students experience in school, both academic and behavioral, are attributed to intrinsic deficits within the students (Trent et al., 1998). As a result, the identified disability, which has been demonstrated to be a pathological part of the child, can serve as the reason or excuse for the student's failure. Therefore, the medical model "functions as a defense for the rationality of the school organization...stressing inabilities and limitations" (Frattura & Topinka, 2006, p. 334). In addition to the issues of identification, research regarding the motivation for educational disabilities suggests that the identification procedures are susceptible to bias, resulting in significant disproportionality among student populations.

A variety of studies over the past several decades have concluded that student race, ethnicity, and socioeconomic status increase the likelihood of a disability label and eligibility for special education services under the Individuals with Disabilities Education Act (Coutinho & Oswald, 2000; Macmillan & Reschly, 1998; Coutinho, Oswald, & Best, 2002; Artiles, Harry, Reschly, & Chinn, 2002; Knotek, 2003; Hosp & Reschly, 2004; Ferri & Connor, 2005; Sullivan & Artiles, 2011). According to the *Elementary and*

Secondary School Civil Rights Compliance Report, since 1968, African American students have been found to be overrepresented in the categories of mental retardation and emotional disturbance (Artiles et al., 2002; Hosp & Reschly, 2004). The overrepresentation of minority students in certain special education categories has been acknowledged by the United States Office of Civil Rights since 1970, and continues occur in almost every state (Artiles et al., 2002; Artiles, Rueda, Salazar, & Higareda, 2005; Coutinho & Oswald, 2000; Ferri & Connor, 2005; Irvine, 2012). Many researchers have documented the ongoing patterns, providing insight into how and why this continues to occur in American public schools.

Research findings have suggested that this over-identification of certain populations of students extends to several disability categories, and that this pattern has been occurring for over twenty years. Data from a survey by the U.S. Department of Education's Office of Special Education Programs outlined a clear discrepancy; while African American students accounted for only 16% of the total enrollment in the school systems surveyed, they represented 32% of students identified as educable mentally retarded, 29% of students labeled as trainable mentally retarded, and 24% of the students identified as severely emotionally disturbed (Harry & Andersen, 1995). More recent data has demonstrated a continued pattern of over-representation, as Losen and Orfield's 2002 research indicated that while African American students represent 14.8% of the school age population, they comprise 20.2% of students identified as having disabilities among all categories.

Extensive research has proven a statistically significant disproportionality involving children from minority groups being identified as having higher incidence disabilities, especially mental retardation and emotional disturbance (Hosp & Reschly, 2004; Sullivan & Artiles, 2011). Black students are three times as likely as White students to be labeled as having mental retardation, twice as likely to be labeled as emotionally disturbed, and 1.5 times as likely to be labeled as learning disabled (Ferri & Connor, 2005). In addition to race, research has shown that poverty is often a predictor of disproportionate representation in special education (Coutinho & Oswald, 2000; Artiles et al., 2002; Hosp & Reschly, 2004).

Given the evidence validating the existence of disproportionate representation, some research has examined its history, searching for reasons and motivation. The emergence of this model of overrepresentation occurred around the same time as school districts were undergoing a massive change. The number of Black students in special education increased following the mandate for districts to desegregate public schools (Eitle, 2002). As a result, some researchers and historians have suggested that the over-identification is racially motivated (Eitle, 2002). Many researchers have agreed that bias and discrimination play a role in eligibility and identification of students with educational disabilities (Audette & Algozzine, 1992).

Due to the extensive research demonstrating a pattern of overrepresentation, one might question how schools are able to engage in this practice. After all, identification of a disability and entitlement for special education services are based on federal and state guidelines. However, eligibility for special education and the identification of an

educational disability are not clear-cut and often involve bias and judgment. The identification of both mental retardation and emotional disturbance requires a high level of subjectivity, including teacher rating scales and staff judgment, resulting in significant variability among students (Daniels, 1998; Arnold & Lassman, 2003; Ferri & Connor, 2005; Sullivan & Artiles, 2011). While states provide guidance and criteria, there is no standard definition for some higher incidence disabilities such as learning disability, meaning that a student may be learning disabled in one state but not in another (Arnold & Lassman, 2003). Categories that are defined by less subjectivity, such as deafness and blindness, are found to be represented by all student populations in a proportionate manner (Ferri & Connor, 2005). These patterns are consistent on a national level (Sullivan & Artiles, 2011).

Through inconsistent and subjective identification practices, issues in equity and over-identification have become widespread. Multiple prominent legal decisions have highlighted issues in identification procedures and the resulting racial disparities, including biased standardized test practices (Coutinho & Oswald, 2000; Artiles et al., 2002; Ferri & Connor, 2005; Zirkel, 2013). As early as the 1970s, the Larry P. v. Riles case determined that the overrepresentation of students of color in special education classes for those with mental retardation was due to unfair educational practices and the role of teacher bias (Artiles et al., 2002; Ferri & Connor, 2005; Larry P. v. Riles, 1984). In many cases, the initial identification of students with learning challenges originates from a classroom teacher relying on a great deal of subjective judgment (Irvine, 2012).

Irvine (2012) argues that the cultural differences among teachers lead to "referrals and placements that are inappropriate and inaccurate" (p. 269).

Overrepresentation of some subgroups within special education is also the result of the need for resources, according to some researchers. Limited funding in some school districts may motivate them to identify students as having disabilities in order to access more federal funds (Irvine, 2012).

Issues with identification extend beyond overrepresentation in certain categories. Travers, Tincani, and Krezmien, in their analysis of racial patterns in the eligibility category of autism, found that White students are significantly more likely to be identified with autism than Black, Hispanic, and American Indian peers, and that the risk has increased four times over since 1998 (2011). These researchers concluded that this fact suggests that minority students are actually underrepresented in this disability category (Travers et al., 2011).

In summary, extensive research has indicated that African Americans and other minority groups represent a disproportionate number of students receiving special education services, as these students are labeled as having a disability far more often than White peers. Teachers disproportionately refer African American students, especially those from low-income families and communities, to special education services (Irvine, 2012). Minority student overrepresentation contributes to the continued inequities in American public schools (Eitle, 2002). While this fact alone may be concerning, identification is only one factor to be taken into consideration when examining equity

issues in special education. It is essential that the consequences of this identification be explored, including the resulting educational practices and student outcomes.

Educational Practices

According to Ferri and Connor (2005), "Special education, although conceived as a way to provide support and access for previously excluded students, has paradoxically participated in maintaining rather than minimizing obvious inequities" (p. 94).

Special education was designed to support and serve students with disabilities. Since the implementation of 1975's Public Law 94-142, the Education for All Handicapped Children Act, facts indicate that despite a mandate to educate students with disabilities in the least restrictive environment, many students identified as having disabilities, especially in urban and low-income school districts, are placed in highly restrictive environments, with limited access to peers without disabilities (Patton, 1998; Daniels, 1998; Arnold & Lassman, 2003; Zion & Blanchett, 2011). The least restrictive environment (LRE) amendment to the 1997 reauthorization of IDEA stated that students with disabilities must be educated with their nondisabled peers "to the maximum extent appropriate" and cannot be removed from the general education environment until the use of supplementary aids and services within general education has been exhausted. Research in the field of special education has supported this federal mandate, arguing that districts should be making efforts to keep students in general education environments with supports before removing a student and placing her or him in separate special education environments (Katsiyannis et al., 2012).

While LRE and the movement towards inclusion have increased outcomes for many students with low-incidence, severe disabilities, they have resulted in little, if any, impact on students of color with high-incidence disabilities such as emotional disorders and learning disabilities (Arnold & Lassman, 2003; Zion & Blanchett, 2011). Many researchers have concluded that student placement and educational practices are often tied to students' races, economic conditions, and community resources. In many communities and schools, "conditions in special education are substantially the same today as they were 20 to 30 (or more) years ago" (Algozzine, 2005, p. 68). In order to better understand this lack of progress, I will explore special education placement issues.

Although IDEA requires placement in the least restrictive environment, research has shown that students are not consistently offered this opportunity, and additional provisions and mandates have resulted in inconsistent changes for many students. While some educators and researchers have had opposing views about the role of general education for students with disabilities, consideration for the least restrictive environment is a requirement under IDEA (Trent et al., 1998). Placing students with disabilities in the least restrictive environment is a challenging requirement, as multiple needs and issues must be considered (Katsiyannis et al., 2012). While historically, separate classrooms and facilities were very common, the placement of students with disabilities within general education classrooms has drastically increased within the last two decades for many student populations (Katsiyannis et al., 2012). However, some discrepancies still exist. Inconsistencies in student placement have been studied in multiple populations, considering the various subgroups present in American public schools. Kozleski and

Smith (2009) reported that placement data from the 1997-98 school year demonstrate that while overall, 48% of students with disabilities were educated in general education classrooms, this figure was significantly different, as low as 10%, within urban schools. As a result, not all students are afforded the same access to the least restrictive environment.

In many school systems, the frequent use of separate classrooms for students with disabilities is more common than in others. Segregation continues through separate classes and disciplinary environments, but in many cases is justified by schools due to disability categories and educational needs (McCarthy et al., 2012). While the overall rate of placement into a segregated, self-contained classroom for children with disabilities continues to be very high, some research has suggested that it is significantly higher for African American students than their White peers with the same disabilities (Serwatka, Deering, & Grant, 1995; Cartledge, 2005). African American students receive more segregated placements, separated from White peers and students without disabilities (Zion & Blanchett, 2011). African American students with disabilities are less likely to be educated in general education environments than their White peers, with 41% of Black students with disabilities spending 80% or more of their time in general education, compared to 57.8% of White students (Zion & Blanchett, 2011). Given these research conclusions, it is evident that there is a disparity in students' access to general education placements based on race, with African American students more likely to be placed in special education classrooms.

The combination of the stigma created by the special education label and the removal from the regular education environment when it is not necessary or appropriate creates an inequitable situation for students (MacMillan & Reschly, 1998). Through over-identifying and excluding students of color from general education, special education only contributes to the segregation of public schools (Ferri & Connor, 2005). Disabilities serve "as mechanisms for resegregating students of color within otherwise desegregated schools" (Ferri & Connor, 2005, p. 94). While overrepresentation alone is well-documented, some researchers argue that students with economic challenges and those from diverse populations are provided with the lowest-quality supports and services (Pazel & Cole, 2012). African American students with disabilities are disproportionately placed in separate, restrictive environments with lower-quality supports (Shifrer, Callahan, & Muller, 2013). As the number of students with disabilities in public schools increases, funding remains a challenge (Pazey & Cole, 2012). While IDEA places numerous challenges on schools, resources do not accompany these requirements. The numerous requirements are costly, and "the federal government funds only 16% of the cost of special education" (Pazel & Cole, 2012, p. 244). School districts with less funding are more likely to have inexperienced teachers with limited training (Irvine, 2012). As a result, the students identified for support services in schools with limited resources are often instructed by less-skilled teachers.

In addition to physical segregation, special education services can lead to reduced expectations and lower quality academic experiences for students. Research has called into question the quality and rigor of special education instruction and services in many

schools (Artiles et al., 2005) and demonstrates a correlation between students' race and the quality of services received (Zion & Blanchett, 2011). In many public schools, students who have been identified as having a disability are assigned to special education teachers to serve as their primary educators. In many cases, these teachers have been shown to have limited content and pedagogical knowledge (Baglieri & Knopf, 2004). When compared to their general education peers benefiting from the content-specialization and pedagogical skills of general educators, students with disabilities are often removed to separate educational settings and provided with instruction focused on their disability, not on the general education curricula, supplemented by lowered expectations (Hibel, Farkas, & Morgan, 2010; Baglieri & Knopf, 2004). As a result, many students with disabilities are instructed by less-qualified teachers.

The aim of special education, as affirmed by the United States Supreme Court in the landmark Rowley decision, is to provide students with specialized education with a substantive benefit, with protections and due process (Board of Ed. of Hendrick Hudson Central School District v. Rowley, 1982). Instead of providing students with rigorous, individualized instruction, special education programs and services are often inferior when compared to the education received by nondisabled students. Research has shown that many special education programs fail to provide a high-quality learning environment and experience for students, lacking evidence of effectiveness (Eitle, 2002; Heward, 2003). As opposed to being uniquely designed for the student's individual goal areas, often supports and instruction are based on the available teachers and resources and the student's disability label (Frattura & Topinka, 2006). Some researchers have questioned

the actual benefits to special education services (Artiles et al., 2005). This "parallel system of education for labeled students" leads these students to become outsiders in their schools, rather than serving as members of a typical classroom and school community (Frattura & Topinka, 2006, p.340).

While American public schools are known for high levels of progress monitoring, quality control, and attention to student outcomes, these practices do not always occur within special education services and programs. In some districts, little attention is paid to the quality of services students receive in special education programs (Algozzine, 2005). The combination of lower expectations, exclusion from peers, and a different pace of instruction result in significantly less progress than peers in general education (Hibel et al., 2004). Therefore, many students with disabilities experience limited achievement based on school practices.

Supports and services provided within these segregated environments reflect continued inequities in American public schools. When special education identification leads to inferior instruction in a segregated setting, opportunities for students with disabilities to interact with highly skilled teachers are reduced (De Valenzuela, Coperland, Qi, & Park, 2006). As in the disproportionate identification of minority students with disabilities, the actual placement and services for students with similar disabilities vary greatly along racial lines (Fierros, 2005; De Valenzuela et al., 2006). African American students, who are disproportionately represented in the category of mental retardation, are more likely to be assigned to segregated classes within wealthier communities than in Black, low-income schools (Ferri & Connor, 2005; Coutinho et al., 2002). African

American students with emotional disorders receive fewer services, such as therapy and counseling, than their White peers (De Valenzuela et al., 2006). Minority students, including African American, Hispanic, and Native American students, as well as English Language Learners, were found to be more likely to be educated in segregated settings than their White peers, with limited access to general education (De Valenzuela et al., 2006). All of these facts demonstrate that there are patterns of inequity for students and their educational opportunities.

Research has also suggested that parental advocacy can play a role in the educational services obtained for students with disabilities. Irvine (2012) argued that many African American parents are less involved in national and local advocacy organizations related to special education, resulting in fewer resources and less training in how to work with schools to access high quality instruction for their children. As a result, there can be significant discrepancies between the services and supports obtained for students with highly involved parents versus parents who are not trained or knowledgeable about how to navigate the system.

Themes have emerged clearly through this research. A prevalent problem in special education is the over-identification of students with disabilities and subsequent segregation of minority students, particularly African Americans. Following this segregation, students are provided with low-quality instruction. In many cases, specialized supports and therapies are limited. It is critical to next consider the outcomes for these students.

Student Outcomes

Post-high school outcomes for many students with disabilities, regardless of race, often reflect negative and limited options for adulthood, but African American students with disabilities fare much worse. All students with disabilities receiving special education services, regardless of race, are more likely to experience lower teacher expectations than their peers without disabilities and are more likely to drop out of school than their peers (Ferri & Connor, 2005). In general, African American students with and without disabilities have the most negative post-school outcomes, including limited job opportunities, fewer chances for social mobility, and more involvement in the criminal justice system (Zion & Blanchett, 2011). In addition to disproportionate achievement, minority students with disabilities also experience higher disciplinary actions, higher suspension rates, and higher dropout rates (Ferri & Connor, 2005; Zion & Blanchett, 2011). Cartledge (2005) argued that the nationwide decline in special education enrollments throughout the high school years is not due to a return to general education or a less restrictive placement, but due to a higher dropout rate. A closer examination of student outcomes is a necessary next step.

Post-school outcomes are often accelerated through discipline practices that limit student access to quality education. Research has suggested that in some American public schools, African American students are marginalized through school discipline practices that routinely and consistently target them for suspensions at a rate discrepant from that of White, European American students, leading to less access to classroom instruction and resulting in higher dropout rates. A number of studies that examined school

discipline have found an overrepresentation of African American students in the number of school suspensions (Skiba et al., 2000; Booker & Mitchell, 2011). According to a study conducted by Skiba, Michael, Nardo, and Peterson (2000), teachers referred African American students to school administrators for disciplinary reasons at a rate discrepant to that of White students. Additionally, the researchers concluded that "Black students were more likely than White students to be referred to the office for disrespect, excessive noise, threat, and loitering, behaviors that are at once less serious and more subjective in their interpretation" (Skiba et al., 2000, p. 16). Booker and Mitchell defined the discipline gap as "the tendency for African American students to be overrepresented in discipline in proportion to their enrollment, Hispanic students to be proportionally represented, and Caucasian and Asian students to be underrepresented" (2011, p. 195). Based on district size, minority population, and geographic location, the discipline of students of color with disabilities also varies significantly (Zion & Blanchett, 2011). Irvine (2012) reported that a 2006 analysis by the United States Office of Special Education Programs concluded that at least one district in each of 46 states suspended and expelled students with disabilities significantly more often than their peers without disabilities. The higher representation in suspensions and expulsions is not just common among students with disabilities in general, but is especially prominent among minority students with disabilities (Katsiyannis et al.,, 2012). Clearly, students with disabilities, particularly African American students with disabilities, experience more school discipline and suspensions. As a result, these students receive severe consequences for the subjective interpretation of their behavior at a rate very different from their White

peers. This disproportion and inequity puts African American students, especially those with disabilities, at a serious disadvantage.

As stated, research has suggested that African American students experience a higher level of disadvantage due to over-identification with disabilities and placement in special education, which has resulted in the denial of "the high quality and life enhancing education to which [students] are entitled" (Artiles et al., 2002, p. 4). Nationally, students with disabilities are 50% less likely to graduate from high school (Frattura & Topinka, 2006). While some research has demonstrated success stories for students with disabilities (Christensen & Dorn, 1997), this remains the exception, rather than the norm.

Outcomes for students in special education are not always positive. While enrolled, students with disabilities perform at lower achievement levels and are only provided limited access to general education instruction. Outcomes are worse for students with disabilities even if their learning profile reflects that of peers without disabilities (Shifrer et al., 2013). The disability label alone results in significant consequences for some students, according to research. Being identified with a learning disability results in limited opportunities, possibly through the resulting teacher perceptions or the beliefs developed by students (Shifrer et al., 2013). Following a school experience in special education, students with disabilities come into contact with a great deal of negative issues, including low achievement level, low rates of school completion, high dropout rates, and limited access to the general education curriculum (Artiles, Harry, & Chamberlain, 2005). Outcomes, both academic and functional, are routinely negative for students with disabilities (Katsiyannis et al., 2012). Limited evidence of effectiveness is available, as

shown in graduation rates, post-high school outcomes, and formal test data (Audette & Algozzine, 1992). Benefits in peer interactions, academic opportunities, and the development of life skills are often limited when students receive special education.

While limited benefits and negative outcomes are common for all students with disabilities, through a higher representation in special education, African American students are especially marginalized and their futures therefore limited.

Research has highlighted prominent themes within special education identification, practices, and outcomes. The most prominent theme is the disparity in identification of, and services and outcomes for, minority students with disabilities, particularly African American children. Inequities in public services and resources are not limited to education. Much research has focused on the allocation and delivery of resources based on diversity and race. In the next section, I will discuss a manner in which diversity within a community, region, or country can be quantified in order to examine equity issues in society.

Fractionalization

The relationship between diversity and a society's practices has been studied within a number of different contexts. While diversity in a population can provide obvious benefits, there are also potential costs and consequences resulting from extensive heterogeneity within a group or society. Numerous researchers have investigated the manner in which diversity relates to societal behavior. For example, extensive studies have examined the disparities in social welfare spending and considered how a region's diversity impacts its actions. In order to develop a manner in which to quantify diversity,

numerous researchers have used the fractionalization index. Fractionalization can provide a value to describe each group's heterogeneity, making it possible to compare practices, services, and other components based on diversity (Alsesina & Glaeser, 2009).

The fractionalization index can provide researchers with a means to quantify the amount of heterogeneity in a population, therefore examining the relationship between diversity and other factors. The fractionalization index is calculated through this equation:

$$= 1 - \sum_{\text{races or ethnicities}} \left(\frac{\text{population in race or ethnicity}}{\text{total population}} \right)^2$$

Through the use of this measure, a value is determined, between 0 and 1, with 0 being completely homogeneous and 1 being comprised of an infinite number of miniscule factions (Alesina & Glaeser, 2009). The fractionalization index provides "the probability that two randomly selected individuals in a country belong to two different ethnic or religious groups [and] reaches a maximum if every individual in a country belongs to a different ethnic or religious group" (Dincer & Lambert, 2012, p. 290). Extensive research using the fractionalization index has suggested a strong association between fractionalization and the provision of public goods (Alesina, Baqir, & Easterly, 1999; Alesina & Glaeser, 2009; Alesina & LaFerrara, 2000; Fink & Redaelli, 2011; Rupasingha, Goetz, & Freshwater, 2006; Sparber, 2008). It is suggested that this is the result of conflicts between groups when a greater degree of heterogeneity is present.

The fractionalization index has been used to examine numerous social issues, such as the relationship between ethnic diversity and economic performance in various countries (Alesina & Glaeser, 2009; Feddereke, Luiz, & de Kadt, 2008). Fractionalization indicators can include cultures, religions, races, or any other characteristic. In many cases, this index is used to study the impact of diversity on a population, examining whether an increase in diversity can enhance an environment or increase the likelihood of conflict (Alesina & La Ferrarra, 2005; Rodrik, 1999). Further, some studies have concluded that higher levels of fractionalization lead to more corruption, less social mixing, and lower voluntary contributions to schools (Lind, 2007). Through the use of the fractionalization index, one can better understand the relationship between diversity and institutional and societal practices and outcomes.

International Fractionalization Research

Fractionalization has been used extensively to examine the impact of diversity on long-term development throughout the world. A great deal of research using fractionalization has focused on the impact on diversity on economic growth in various African countries (Alesina, De Vleeschauwer, Easterly, Kurlat, & Wacziarg; 2003; Easterly & Levine, 1997; Schuler & Weisbrod, 2010). Alesina et al. (2003) investigated the relationship between fractionalization and economic growth in 190 countries, concluding that linguistic and ethnic fractionalization has an influence on economic success. While some studies have demonstrated that heterogeneity results in positive consequences for economic growth, other research highlights a negative association, suggesting that conflict results from diversity, leading to significant societal unrest and

oppression of certain members of society (Fedderke et al., 2008). Alesina and Glaeser (2009) have found that there is a direct correlation between fractionalization and social welfare spending, with less diverse countries allocating more resources to social welfare. The more diverse the country, the fewer resources are spent to enhance or supplement social services for individuals (Alesina & Glaeser, 2009).

In addition to the use of the fractionalization index in examining patterns on an international level, researchers have also applied it to study patterns within the United States of America.

U.S. Fractionalization Research

Fractionalization research in the United States has included such topics as community participation, economics, and public schools, all examining how diversity relates to the actions and resource allocation of a population. Sparber (2008) wrote, "diversity can lead to social conflict, exploitation, and violence," as populations often classify themselves based on ethic or racial backgrounds, competing with other groups for resources (p. 210). As a result, there can be an impact on the provision of public goods. Diverse societies can mean that individuals and groups are not as familiar with the other groups in their society, leading to strife and conflict (Rupasingha, Goetz, & Freshwater, 2006).

The 1999 research of Alesina, Baqir, and Easterly concluded that a higher level of racial diversity has an impact on how public goods, including school spending, are allocated, concluding, "polarized societies will value public goods less" (p. 1274). Even after controlling for socioeconomic and demographic traits, these researchers found that a

higher level of fractionalization correlated to reduced spending on productive public goods (Alesina, Baqir, & Easterly, 1999). Alesina and LaFerrara (2000) found that higher levels of fractionalization (considering income, race, and ethnicity) reduce individuals' involvement in religious, civic, and educational groups. Hall and Leeson (2010) used the fractionalization index to examine the relationship between school diversity and academic outcomes, finding a negative association between student diversity and test scores.

Alesina and Glaeser (2009) have used the fractionalization index to study diversity and welfare spending in the U.S., finding "that states with large numbers of Blacks are much less generous than the states with fewer numbers of African Americans" (p. 148). In a summary of fractionalization research, Hall and Leeson (2010) discussed the impact of fractionalization on education, stating, "diverse citizens have diverse and often inconsistent needs...[and] therefore find it more difficult to agree on the level and kinds of public goods that government should provide. This disagreement in turn leads important public goods, such as education, to be underprovided" (p. 738). Extensive research has concluded that increased diversity within a population has the potential to polarize members of the community, limit public resources, and potentially inhibit social mobility. The higher degree of internal conflict resulting from a diverse group results in a greater level of inequality and reduced allocation of public goods (Fink & Redaelli, 2011).

These findings reflect the usefulness of the fractionalization index in order to consider the impact of diversity on numerous factors. The majority of research has suggested that a higher level of diversity can negatively impact the provision of public

goods. Given these findings, I argue that fractionalization is a meaningful research tool, especially in an examination of how resources are allocated in a state's system for public education. In the state of Illinois, school district funding is largely based on local contributions from property taxes. Given this fact, there are enormous disparities in per-pupil spending in the state of Illinois, based on the resources of local communities. As recently as 2008, per-pupil spending in the state of Illinois ranged from $5,734 to over $20,000, based on the resources allocated locally through property taxes (Reynolds, 2008). Additionally, while special education services can be costly and are mandated by the federal government, limited financial support is provided to local school districts to fund their services for students with disabilities. Research has demonstrated a strong correlation between per-pupil revenue and student outcomes, including the graduation rate, test scores, and attendance (Wall, 2006). As a result, questions have been raised about the relationship between diversity, spending, and school district practices, as well as how these influence student outcomes.

School Funding in Illinois

Research demonstrates that the funding of public schools in Illinois is structured in a manner that perpetuates inequities. Illinois schools are funded primarily through local property taxes, resulting in school district spending variability across the state and one of the highest local tax burdens across the country (Center for American Progress, 2014; Verstegen & Driscoll, 2008). Verstegen and Driscoll's 2008 analysis of school funding in Illinois found elementary school districts that spent over five times as much as others. Extensive research highlights the inequities that result from this school funding

structure (Center for American Progress, 2014; McMahon, 2015; Verstegen & Driscoll, 2008; Wall, 2006). By requiring local communities to fund the majority of school districts, it is apparent that district resources and finances are dependent on the property wealth within the community.

With a structure that is dependent on local property taxes for the majority of funding, districts with lower assessed property values (district wealth) have a higher tax burden, paying a greater percentage of their property values in taxes (Wall, 2006). In other words, districts with reduced property wealth must make up for their limitations through a higher tax rate. While state aid is provided to districts with less property wealth, support is limited, and will not exceed the foundation level of $6119 per student (Center for American Progress, 2014; Illinois State Board of Education, 2016). This foundation level is far below what is available on a per pupil basis in districts with higher levels of property wealth.

The school funding formula in Illinois provides some additional resources to reimburse for staff supporting students with disabilities. Since 2008, the state has reimbursed school districts $9000 for each certified staff member supporting students with disabilities, and $3500 for each non-certified, support staff member supporting students with disabilities (Illinois State Board of Education, 2015). This reimbursement is based on staff members, not the number of students with disabilities in a school district or the needs of the students themselves.

Finally, one of the most critical values within the Illinois school funding formulas is the pupil count, which is defined as “average daily attendance” (Illinois State Board of

Education, 2016). Average daily attendance is calculated through student attendance values on a basic level, without any consideration given to the needs of the students, such as poverty, income, disability, or English proficiency level.

Through a system of school funding that relies on community property wealth to fund public schools, the system in Illinois promotes different levels of resources in districts and varied tax burdens among Illinois communities. Additional financial support targeting special education is driven by staff member reimbursement, as opposed to basing financial resources on the needs of students.

Summary

This chapter provided a review of literature that has studied special education, including its history and current equity issues. Many researchers have concluded that special education identification and practices, with their associated subjectivity and ambiguity, are factors in the continued marginalization of African American students in our nation's public schools. Specifically, the research has indicated that through special education, minority students are more likely to be labeled as disabled, be provided with sub-par learning opportunities, be excluded from general education environments, and experience higher levels of suspensions and dropout rates.

Fractionalization theory provides an avenue for studying the impact of diversity on a population's use of resources and general decision-making. Fractionalization research provides a great deal of insight into how populations and cultures allocate resources to individuals. Given the varied resources and spending among Illinois school

districts, the role of racial diversity should be explored. As a result, I argue that the fractionalization index can serve as a valuable tool in an investigation of patterns in special education identification, placement, practices, and outcomes. Through the application of this theory in a study of special education issues, school leaders and policy makers will be better equipped to build and maintain equitable practices for students, and re-consider how resources are allocated for students.

Chapter Three: Methodology

The purpose of this study was to examine the relationship between racial fractionalization and special education practices. In this chapter, I will outline the methodology for this investigation. I will describe research questions and hypothesis in depth, and also detail the research design, including data collection and data analysis procedures.

Research Questions and Hypotheses

Based on the research surrounding the issues of racial disproportionality and special education practices, a number of questions and hypotheses were developed. The results of the hypotheses were used in order to better understand the relationship between racial fractionalization and special education practices within the state of Illinois, including student identification, placement, and outcomes.

- Question One: Does a school district's fractionalization index relate to the risk of a minority student being identified with a disability?

  Hypothesis One: There is a positive correlation between a school district's fractionalization index and the risk ratio of minority students within the school district.

- Question Two: Does a school district's fractionalization index relate to the performance gap between students with and without disabilities?

  Hypothesis Two: There is a positive correlation between a school district's fractionalization index and the performance gap between students with and without disabilities.

- Question Three: Does a school district's fractionalization index relate to the placement of students into general education environments for greater than 80% of the school day?

  Hypothesis Three: There is a negative correlation between a school district's fractionalization index and its placement of students into general education environments for greater than 80% of the school day.

- Question Four: Is there a relationship between a school district's fractionalization index and disaggregated data demonstrating placement of student subgroups into general education environments for greater than 80% of the school day?

  Hypothesis four: There is a negative correlation between the school district's fractionalization index and the district's placement of student subgroups into general education environments for greater than 80% of the school day.

- Question Five: Does a school district's fractionalization index relate to its wealth, effort, and resources?

  Hypothesis Five: There is a negative correlation between a district's fractionalization index and its wealth, effort, and resources.

- Question Six: Does a school district's fractionalization index relate to its gap in the dropout rate between students with and without disabilities?

  Hypothesis Six: There is a positive correlation between a school district's fractionalization index and its dropout rate gap between students with and without disabilities.

- Question Seven: If relationships exist among a district's fractionalization index and any of the other study variables, which factors serve as the strongest predictors?

  Hypothesis Seven: A district's fractionalization index serves as the strongest predictor of the risk ratio.

Research Design

In this section, I will discuss a number of elements related to the design of this study, including methodology, sample, instrumentation, validity and reliability, data collection procedures, and data analysis. Using recommendations and guidelines established by prominent researchers, I will outline the design for this study.

Methodology

Methodology, or strategy of inquiry, is the actual model providing direction for the researchers' procedure (Creswell, 2009). Researchers utilize a quantitative, qualitative, or mixed methods approach (Creswell, 2009). Researchers are guided to their choice of methodology based on their own philosophical assumptions, considering their ontology, epistemology, axiology, and view of human nature (Creswell, 2007; Burrell & Morgan, 1979).

Quantitative research provides a system for testing hypotheses through an examination of the relationships among variables. All of the variables can be measured and analyzed using statistical procedures (Creswell, 2009). Creswell (2009) proposed that quantitative research reflects the need to identify and evaluate the variables that influence outcomes. This study intends to examine the relationships between a number of variables,

including diversity (as measured through the fractionalization index), special education identification (as measured through school district data), practices (as measured through school district data involving placement and least restrictive environment) and outcomes (as measured through school district data involving test scores, suspensions, and expulsions). These are all objective sets of data, lending this study to a quantitative approach.

Statistical analysis can take many forms. When examining the relationships between variables, correlation can be used as one tool (Mertens, 2005; Rand, 2000). The Pearson product-moment correlation coefficient can be used to explore the relationship between continuous variables (Mertens, 2005). When correlation is demonstrated to exist, researchers often engage in further examination, using the correlations and relationships to make predictions (Ravid, 2000). Regression is a technique used to investigate how one variable can predict another (Mertens, 2005; Ravid, 2005). Within this study, Pearson correlations and multiple regression analysis will be used to study the relationships between variables.

Population for the Study

In this study, the sample included data from public school districts in the state of Illinois with more than 600 students, with the exclusion of the Chicago Public Schools (CPS), a large district with over 400,000 students and practices that vary greatly across its over 600 schools. Given the fact that data were aggregated into one district profile representing a significantly wide range of practices and populations, the information from CPS would not make a meaningful contribution to the results.

Data Collection and Analysis

Quantitative data were collected through a number of existing, publicly available data sources, including:

- Illinois State Board of Education District Special Education Profiles from 2011-12 school year (http://webprod1.isbe.net/LEAProfile/SearchCriteria1.aspx), including:
    - number of students with IEPs in each school district,
    - percentage of students with IEPs,
    - percentage of students with IEPs by race/ethnicity,
    - discrepancy in state assessments between students with and without IEPs,
    - percentage of students with IEPs in general education for over 80% of the school day,
    - percentage of students with IEPs in general education for over 80% of the day by race/ethnicity,
    - unit and high school districts' dropout rate gap between students with and without IEPs,
- Illinois State Board of Education 2011-12 Fall Enrollment Count, District Summary (http://www.isbe.net/research/htmls/fall_housing.htm),
- Illinois State Board of Education Summary Report of Special Education Expenditures and Receipts for Fiscal Year 2012 (http://www.isbe.net/sfms/sp_ed/sped-annual-12.pdf).

Data analysis utilized descriptive and inferential statistics in order to evaluate each research question and hypothesis. Methods of analysis have been determined in part through an examination of several studies examining disproportionality in special education identification (Sullivan & Artiles, 2011; Coutinho et al., 2002; Hosp & Reschly, 2004; Oswald et al., 2002). In order to analyze the data, diversity was first need to be defined within each school district through the use of the fractionalization index. This provided each district with a numerical representation of its racial diversity. In addition, several of the research questions required a specific value for disproportionality. The relative risk ratio, or ratio of risk for the target group (minority subgroups) based on the risk for a comparison group (White student subgroup), was utilized (Sullivan & Artiles, 2011). Other descriptive statistical methods included means, frequencies, ranges, and standard deviations.

Further analysis occurred through the use of inferential statistics, due to the fact that the sample did not represent every school district in Illinois. The majority of research questions utilized continuous data. As a result, the Pearson product-moment correlation coefficient was utilized in order to measure the relationship between the variables for each research question. One question, research question seven, sought to examine the various variables that contribute to the risk ratio through a multiple regression analysis. Table 1 features the data source and statistical analysis for each research question.

Table 1

Statistical Analysis of Research Questions

Research Question	Type of Statistics	Data Source
1) Does a school district's fractionalization index relate to the risk of a minority student being identified with a disability? 1a) Do differences exist in the relationship between a district's fractionalization index and the risk of a minority student being identified with a disability based on a district's NCES locale code? 1b) Is there a relationship between the percentage of low-income students in a school district and the risk of Black and Hispanic students being identified with a disability?	Descriptive Statistics: Mean, Frequency, Range, Standard Deviation, Risk Index, Risk Ratio, Pearson correlation, Spearman's Rho	2011-12 Special Education Profiles 2011-12 Illinois State Board of Education Fall Enrollment Counts
2) Does a school district's fractionalization index relate to student performance and outcomes, including: a) The performance gap between students with and without disabilities? b) The graduation rates of students with disabilities? 2c) Do differences exist in the performance gap in rural vs. urban school districts?	Descriptive Statistics: Mean, Frequency, Range, Standard Deviation, Risk Index, Risk Ratio, Pearson correlation, t-test, Spearman's Rho	2011-12 Special Education Profiles 2011-12 Illinois State Board of Education Fall Enrollment Counts
3) Does a school district's fractionalization index relate to the placement of students into general education environments?	Descriptive Statistics: Mean, Frequency, Range, Standard Deviation, Risk Index, Risk Ratio, Pearson correlation	2011-12 Special Education Profiles 2011-12 Illinois State Board of Education Fall Enrollment Counts

Table 1 (cont.)

4) Is there a relationship between a school district's fractionalization index and disaggregated data demonstrating placement of student subgroups into general education environments for greater than 80% of the school day?	Descriptive Statistics: Mean, Frequency, Range, Standard Deviation, Risk Index, Risk Ratio, Pearson correlation	2011-12 Special Education Profiles 2011-12 Illinois State Board of Education Fall Enrollment Counts
5) Does a school district's fractionalization index relate to district wealth, effort, and resources?	Descriptive Statistics: Mean, Frequency, Range, Standard Deviation, Risk Index, Risk Ratio, Pearson correlation	2011-12 Illinois State Board of Education Fall Enrollment Counts 2011-12 ISBE Special Education Expenditure and Receipts Report
6) Does a school district's fractionalization index relate to its gap in the dropout rate between students with and without disabilities?	Descriptive Statistics: Mean, Frequency, Range, Standard Deviation, Risk Index, Risk Ratio, Pearson correlation	2011-12 Special Education Profiles 2011-12 Illinois State Board of Education Fall Enrollment Counts
7) If relationships exist among a district's fractionalization index and any of the other study variables, which factors serve as the strongest predictors?	Multiple regression	2011-12 Special Education Profiles 2011-12 Illinois State Board of Education Fall Enrollment Counts 2011-12 ISBE Special Education Expenditure and Receipts Report

Summary

It is evident that within some public schools, there are practices that continue to limit equity for subgroups of students, particularly students with disabilities and African

American students. In Illinois, public school districts represent a wide range of student needs and educational practices.

In order to investigate if a relationship exists between a school district's diversity and its special education practices, this quantitative study resulted in a statistical analysis of existing data. Relationships and patterns were identified, and guidance for future researchers, school leaders, and policy makers will result.

Chapter Four: Results

The purpose of this study was to examine the relationship between racial fractionalization and special education identification, placement, and outcomes in public school districts within the state of Illinois. This study utilized descriptive and inferential statistics in order to explore these relationships. This chapter presents the results of the analyses outlined in chapter three. First, descriptive statistics are provided. Next, results for each research question are presented, along with discussion about the results. Finally, a summary of the overall results is provided.

Descriptive Statistics

In order to examine the relationship between racial fractionalization and special education identification, placement, and outcomes, a number of variables were identified and analyzed. The study examined numerous dependent and independent variables for school districts in the state of Illinois utilizing publicly available data from the Illinois State Board of Education. Table 2 outlines the study variables, differentiating between predictors (or independent variables) and outcomes (or dependent variables). Predictors included the following school metrics: fractionalization index, percentage of low income students, the operating expense per pupil (representing district wealth), and the NCES Urban-Centric Locale Code, which differentiates a school district as city, suburban, town, or rural. The dependent variables included the risk ratio for Black and Hispanic Students, the percentage of total students spending over 60% of their day in special education, the performance gap between students with and without disabilities, the graduation rate for

students with IEPs, the graduation rate gap between students with and without IEPs, and the percentage of IEP dropouts. All of these variables will be described in detail.

Table 2

Study Variables

Predictors/Independent Variables	**Dependent Variables**
1. Fractionalization index 2. Percentage of low income students 3. NCES Urban-Centric Locale Code 4. Operating expense per pupil 5. WEALTH 6. EFFORT	*Identification:* 1. Percentage of students with IEPs 2. Risk Ratio (Black, Hispanic) *Placement:* 3. Percentage of total students over 60% special education (overall, Black, Hispanic) *Outcomes:* 4. Performance gap 5. Percentage of IEP dropouts 6. Graduation rate 7. Dropout rate gap

While 560 total districts were included in the study, it should be noted that not all districts could contribute to the analysis of each question. In examining the dropout rate, for example, only high school and unit school districts were included (n = 338. Additionally, three school districts did not provide financial data regarding operating expense per pupil. Finally, the risk ratio data also represents fewer than the total school districts. For a risk ratio to be calculated there must be White, Black, and/or Hispanic

students present within the district. In these cases, school districts did not have one or more students that were White, Black, and/or Hispanic.

General Characteristics of the Sample

Illinois school districts represented in this study included districts that consisted of 600 or more students, excluding Chicago Public Schools. Districts included elementary (grades pre-kindergarten through 8), high school (grades 9 through 12), and unit (grades pre-kindergarten through 12). Table 3 outlines an overview of all descriptive statistics organized by variable type. Independent variables included predictors that are based on the school district composition and location, including the actual fractionalization index, percentage of low-income students, locale code, and operating expense per pupil (wealth). Dependent variables were divided into the major categories of identification (percentage of students with IEPs and risk ratios for Black and Hispanic students), placement (percentage of students spending the majority of their educational time in segregated special education environments), and outcomes (performance gap in achievement testing between students with and without disabilities and percentage of students with IEPs who dropped out of school).

Table 3

Descriptive Statistics before Transformations

	N	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	SE	Statistic	SE
Fractionalization Index	560	0.33	0.21	0.21	0.10	-1.33	0.21
Percentage Low Income Students	560	37.49	21.91	0.48	0.10	-0.28	0.21
Operating Expense Per Pupil	557	11054.42	2730.19	1.27	0.10	1.87	0.21
WEALTH	554	262839.78	224828.07	1.54	0.10	1.95	0.21
EFFORT	551	0.043	0.015	0.50	0.10	1.95	0.21
Percentage of students with IEPs	560	15.39	3.29	0.82	0.10	2.20	0.21
RR Black (compared to white)	268	1.62	1.15	5.76	0.15	48.13	0.30
RR Hispanic (compared to white)	317	0.99	0.41	1.76	0.14	7.42	0.27
Percentage of total students over 80% general education	560	42.81	10.41	-0.11	0.10	0.54	0.21
Percentage of White students over 80% general education	547	46.69	11.91	-0.93	0.10	3.23	0.21
Percentage of Black students over 80% general education	281	24.86	20.57	-0.01	0.15	-1.32	0.29
Percentage of Hispanic students over 80% general education	325	33.64	22.46	-0.38	0.14	-0.93	0.27
Performance Gap	560	-34.16	9.45	1.05	0.10	6.04	0.21
% of IEP dropouts	338	3.90	3.56	2.96	0.13	20.85	0.27
Dropout rate gap	338	-1.65	2.72	-3.81	0.13	33.30	0.27
Grad. rate from 2010-11	340	71.57	19.39	-1.38	0.13	3.57	0.27

Description of Variables

Numerous variables, both independent and dependent, were included in this study. Independent variables will be reviewed first. Then, I will discuss the dependent variables, characterizing them as related to identification, placement, or outcomes. Because many variables appeared to potentially violate the assumptions of normality, I took measures to ensure each variable was qualified to be used in further parametric tests.

This process included creating a Z-score and checking the skewness and kurtosis for each variable. I tested the skewness and kurtosis estimates against the recommended range of three standard errors, values outside the range of +/- 3.29 (Tabachnick & Fidell, 1996). This range is appropriate for sample sizes larger than 300. In the following description, I will discuss how assumptions of normality were tested and verified.

Independent variables. Four independent variables, or predictors, were identified for this study.

Fractionalization index. The fractionalization index was calculated for each school district. In order to accomplish this, data were collected representing student enrollment in each racial group. For Illinois school districts, racial groups are standardized and include seven categories: American Indian, Asian, Black, Hispanic, Other Pacific Islander, Two or More Races, and White. These values were obtained through the Illinois State Board of Education 2011-12 Fall Enrollment Counts, found at: http://www.isbe.net/research/htmls/fall_housing.htm. As described in chapter two, an index of 1.0 represents a greater degree of fractionalization, with each member of the group representing a different race. An index of 0 represents complete racial homogeneity. Fractionalization indices in this sample produced a mean of .33 (SD = .21). A full listing of each district and the corresponding fractionalization index can be found in Appendix X.

As mentioned earlier, while 560 total school districts were represented in this study, some variables do not represent all 560 districts, depending on district grade levels (elementary vs. high school district) and demographics. The descriptive statistics

demonstrated large degrees of variance, with some very inconsistent patterns across school districts. Demographically, it is clear that school districts represent very different student compositions across the state. The fractionalization index of this sample, for example, represents a wide range, with some districts very uniform in the racial makeup (minimum value = .02), and others much more diverse (maximum value = .74).

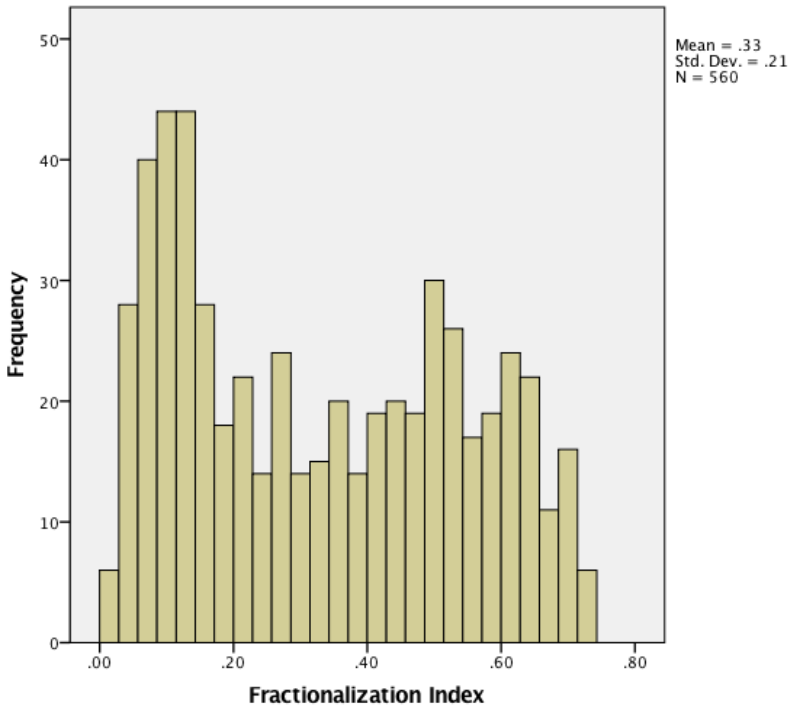

Figure 1. Histogram of fractionalization index.

While the histogram of the fractionalization index variable (see Figure 1) does not provide strong evidence of normality, an examination of the skewness (.21) and kurtosis (-1.33) supports the determination that the fractionalization index variables are within allowances to meet the assumption of normality for further parametric tests.

Percentage of low-income students. The percentage of low-income students was obtained for each school district, also from the ISBE 2011-12 Fall Enrollment Counts.

The school districts in this sample ranged in percentage of low-income students from .02% to 99.6% (M = 37.49%, SD = 21.91%).

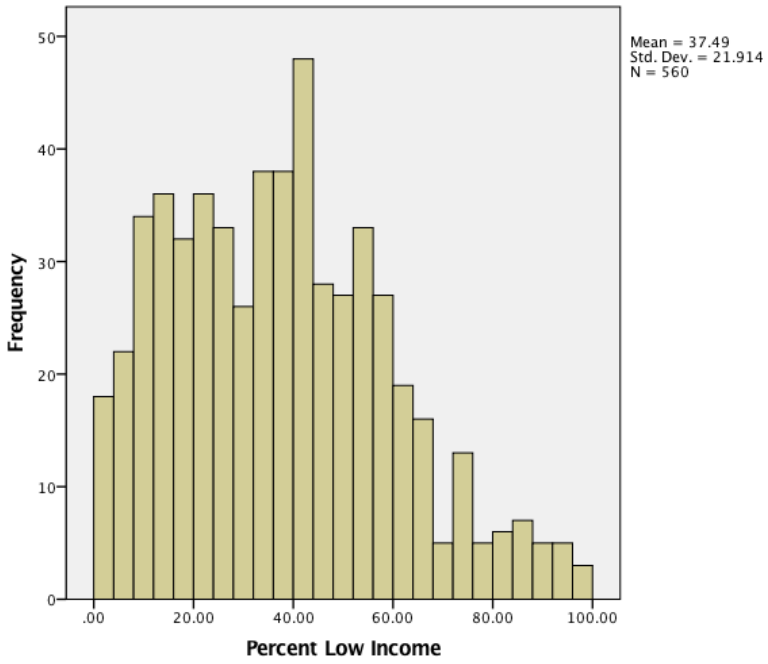

Figure 2. Histogram of percentage of low income students.

The histogram of the percentage of Low Income students in a district reveals some slight skewness to the right; however, the skewness value of 0.48 and kurtosis value of -0.28 do not indicate enough evidence to violate the assumptions of normality.

NCES Urban-Centric Locale Code. The National Center for Education Statistics classifies each school district with a numeric value to categorically describe its location. Within this study, The NCES Urban-Centric Locale Code was used to group districts together based on proximity to an urbanized area. NCES Urban-Centric Locale Codes for city and suburb categories (values ranging from 11-23) are within an urbanized area. NCES Urban-Centric Locale Codes for town and rural categories (values from 31-43) are

outside an urbanized area. I used locale codes as nominal categories in order to form groups out of the data points and look closely at the relationship between the type of community (urbanized or non-urbanized) and each of the dependent variables.

Operating expense per pupil. In order to quantify a district's resources, the operating expense per pupil was collected for each school district. The operating expense per pupil includes federal, state, and local funds. This value ranged from $6,016.04 to $22,552.14 (M = $11,054.42, SD = 2730.19, Mdn = 10284.87). Given this wide range of operating expense per pupil, it is clear that school districts in Illinois vary greatly in terms of resources. In order to normalize these data, a log transformation was conducted. Natural log transformations reduce skew in samples with a skew to the right because they essentially spread out the left tail and condense the right tail of skewed datasets, which is often the pattern in money-based sample distributions (Tabachnick & Fidell, 1996). The large distance between the mean ($11,054.42) and median ($10,284.87) values of this variable, along with the visible slope to the right, supports the use of the log transformation for this study variable. This transformation will be used for all parametric analyses. The Transformed Operating Expense per Pupil (TrOEPP) histogram in Figure 3 demonstrates visually the data's adherence to the normal curve after transformation.

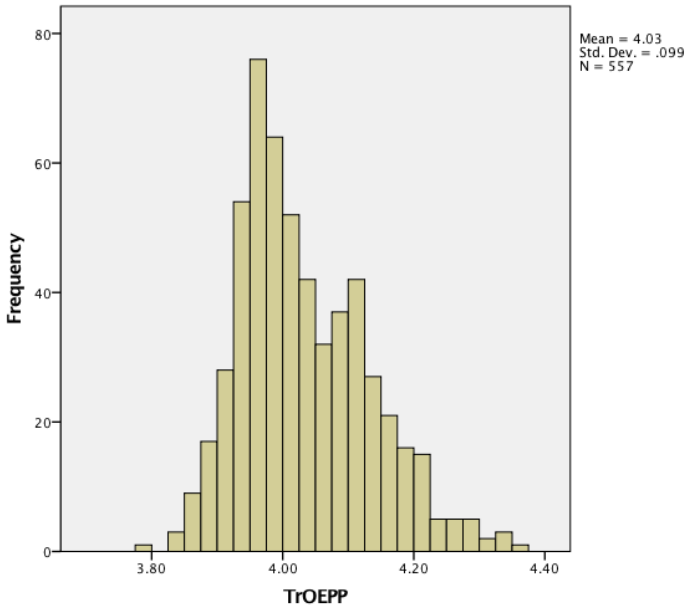

Figure 3. Histogram of Transformation Log of Operating Expense Per Pupil (TrOEPP).

WEALTH. In order to quantify a district's wealth, the Equalized Assessed Value per student (as obtained through Average Daily Attendance) was calculated for each district. The original data ranged from a minimum of $27,732.43 per student to $2,082,988.30 per student, but the kurtosis value (7.04) fell outside of the normal range, due to the presence of three significant outliers (see Figure 4). Once the outliers were removed, the values for skewness and kurtosis (S = 1.74, K = 3.19) supported normality. The histogram shown in Figure 5 provides a visual representation of this range, reflecting the extent of local resources across the state of Illinois.

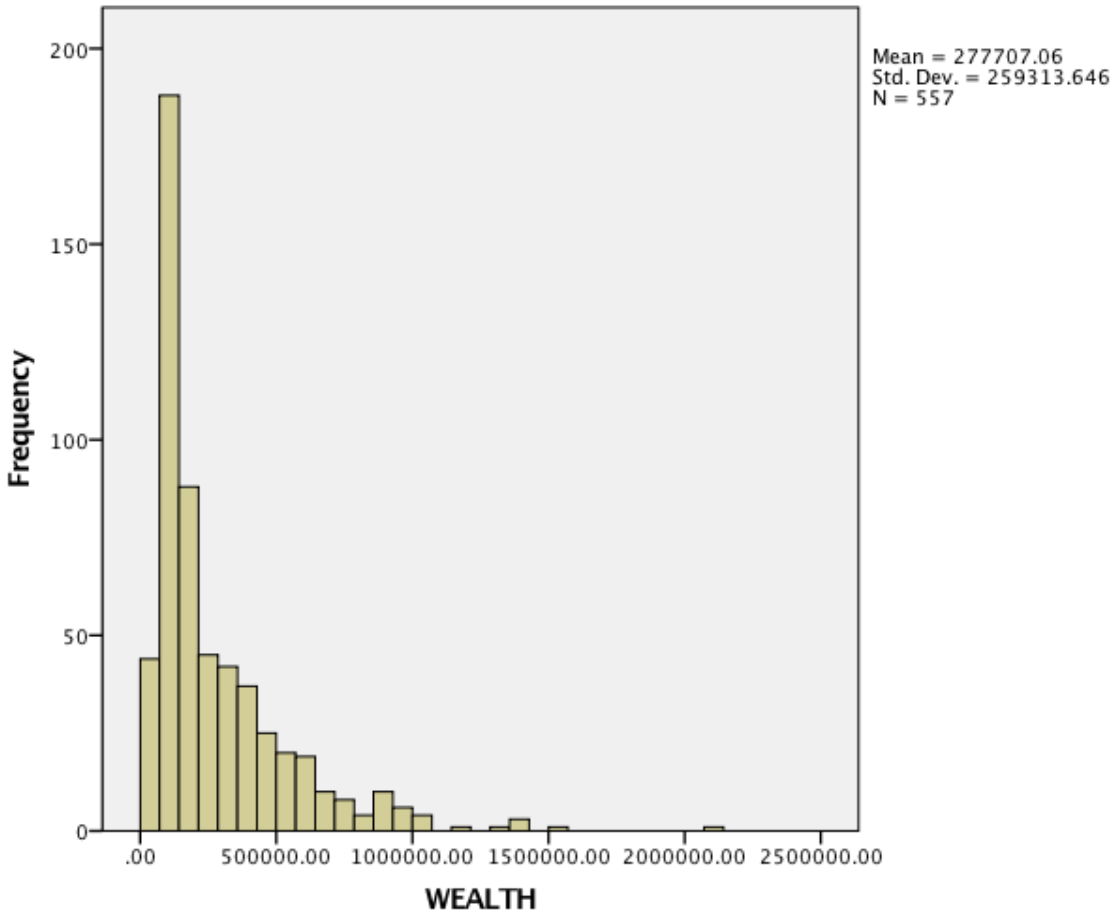

Figure 4: WEALTH before removal of outliers.

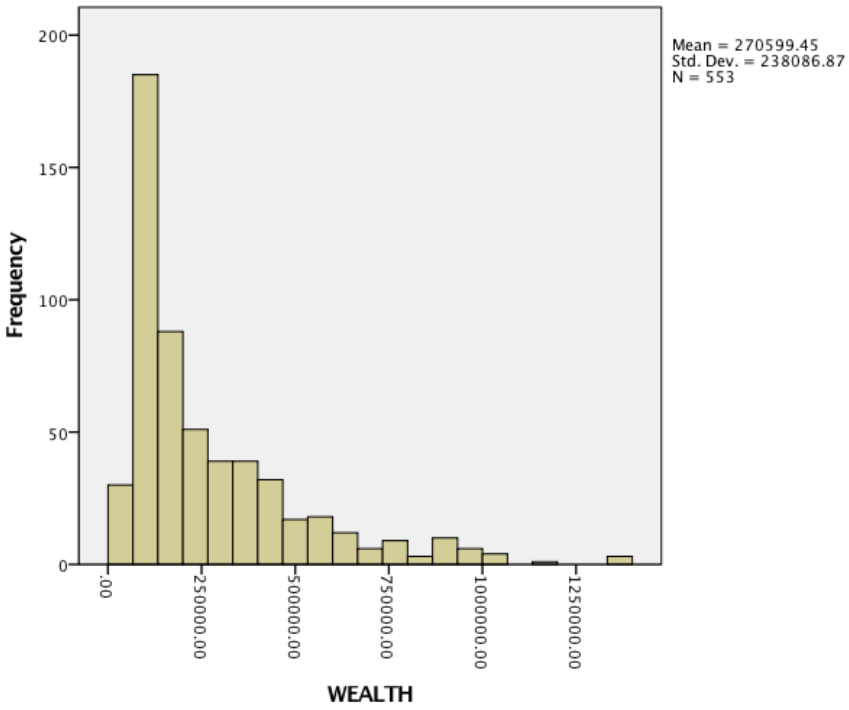

Figure 5: WEALTH after removal of outliers.

EFFORT. For each district, a value of district effort was calculated. This was obtained by using the values for Equalized Assessed Value, Average Daily Attendance, and Local Revenue. Local Revenue per student was divided by Equalized Assessed Value per student, and this value provides a measure of Effort. The range of district effort, 0.012 – 0.116, reflects a vast difference in the amount of tax burden that local school districts carry, based on the resources they have and the tax rate required.

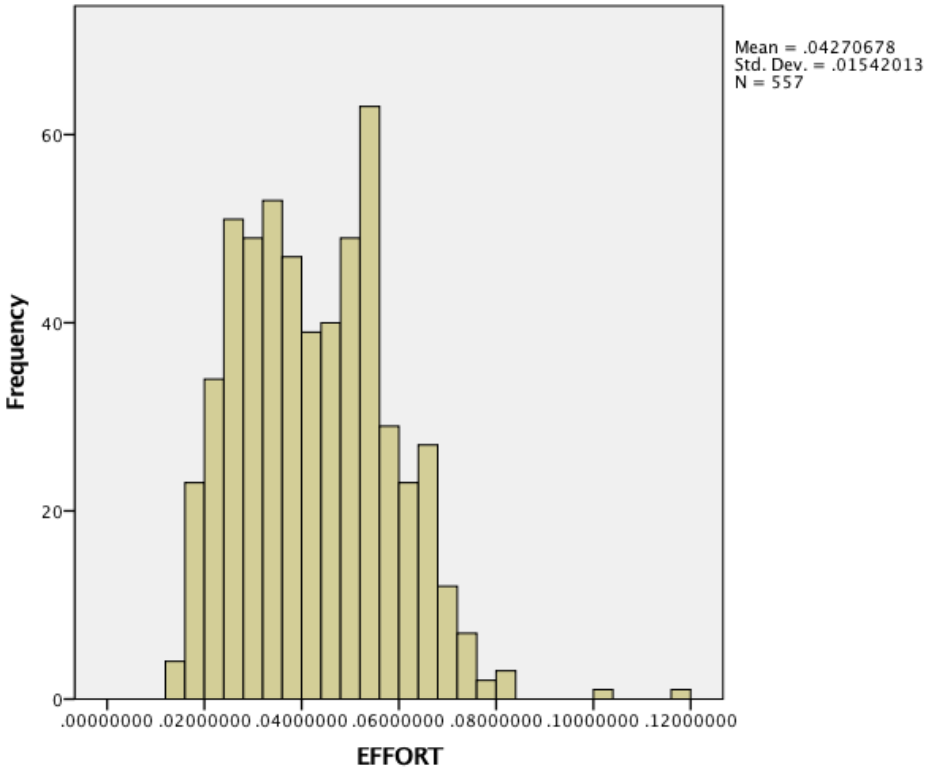

Figure 6. Effort calculated as local revenue per student divided by equalized assessed value per student.

Dependent variables. Numerous outcome variables were explored in this study. Dependent variables were organized into three groups, namely related to student identification, placement, or outcomes.

Identification variables. Several variables were related to the identification of students with disabilities.

Percentage of students with IEPs. This value describes the percentage of students in the school district who have been identified as having a disability and placed on an individualized education program (IEP). The value includes students aged 3 to 21 years, as school districts are responsible for providing services for this entire age range.

The percentage of students with IEPs also represents a wide range. Districts ranged from 6.63% to 33.91% (M = 15.39; SD = 3.92). Outliers were present in the percentage of students with IEPs. The district with the highest percentage was over five standard deviations above the mean. Plainly, these figures demonstrate that school districts do not consistently identify an equal proportion of students as having disabilities. There are several possible explanations for the variance in disability identification in the data. For example, some elementary or unit school districts have preschool programs that only serve children with disabilities, giving them 100% of students with disabilities aged 3-5 years. Furthermore, in unit and high school districts, students who are aged 18-22 years can continue to qualify for special education services, while their nondisabled peers have already graduated. This can result in a higher percentage of students identified with IEPs when considering grades 9-12. Still, the histogram suggests the presence of a normal distribution, with skewness of .80 (SE = 0.10) and kurtosis of 2.2 (SE = 0.21) supporting this conclusion (see Figure 7).

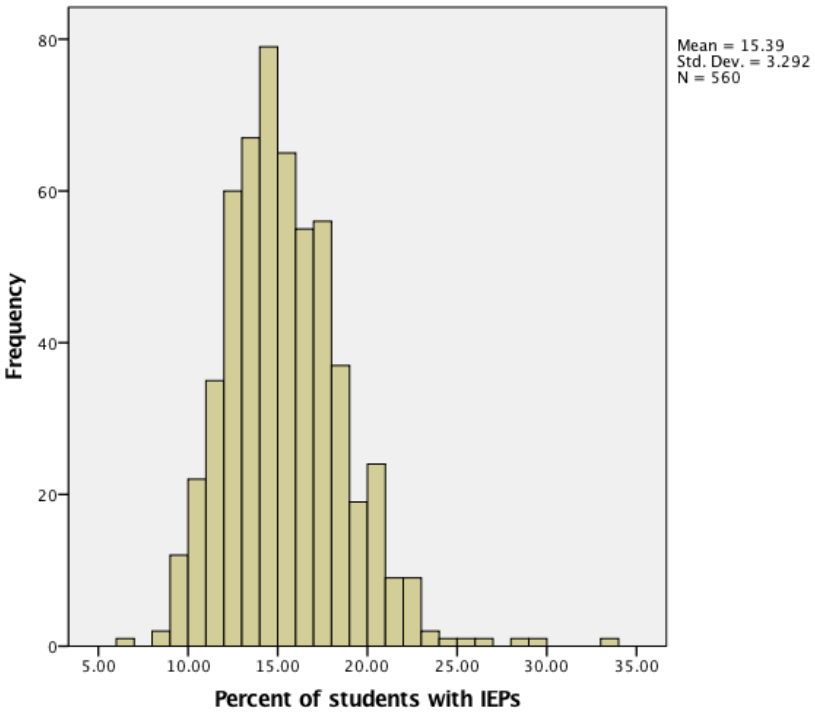

Figure 7. Scatterplot of percentange of students with IEPs.

Risk ratios: Black and Hispanic. In order to evaluate a group's proportion of students with disabilities compared to other groups, a risk ratio was calculated for each district for both Black students and Hispanic students. The risk ratio was obtained by first calculating the risk index for both Black students and Hispanic students. The risk index is the percentage of students in each category (Black or Hispanic) identified as having a disability. The risk ratio value is a measure of that compared to the target group, White students. A ratio of 1.0 indicates that no discrepancy between the target minority group and the White student group exists. Districts without any White students were excluded from this sample, as well as districts that did not have any Black students or Hispanic students.

In determining the values for risk ratio Black, only 268 districts were included. Districts without any Black students and/or White students were excluded. When examining the data for risk ratio Black, the distribution presented with some outliers. Most risk ratio values are between .15 and 3.32, which is within two standard deviations of the mean, but five districts represented a much higher risk of Black students being identified as disabled, with risk ratios of 5.02, 5.66, 5.67, 10.49, and 12.99.

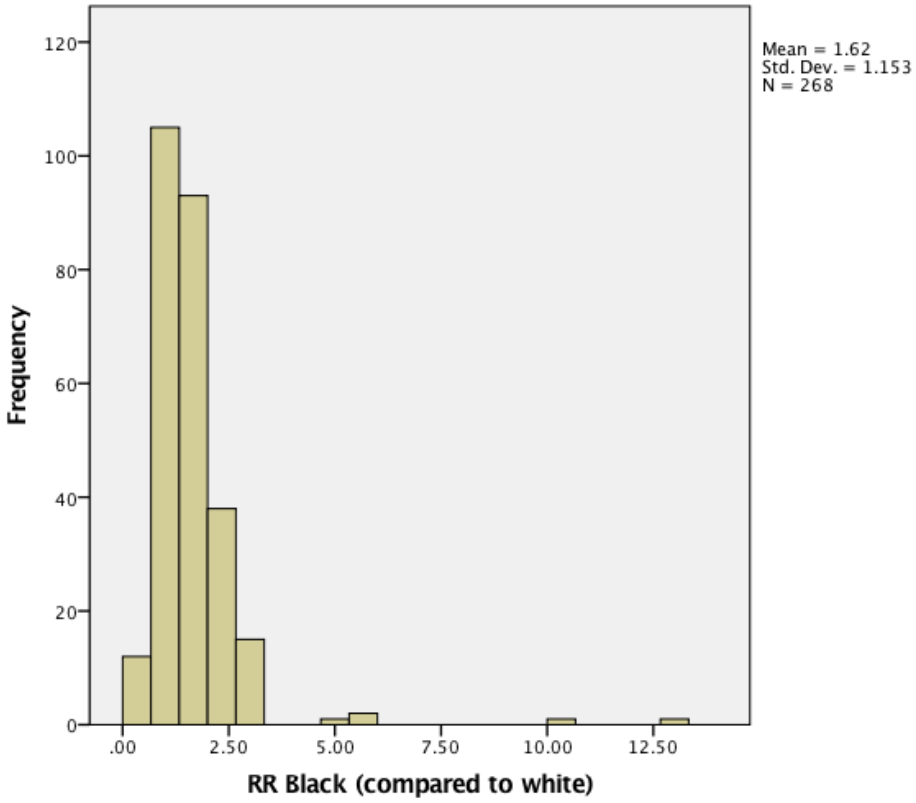

Figure 8. Scatterplot of risk ratio for Black students with all values included.

The histogram in Figure 8 also shows the lack of normality in these values, with some clear outliers. Further analysis was conducted on the districts that had a risk ratio (Black) value over five, in order to determine whether these districts should be excluded

from further analysis. An overview of descriptive statistics of the five outlier districts is seen in Table 4.

Table 4

Descriptive Statistics for Five Outlier Districts for Risk Ratio Black

District	Risk Ratio Black	Fractionalization Index	% of students with IEPS	NCES Urban-Centric Locale Code	Operating Expense Per Pupil	% Low-Income Students
Outlier District						
Central A & M CUD 21	5.02	0.08	17.76	42	$9,269.82	33.94
Iroquois West CUSD 10	12.99	0.50	20.23	32	$11,744.41	52.01
Manteno CUSD 5	10.49	0.26	14.91	31	$9,150.33	27.46
CHSD 117	5.67	0.28	13.07	22	$15,521.95	17.85
Geneva CUSD 304	5.66	0.24	14.79	21	$13,396.84	6.04
Min	5.02	0.08	13.07	21	$9,150.33	6.04
Max	12.99	0.50	20.23	42	$15,521.95	52.01
Mean	7.96	0.27	16.15	29.60	$11,816.67	27.46
SD	3.57	0.15	2.83	8.56	$2,730.71	17.29
From Full Sample						
Min	0.15	0.02	6.63	12	$6,016.04	0.02
Max	12.99	0.74	33.91	43	$22,552.14	99.60
Mean	1.62	0.33	15.39	27.70	$11,054.42	37.49
SD	1.153	0.210	3.29	8.70	$2,730.19	21.91

In addition to examining the characteristics of these outliers, Z-scores were obtained, and the measures of skewness and kurtosis validated the non-normality seen in the histogram. Very high kurtosis was present in some variables in this data set.

Table 5

Risk Ratio Black Z-score Skewness and Kurtosis

	N	Skewness (SE)	Kurtosis (SE)
Z-score: RR Black (compared to White)	268	5.76 (0.15)	48.13 (.030)

While the risk ratios for Black students stood out as outliers in these districts, it appears as though the target districts did not stand out in any other way. The districts all had fractionalization index values within one standard deviation of the mean. One district's percentage of students with IEPs fell over one standard deviation above the average from the full sample set, but the others were all within one standard deviation of the mean. The NCES Urban-Centric Locale Code values demonstrated that these districts represented suburbs, towns, and a rural community, as opposed to all falling within one locale type. In no other ways did these districts represent outliers as a whole; the higher risk ratio value for Black students did not appear to be consistent with any pattern.

Given the skewness and kurtosis values, the outliers were removed and z-scores were re-evaluated. At this point, the values of skewness (1.11) and kurtosis (0.15) fell within a normal range, indicating that removing the outliers successfully allowed the data to meet the assumption of normality. Thus, these variables could be used in further parametric tests.

Table 6

Descriptive Statistics for Z-scores of Risk Ratio Black, Excluding Outliers

Descriptive Statistics

	N	Mean	Std. Deviation	Skewness (SE)	Kurtosis (SE)
Z-score: RR Black (compared to White)	264	-0.09	0.56	1.11 (0.15)	0.15 (2.68)

When these outliers were excluded, the mean became 1.50 (versus 1.62) and the standard deviation .616 (versus 1.15). A risk ratio value of 1.0 means that Black students are equally as likely to be identified with disabilities as White students. This demonstrates that in most districts with Black and White students in this sample, Black students were more likely to be identified as having a disability.

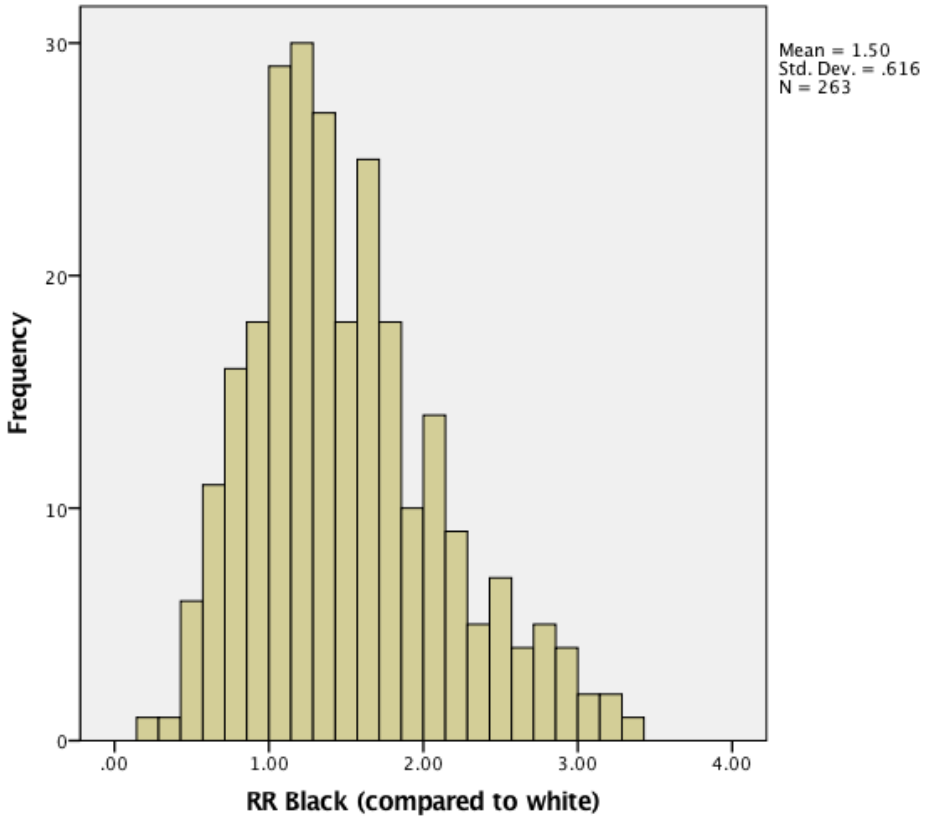

Figure 9. Scatterplot of percentage of students with IEPs with outliers eliminated

The risk ratio for Hispanic students was also examined. Districts without any Hispanic or White students were excluded, producing a final sample of 317 districts. With the initial examination, six outliers were identified, with the other districts ranged from .24 and 1.84 (M = .99, SD = .412; see figure 10). There was low skewness (1.76) but high kurtosis (7.42).

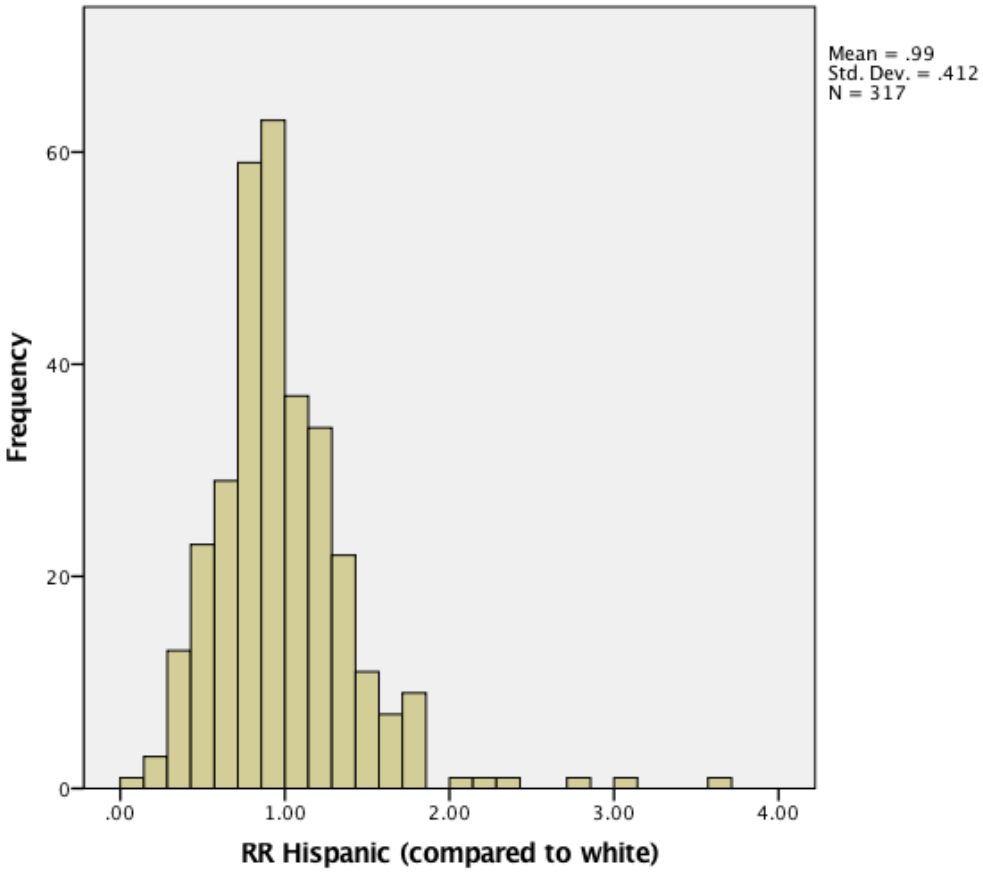

Figure 10. Scatterplot of risk ratio Hispanic, including all districts.

When the outliers were excluded and only continuous values were examined the data better reflected the dataset (M = .96, SD = .33). As a result, these six outliers were eliminated from the data set.

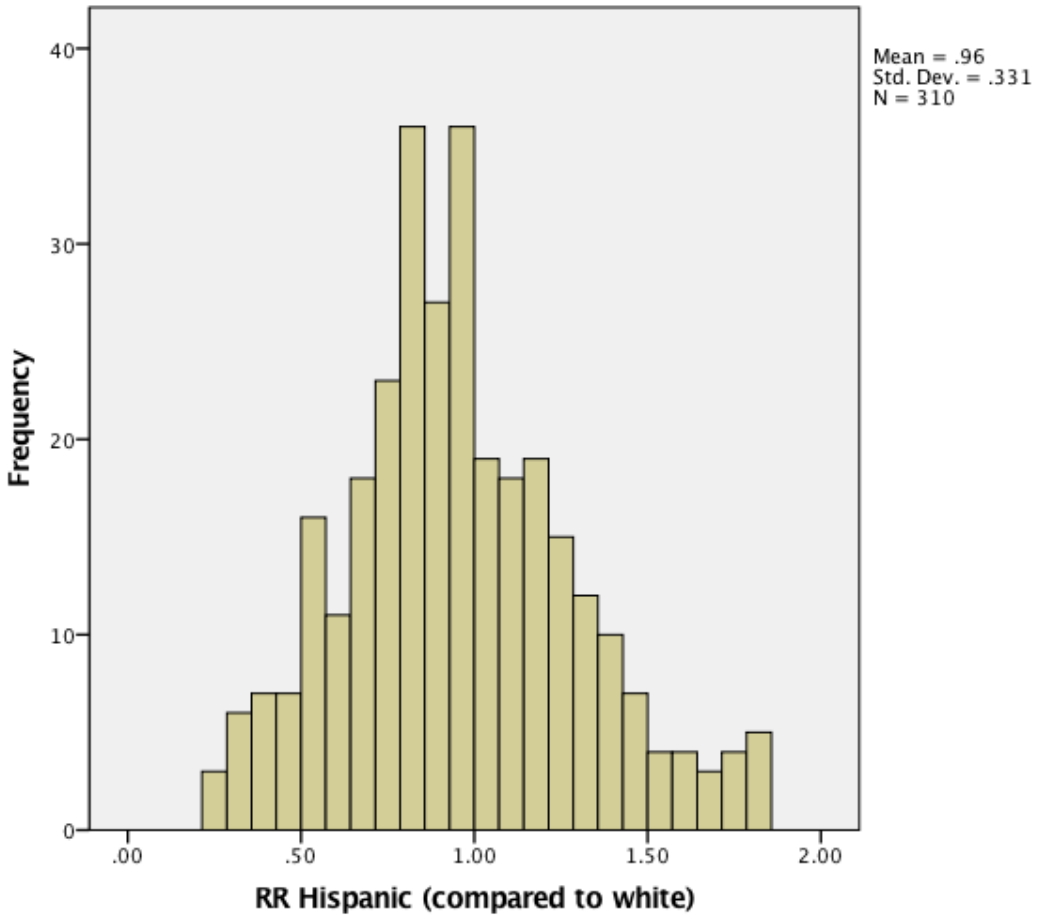

Figure 11. Scatterplot of risk ratio Hispanic, with outliers excluded.

Placement variables. The next type of dependent variable was related to the placement of students in special education environments. In this section, I will discuss the variables that reflect trends in the placement of students into special education.

Percentage of students over 80% general education. In order to examine student placement, the percentage of students with disabilities spending over 80% of their school day in general education environments, with less than 20% of their time spent in segregated, special education environments, was obtained for each school district. These data were collected from each school district's special education profile, found at

http://webprod1.isbe.net/LEAProfile/SearchCriteria1.aspx. In Illinois, a general education environment is a classroom with no more than 30% of students having disabilities, and at least 70% of students without disabilities. Data were collected for all students, including the subgroups of White, Black, and Hispanic.

When looking at the percentage of total students spending over 80% of their school day in general education environments, the data represent a normal distribution, with a mean of 42.73 and a standard deviation of 10.33. Values of skewness and kurtosis (S = -0.14, K = 0.52) support the evidence of normality.

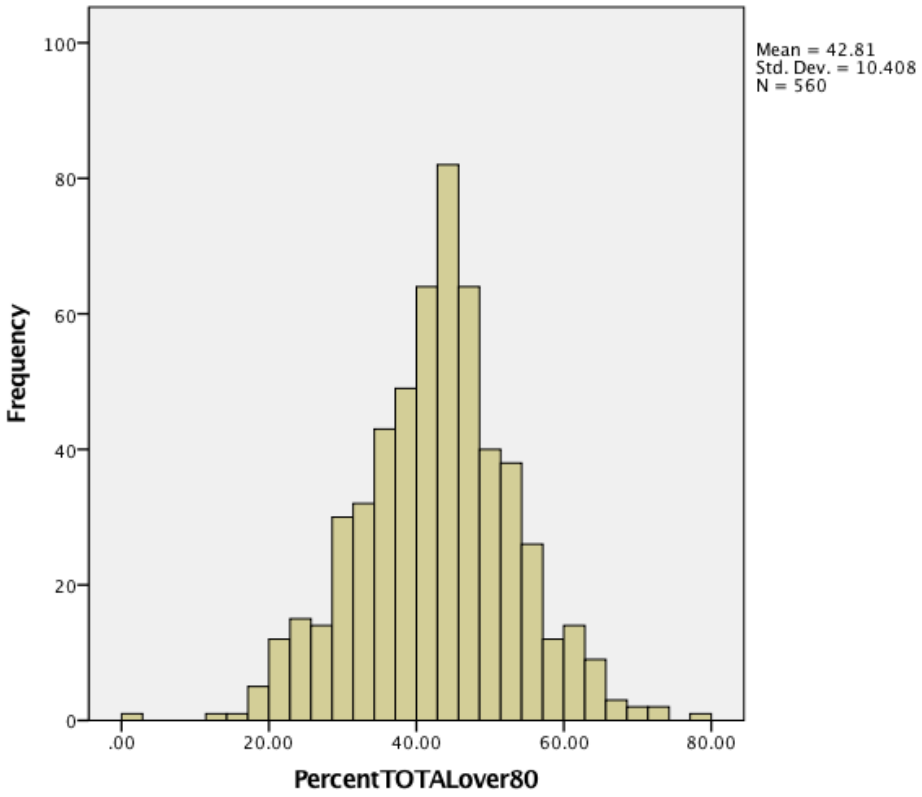

Figure 12. Histogram of percentage of total students over 80% general education.

The percentage of students placed in general education was also examined for the subgroups of White, Black, and Hispanic students. When comparing the three subgroups, some differences were found in the mean and the overall distribution. For all of the districts, the mean obtained was 42.81%. Data for the White students (see Figure 13) reflected a mean of 46.69%. For Black students (see Figure 4), the mean was lower, at 24.86%. The mean for Hispanic students (see Figure 5) was 33.64%. Over 80 districts had zero Black or Hispanic students spending over 80% of their school day in general education environments, whereas fewer than 20 school districts had zero white students spending over 80% of their school day in general education. Skewness and kurtosis all supported evidence of normality.

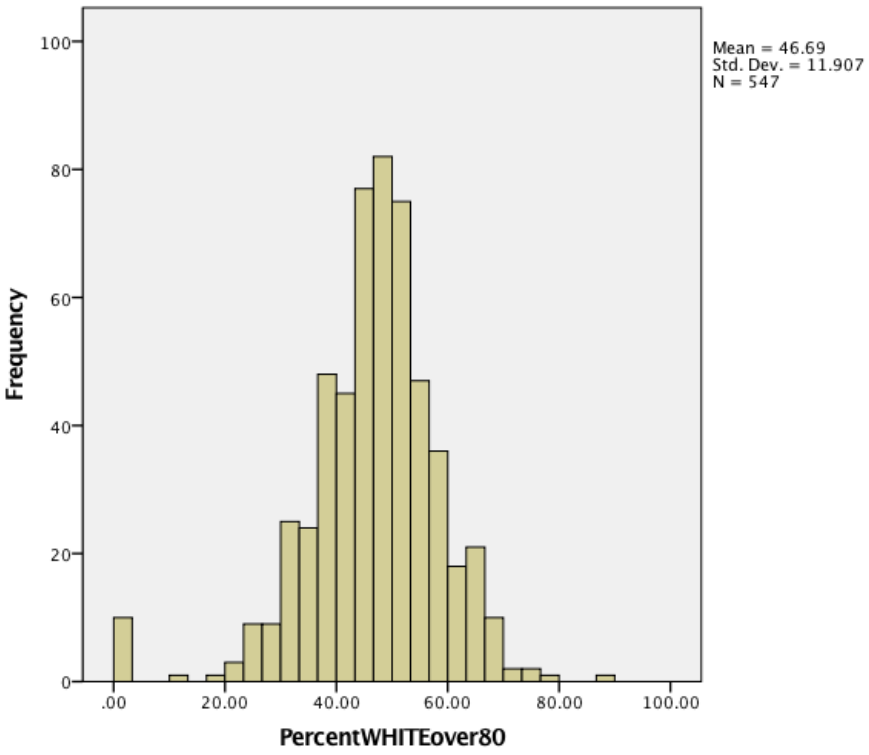

Figure 13. Histogram of percentage of White students over 80% general education.

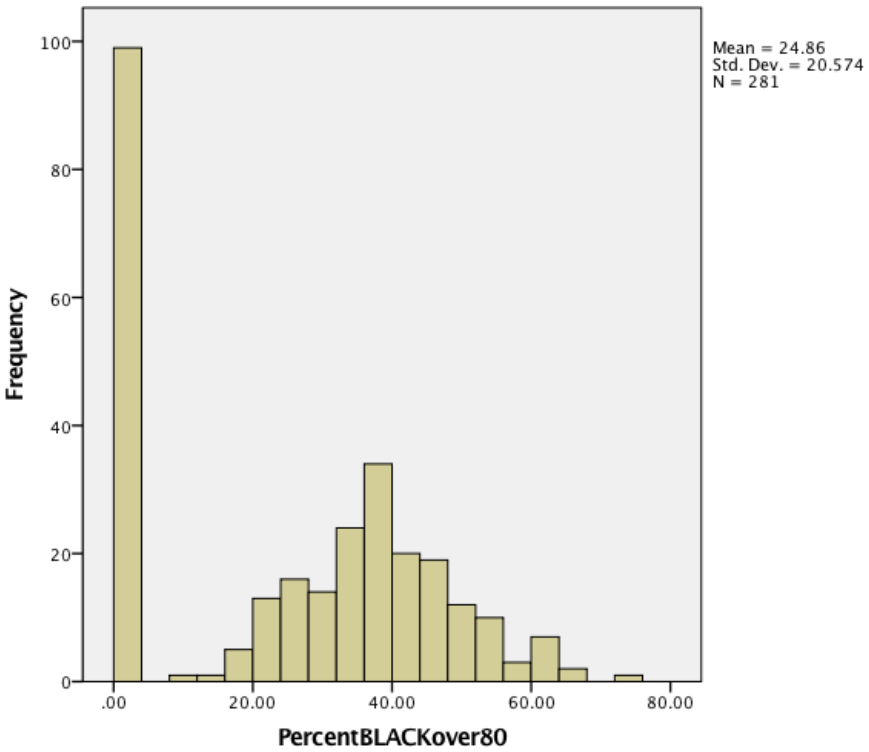

Figure 14. Histogram of percentage of Black students over 80% general education.

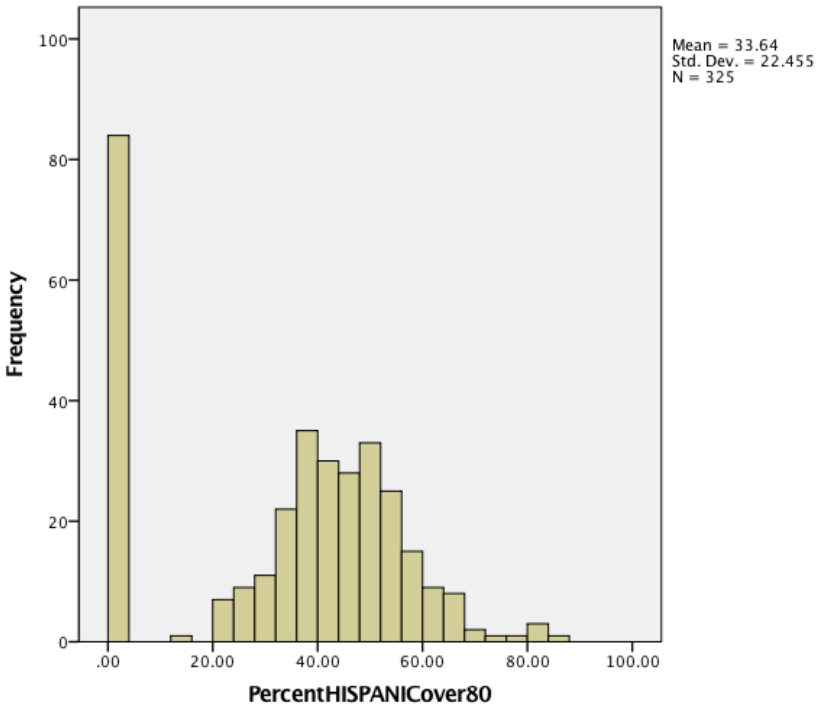

Figure 15. Histogram of percentage of Hispanic students over 80% general education.

Student outcome variables. Several variables were related to the outcomes of students with disabilities.

Performance gap. ISBE Special Education Profiles provide this value for each district. The performance gap value was obtained by calculating the percentage of test scores that are considered proficient or above for students with and without IEPs, and then subtracting the results for students without IEPs from the results of students with IEPs. A value below zero indicates lower proficiency among students with disabilities than students without disabilities.

When examining the performance gap data, some discrepancies were seen. The performance gap identifies the difference between the Illinois Standards Achievement Test (ISAT) results for students with and without disabilities. Across Illinois and on

average, students without disabilities outperformed those with disabilities on this test. However, in some districts, the students with disabilities performed better than their peers without disabilities. This unusual situation occurred in two districts, and these were eliminated as unusual outliers.

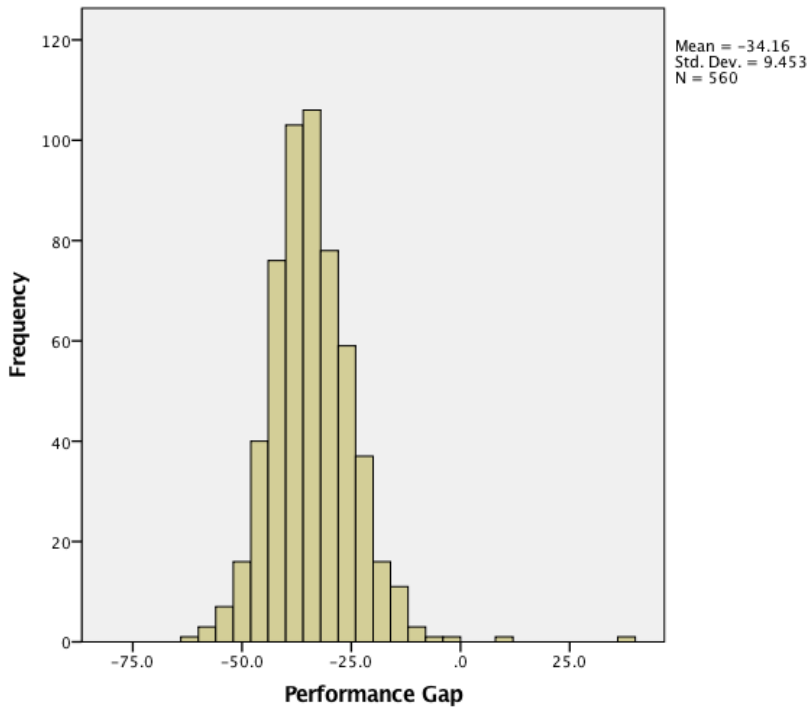

Figure 16. Histogram of performance gap before outlier removal.

Once the outliers were removed, skewness and kurtosis were reevaluated (S=.22, K=.38), and found to be within a normal range.

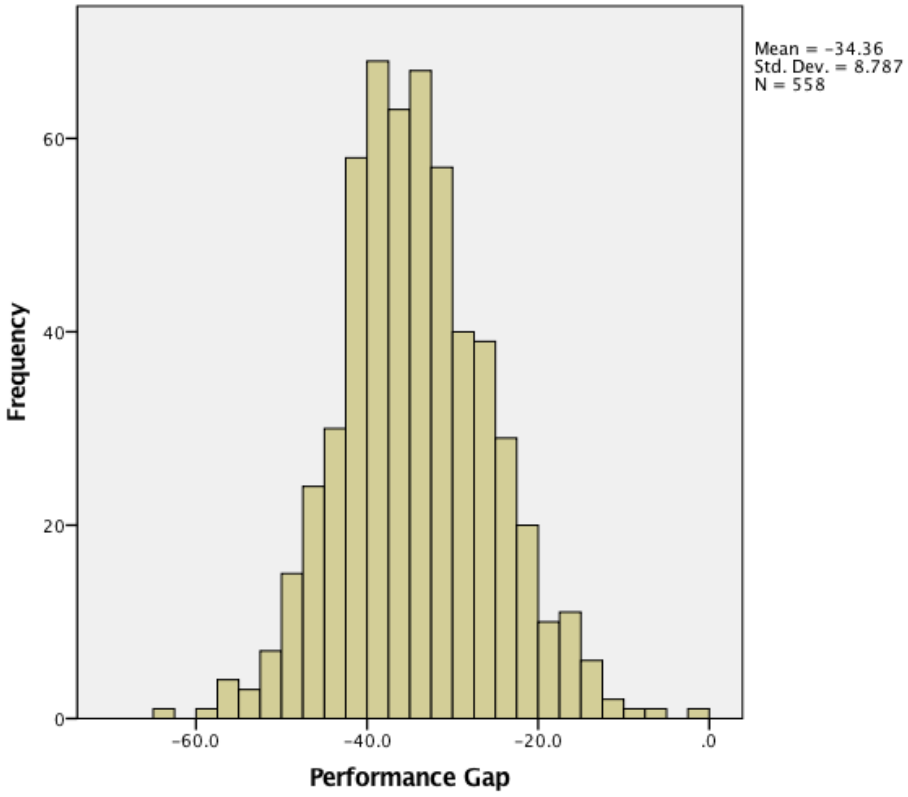

Figure 17. Histogram of performance gap after outlier removal.

Percentage of IEP dropouts. ISBE Special Education Profiles provide this value for each unit and high school district. This is the percentage of students with disabilities in grades 9-12 who drop out of school.

I examined the percentage of students with IEPs who dropped out of school for both unit and high school districts. This figure ranged from 0% to 36% (M = 4.07, SD = 3.85). There were two significant outliers in this data set, with the highest value being 36%, contributing to a kurtosis value of 20.85.

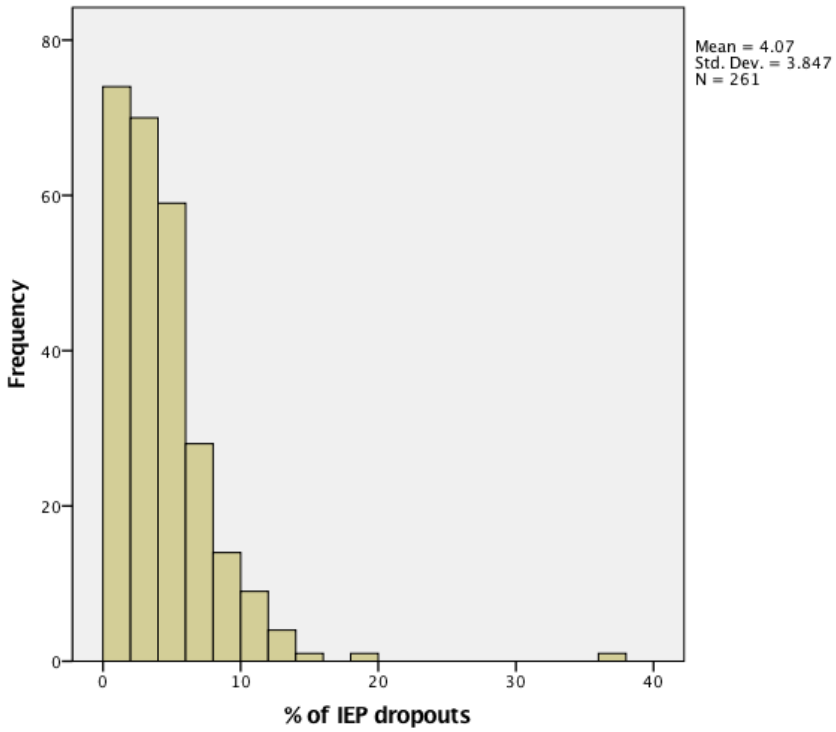

Figure 18. Histogram of percentage of IEP dropouts before outlier removal.

Upon removal of the outliers, the skewness (.88) and kurtosis (.64) fell within normal limits.

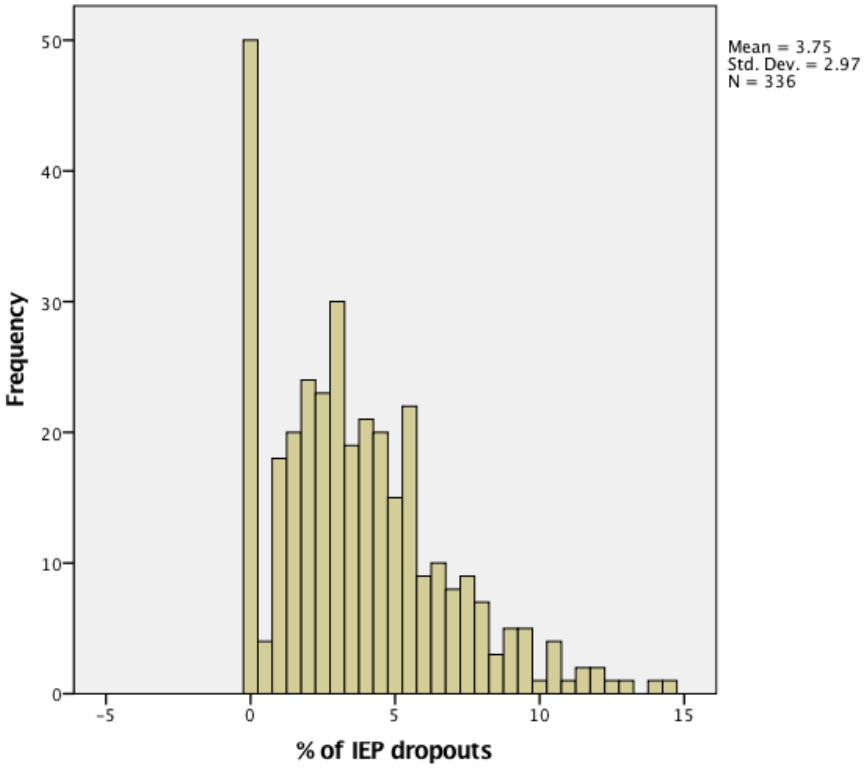

Figure 19. Histogram of percentage of IEP dropouts after outlier removal.

Graduation rate. This dependent variable represents the percentage of students with IEPs who graduated with a standard diploma with their original freshman class. In this student outcome variable, only unit and high school districts were represented. Values ranged from 0 to 100 (M = 4.07, SD = 3.85). The kurtosis obtained for this data set (3.57) fell beyond the acceptable values for the use of parametric testing. The histogram shows that while the majority of values fell between 40 and 100, there were several districts with values under 40. Ten districts actually had graduation rate values of zero, indicating that no students with disabilities graduated with their original freshman classes in these school districts. Given this non-normal distribution, only non-parametric tests were used for analyzing the graduation rate.

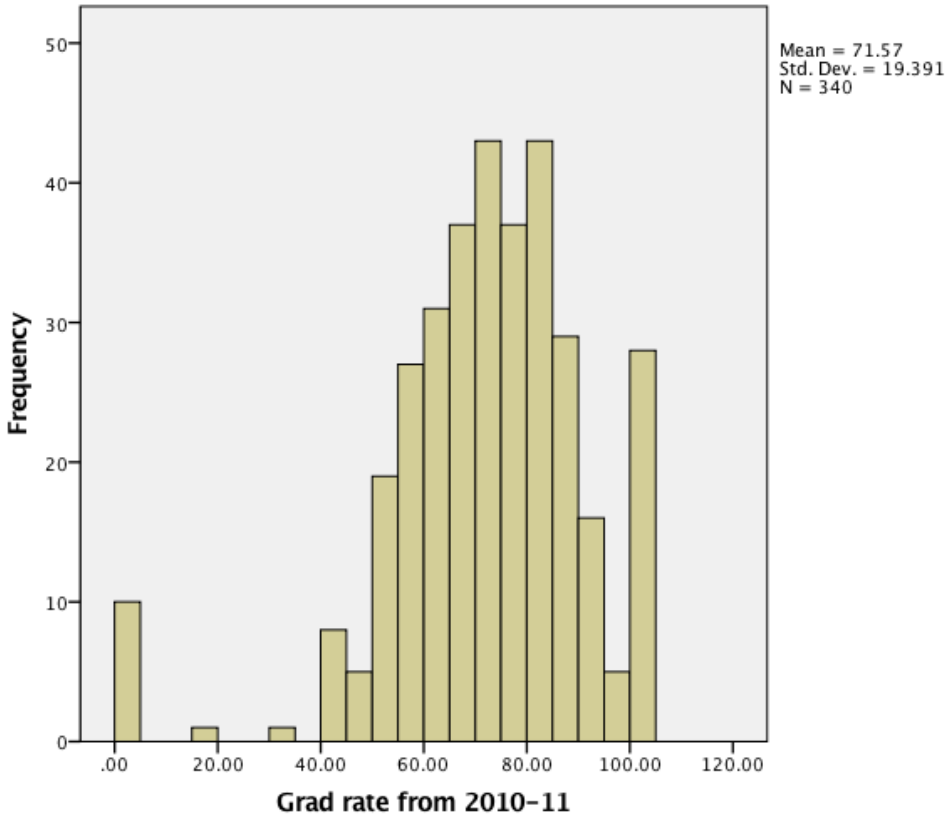

Figure 20. Histogram of graduation rate.

Dropout rate gap. This dependent variable, obtained from the ISBE special education profile, describes the difference between students with and without IEPs who drop out of school. These values only represented unit and high school districts. Values ranged from 0 to 100 (M = 4.07, SD = 3.85). Significant outliers were present in this data set, contributing to skewness and kurtosis falling outside of acceptable limits (S = -3.81, K = 33.30).

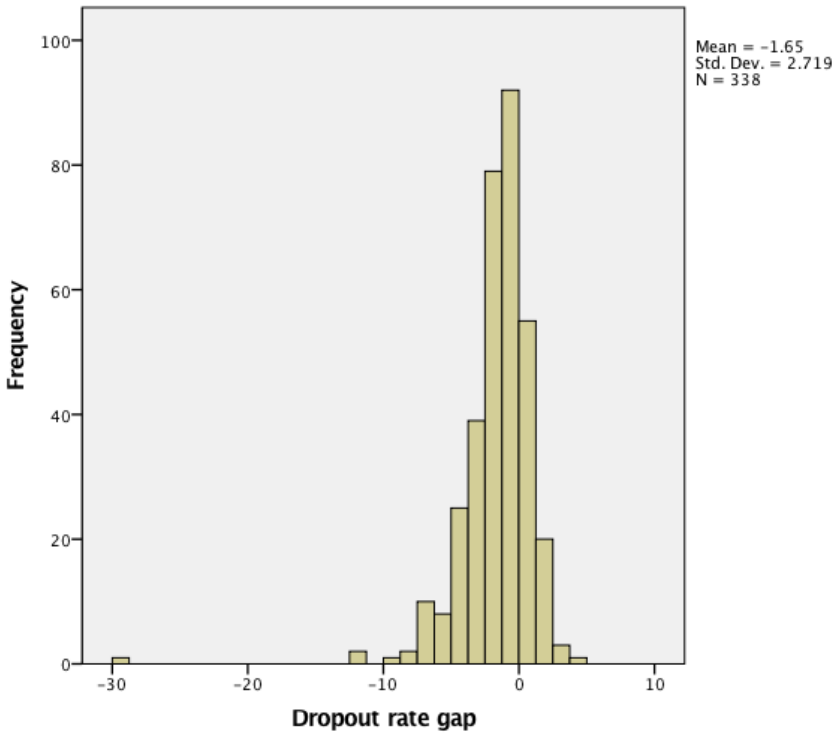

Figure 21. Histogram of dropout rate gap before outlier removal.

Upon the removal of these three outliers, skewness and kurtosis fell within normal limits (S = -0.73, K = 0.93).

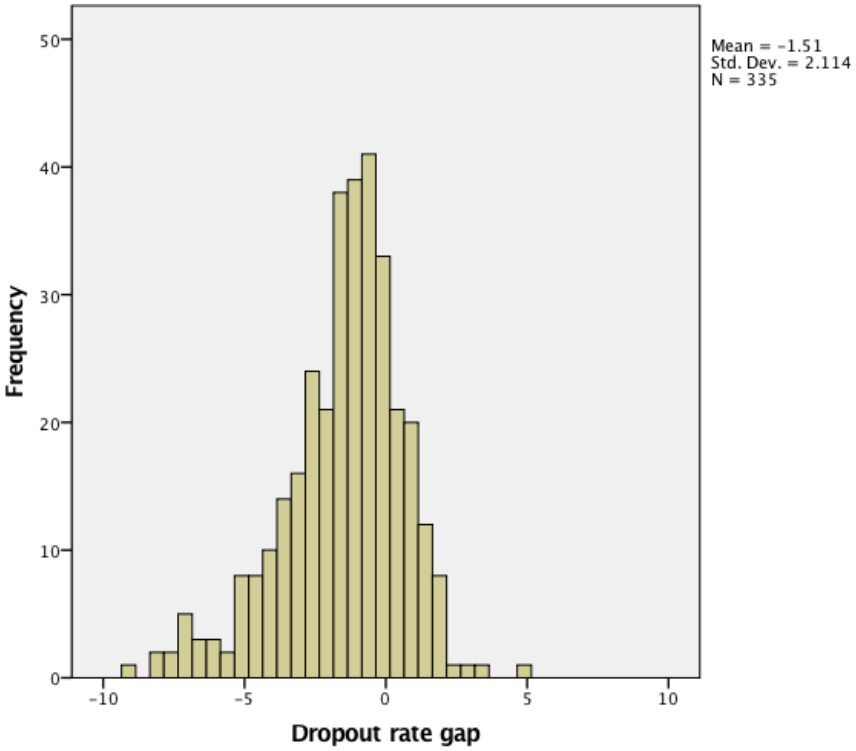

Figure 22. Histogram of dropout rate gap after outlier removal.

Table 7

Descriptive Statistics after Transformations

	N	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	SE	Statistic	SE
Fractionalization Index	560	0.33	0.21	0.21	0.10	-1.33	0.21
Percentage Low-Income Students	560	37.49	21.91	0.48	0.10	-0.28	0.21
Transformation Log of Operating Expense Per Pupil (TrOEPP)	557	4.03	0.10	0.63	0.10	0.10	0.21
WEALTH	553	270599.45	1.73	238086.87	0.10	3.19	0.21
EFFORT	557	0.043	0.015	0.47	0.10	0.35	0.21
Percentage of students with IEPs	560	15.39	3.29	0.82	0.10	2.20	0.21
RR Black (compared to white)	263	1.50	0.62	0.68	0.15	0.12	0.30
RR Hispanic (compared to white)	311	0.96	0.33	0.35	0.14	0.05	0.28
Percentage of total students over 80% general education	560	42.81	10.41	-0.11	0.10	0.54	0.21
Percentage of White students over 80% general education	547	46.69	11.91	-0.93	0.10	3.23	0.21
Percentage of Black students over 80% general education	281	24.86	20.57	-0.01	0.15	-1.32	0.29
Percentage of Hispanic students over 80% general education	325	33.64	22.46	-0.38	0.14	-0.93	0.27
Performance Gap	558	-34.36	8.79	0.22	0.10	0.38	0.21
% of IEP dropouts	336	3.75	2.97	0.88	0.13	0.64	0.27
Grad rate from 2010-11	340	71.57	19.39	-1.38	0.13	**3.57**	0.27
Dropout rate gap	335	-1.51	2.11	-0.73	0.13	0.93	0.27

Table 7 demonstrates that no values retained for use for parametric use violated the standard tests for normality (Tabachnick & Fidell, 1996). Any variables that continued to fall short of assumptions were reported only in non-parametric tests.

Overall, the data revealed a great deal of variance between school districts, indicating the diversity of Illinois school districts in regard to student demographics, special education practices, and student outcomes. Next, I will discuss the results of the analysis related to my research questions.

Research Questions

In order to evaluate my research questions, I used inferential statistics including Pearson correlation, Spearman's rho, and multiple regression. The majority of research questions aimed at investigating and interpreting any extant relationships between any two variables. First I will report simple correlations between variables. Then, each research question will be reviewed individually. Finally, I will conclude with an overview of the results of the statistical analysis. Dependent variables are represented on three tables and grouped into identification, placement, and outcomes.

While simple correlations will be provided, using Pearson's product moment correlation and Spearman's rho, additional analyses will discuss the impact of the correlation based on Rosenthal and Rubin's "binomial effect size display" (Wolf, 1986, p. 32). This transformation provides a clearer interpretation of the impact of the independent variable (Wolf, 1986).

Table 8

Correlation Table for Identification

		1		2		3		4		5		6		7	
Variables:		Pearson	Rho	Pearson	Rho	Pearson	Rho	Pearson	Rho	Pearson	Rho	Pearson	Rho	Pearson	Rho
Predictors (independent variables)	1. Fractionalization Index														
	2. Percentage Low Income	.11*	.09*												
	3. TrOEPP (Log Transformation of Operating Expense Per Pupil)	.43**	.47**	-.15**	-.15**										
	4. Wealth	.37**	.48**	-.45**	-.49**	.74**	.67**								
	5. Effort	-.34**	-.36**	.30**	.31**	-.40**	-.41**	-.71**	-.78**						
Identification (dependent variables)	6. Percentage of students with IEPs	-.06	-.06	.31**	.36**	-.12**	-.09*	-.25**	-.29**	.18**	.18**				
	7. RR Black (compared to white)	-.16*	-.16**	-.42**	-.43**	.16*	.11	.39**	.35**	-.38**	-.25**	-.24**	-.23**		
	7a. RR Black (urbanized districts)	-.06	-.06	-.46**	-.48**	.25**	.23**	.47**	.45**	-.32**	-.30**	-.30**	-.23**		
	7b. RR Black (non-urbanized districts)	-.41**	-.40**	-.33*	-.37**	-.05	-.02	.38**	.29*	-.32*	-.27*	-.21	-.15		
	8. RR Hispanic (compared to white)	-.22**	-.21**	-.47**	-.46**	.15**	.17**	.32**	.36**	-26**	-.26**	-.16**	-.20**	.62**	.64**
	8a. RR Hispanic (urbanized districts)	-.14*	-.14*	-.52**	-.52**	.20**	.22**	.42**	.46**	-.34**	-.35**	-.24**	-.22**	.53**	.69**
	8b. RR Hispanic (non-urbanized districts)	-.41**	-.43**	-.27*	-.29**	.12	.07	.12	.30**	-.16	-.15	-.11	-.17	-.02	.34*

Table 9

Correlation Table for Placement

		1		2		3		4		5		6		7	
Variables		Pearson	Rho	Pearson	Rho	Pearson	Rho	Pearson	Rho	Pearson	Rho	Pearson	Rho	Pearson	Rho
Predictors (independent variables)	1. Fractionalization Index														
	2. Percentage Low-Income	.11*	.09*												
	3. TrOEPP (Log Transformation of Operating Expense Per Pupil)	.43**	.47**	-.15**	-.15**										
	4. Wealth	.37**	.48**	-.45**	-.49**	.74**	.67**								
	5. Effort	-.34**	-.36**	.30**	.31**	-.40**	-.41**	-.71**	-.78**						
Placement (Dependent Variables)	6. Percentage of total students over 80% general education	-.14**	-.15**	-.22**	-.20**	-.05	-.08	-.05	-.05	.12**	.13**				
	7. Percent of Black students over 80% general education	.40**	.42**	.27**	.26**	.03	.06	-.16**	-.16**	.15*	.18**	.32**	.38**		
	8. Percentage of Hispanic students over 80% general education	.35**	.28**	.12*	.11	.02	-.01	-.09	-.08	.07	.10	.53**	.61**	.24**	.36**

Table 10

Correlation Table for Student Outcomes

		1		2		3		4		5		6		7		8	
Variables:		Pearson	Rho	Pearson	Rho	Pearson	Rho	Pearson	Rho	Pearson	Rho	Pearson	Rho	Pearson	Rho	Pearson	Rho
Predictors (independent variables)	1. Fractionalization Index																
	2. Percentage Low Income	.11*	.09*														
	3. TrOEPP	.43**	.47**	-.15**	-.15**												
	4. Wealth	.37**	.48**	-.45**	-.49**	.74**	.67**										
	5. Effort	-.34**	-.36**	.30**	.31**	-.40**	-.41**	-.71**	-.78**								
Outcomes (dependent variables)	6. Performance Gap	-.03	-.04	-.20**	-.23**	.09*	.07	.10*	.10*	.04	.04						
	6a. Performance Gap (urbanized)	-.11	**-.12***	-.21**	-.26**	.12*	.11	.14*	.15**	-.11	-.09						
	6b. Performance Gap (non-urbanized)	-.06	-.06	-.18**	-.21**	-.06	-.04	-.04	.03	.11	.10						
	7. % of IEP dropouts	.05	.06	.44**	47**	-.13*	-.08	-.20**	-.25**	.19**	.13*	.06	.04				
	7a. % IEP dropouts (urbanized)	.01	.05	.52**	.51**	-.15	-.18*	-.30**	-.36**	.38**	.34**	.06	.04				
	7b. % IEP dropouts (non-urbanized)	.15*	.12	.43**	.45**	-.12	-.10	-.17*	-.24**	.06	.01	.07	.03				
	8. Graduation rate		-.16**		-.34**		-.05		.10		-.01		.03		-.41**		
	8a. Graduation rate (urbanized)		.02		-.44**		.17		.27**		-.21*		-.08		-.61**		
	8b. Graduation rate (non-urbanized)		-.20**		-.30**		-.05		.11		.05		.07		-.33**		
	9. Dropout rate gap	.01	-.03	-.14**	-.16**	.10	.07	.07	.09	-.08	-.04	-.04	.06	-.83**	-.82**	.24**	.28**
	9a. Dropout rate gap (urbanized)	.09	.10	-.09	-.05	.03	.03	.05	.04	-.14	-.08	.01	.04	-.76**	-.72**	.45**	.36**
	9b. Dropout rate gap (non-urbanized)	-.06	-.09	-.19**	-.21**	.16*	.15*	.12	.13	-.05	-.03	-.07	.09	-.85**	-.85**	.17*	.24**

Question one: Does a school district's fractionalization index relate to the risk of a minority student being identified with a disability? The first question examined the relationship between a school district's fractionalization index and the risk ratio for two primary groups, Black and Hispanic students. First, this question was examined using descriptive statistics and a scatterplot. As discussed in the descriptive statistics section, districts with no Black or White students were excluded from this sample, as risk ratios were not available in these cases, and appropriate outliers were also eliminated.

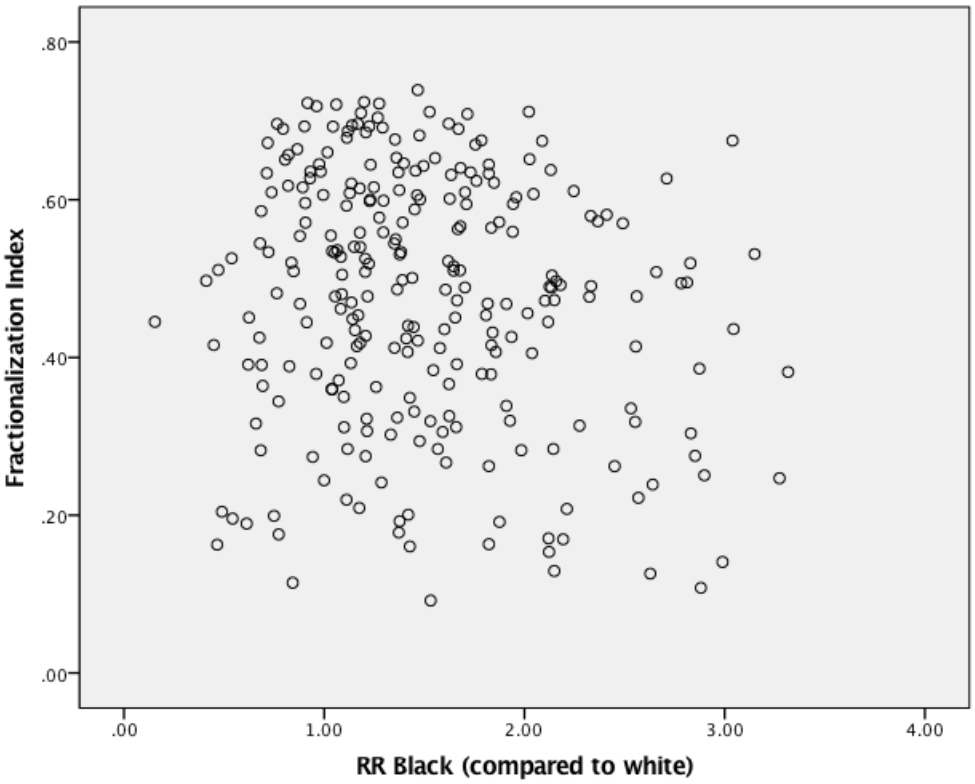

Figure 23. Scatterplot of fractionalization index and risk ratio of Black students.

This scatterplot suggests a nonlinear relationship. In order to study the correlation, a Pearson correlation and Spearman's rho were both conducted.

Table 11

Fractionalization Index and Risk Ratio of Black Students

	Spearman			Pearson		
	N	*r*	*p*	N	*r*	*p*
RR Black (compared to White)	268	-0.16**	0.009	263	-0.16*	0.011

Note. *Correlation is significant at the 0.05 level (2-tailed) **Correlation is significant at the 0.01 level (2-tailed)

In both the Pearson and Spearman correlations, a 2-tailed test produced a statistically significant p-value, suggesting that both results are statistically significant. The value obtained from the Spearman correlation, $r_s(266) = -.16$, $p < .001$ suggests the presence of a weak negative relationship between these two factors. The value obtained through the Pearson correlation, $r(261) = -.16$, $p=.003$, also suggests the presence of a weak negative relationship between a school district's fractionalization index and the risk ratio for Black students. However, when considering this correlation using the binomial effect size display, a 15% impact is evident, which suggests a greater significance than implied by the r-value.

In addition to examining the risk ratio and fractionalization index for Black students, the same was evaluated for Hispanic students. The scatterplot representing the districts' fractionalization indices and the risk ratio for Hispanic students also appears nonlinear. Again, outliers were previously eliminated from this data set.

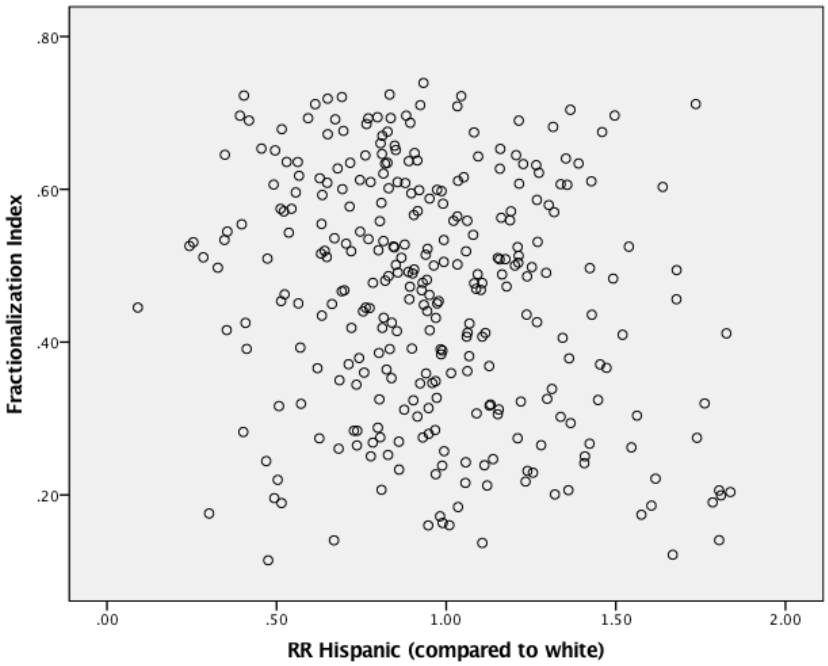

Figure 24. Scatterplot of fractionalization index and risk ratio of Hispanic students.

Both a Pearson correlation and Spearman's rho were completed for this data set, with the Pearson correlation (n = 311) Spearman's rho (n = 317). Results are seen in Table 12.

Table 12

Fractionalization Index and Risk Ratio of Hispanic Students

	Spearman			Pearson		
	N	*r*	*p*	N	*r*	*p*
RR Hispanic (compared to White)	317	-0.21**	0.000	311	-0.22**	0.000

*Correlation is significant at the 0.05 level (2-tailed) **Correlation is significant at the 0.01 level (2-tailed)

Both correlations produced a statistically significant result, and the values obtained, Pearson, $r(309) = -.22$, $p < .001$, and Spearman, $r_s(315) = -.21$, $p < .001$, when considered with the binomial effect size display, translate into a 20% impact.

Hypothesis one stated that there is a positive correlation between a school district's fractionalization index and the risk ratio of minority students within the school district. I actually found a weak negative relationship between the risk ratio and fractionalization indices of both Black and Hispanic students. Thus, the first hypothesis was not supported by the data. As opposed to having districts with a higher level of fractionalization demonstrate a greater risk ratio, the opposite was found; the risk was higher in districts that had a smaller fractionalization index.

Subquestion 1a: Do differences exist in the relationship between a district's fractionalization index and risk of minority students being identified with a disability based on a district's NCES locale code? After identifying the relationships between a school district's fractionalization index and risk of Black and Hispanic students being identified as having a disability, these data were then disaggregated by NCES locale code. The National Center for Educational Statistics has provided every school district with a locale code representing its community's size and proximity to urbanized areas. Four main categories are defined by NCES: urban, suburban, town, and rural. Urban and suburban represent communities that fall within an urbanized area, and town and rural represent communities that fall outside of an urbanized area. For this study, urban and suburban districts were grouped together into one "urbanized" category, and town and rural districts were grouped together into one "non-urbanized" category.

First, the data were examined by selecting only urbanized districts and comparing the fractionalization index to the risk ratio for Black students. Figure 25 shows a scatterplot of these

data. A nonlinear relationship is evident.

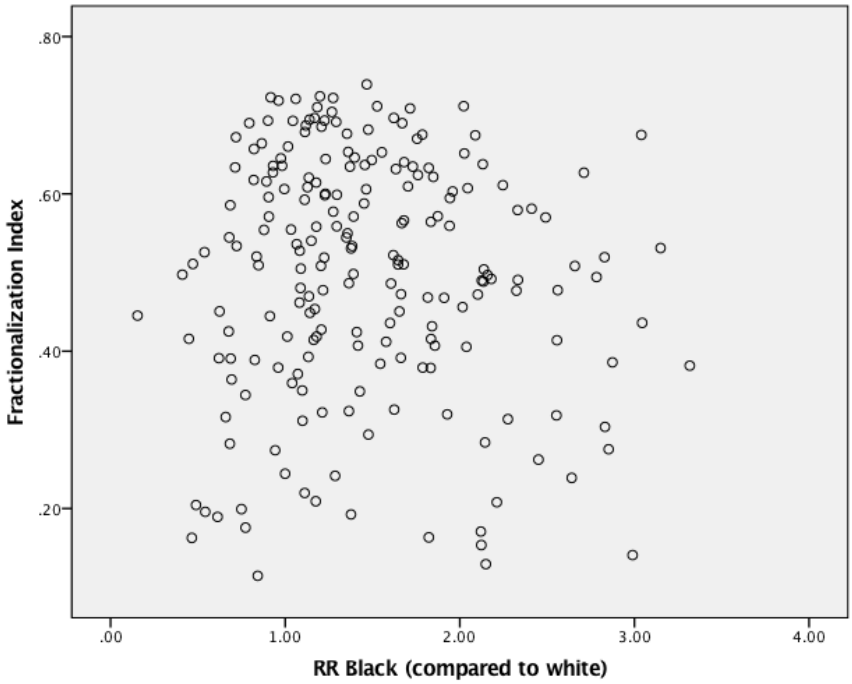

Figure 25. Scatterplot of fractionalization index and risk ratio of Black students in urbanized school districts.

Both Spearman and Pearson correlations were conducted before and after removing outliers, respectively, in order to examine the fractionalization index and risk ratio of Black students in urbanized districts. For the Pearson correlation, the outliers were excluded. Table 13 outlines the results. While the data trended in the hypothesized direction, there were no significant correlations between these variables. Therefore, no definitive conclusions can be made about the relationship between the fractionalization index and the relative risk of Black students being identified with a disability in urbanized districts.

Table 13

Fractionalization Index and Risk Ratio of Black Students in Urbanized Districts

	Spearman			Pearson		
	N	*r*	*p*	N	*r*	*p*
RR Black (compared to White)	208	-.06	0.403	206	-.06	.364

*Correlation is significant at the 0.05 level (2-tailed) **Correlation is significant at the 0.01 level (2-tailed)

Next, the same analysis was conducted for Hispanic students in urbanized districts. Figure 26 shows a scatterplot of these data.

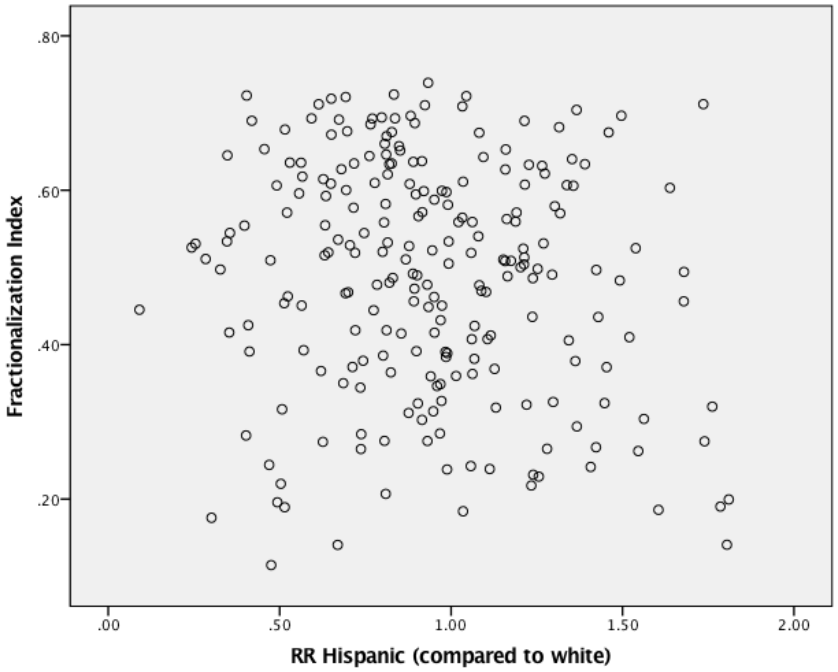

Figure 26. Scatterplot of Fractionalization Index and Risk Ratio of Hispanic Students in urbanized school districts.

The Spearman correlation, $r_s(234) = -.14$, $p = .003$, found in table 14, shows a significant, negative, and weak relationship between fractionalization index and relative risk for Hispanic students in urbanized school districts. The Pearson correlation, $r(229) = -.14$, $p = .003$, shows a statistically significant, weak negative relationship between the fractionalization index and

relative risk for Hispanic students in urbanized districts. Given the use of the binomial effect size displays, a 10% impact is apparent.

Table 14
Fractionalization Index and Risk Ratio of Hispanic Students in Urbanized Districts

	Spearman			Pearson		
	N	*r*	*p*	N	*r*	*p*
RR Black (compared to White)	236	-.14*	0.030	231	-.14*	0.031

*Correlation is significant at the 0.05 level (2-tailed) **Correlation is significant at the 0.01 level (2-tailed)

The correlations were completed for non-urbanized districts, looking again at both the fractionalization index and the risk of Black and Hispanic students being identified as disabled. Figure 27 is a scatterplot for non-urbanized districts, showing both the fractionalization index and risk ratio for Black students.

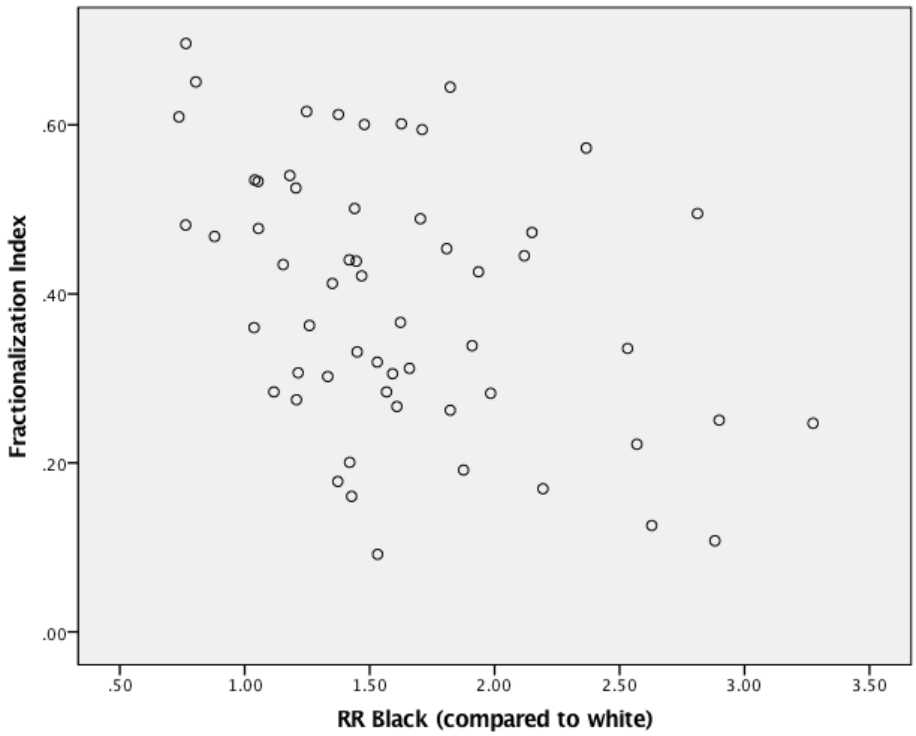

Figure 27. Scatterplot of fractionalization index and risk ratio of Black students in non-urbanized

school districts.

The scatterplot appears to represent a linear, negative relationship between the fractionalization index and risk ratio for Black students in non-urbanized districts. The data were further evaluated using Spearman's rho and Pearson correlation.

Table 15
Fractionalization Index and Risk Ratio of Black Students in Non-Urbanized Districts

	Spearman			Pearson		
	N	*r*	*p*	N	*r*	*p*
RR Black (compared to White)	60	-.40**	0.002	57	-.41**	0.001

*Correlation is significant at the 0.05 level (2-tailed) **Correlation is significant at the 0.01 level (2-tailed)

Both the Spearman's rho and the Pearson correlation identified when comparing the fractionalization index to the risk ratio for Black students in non-urbanized school districts, Spearman, $r_s(58) = -.40$, $p = .003$, and Pearson, $r(55) = -.41$, $p = .003$, are statistically significant. The correlations both demonstrate a strong negative relationship between the fractionalization index and the relative risk of Black students being identified as having a disability in non-urbanized districts. This means that the smaller the fractionalization index is, the greater the risk of a Black student being identified as having a disability in non-urbanized school districts. When considered based on the binomial effect size displays, these correlations suggest a 40% impact in non-urbanized districts.

The analysis was conducted again for the category of Hispanic students in non-urbanized districts. Figure 28 contains a scatterplot of the data, which appears to suggest a negative, linear relationship between the fractionalization index and the risk ratio for Hispanic students.

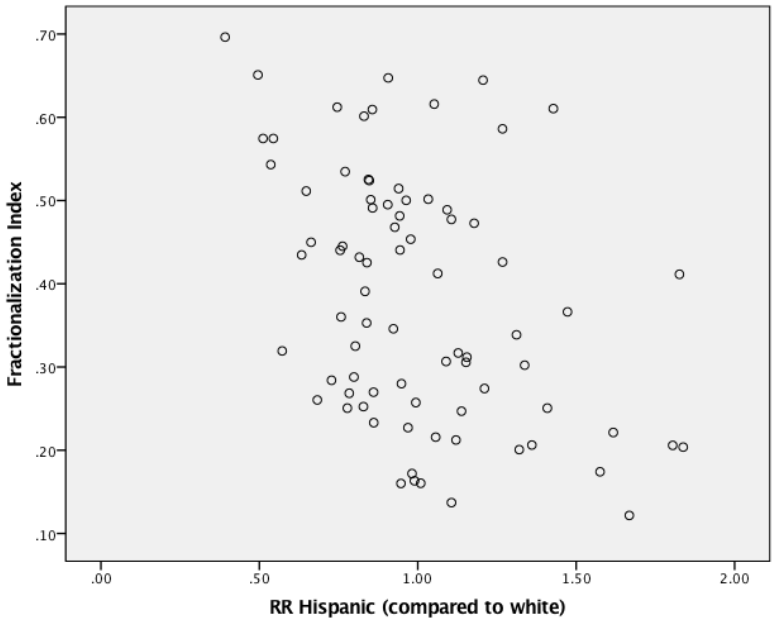

Figure 28. Scatterplot of fractionalization index and risk ratio of Hispanic students in non-urbanized school districts.

Spearman and Pearson correlations were calculated for this data set and are outlined in Table 16.

Table 16
Fractionalization Index and Risk Ratio of Hispanic Students in Non-Urbanized Districts

	Spearman			Pearson		
	N	*r*	*p*	N	*r*	*p*
RR Hispanic (compared to White)	81	-.43**	0.000	80	-.41**	0.000

*Correlation is significant at the 0.05 level (2-tailed) **Correlation is significant at the 0.01 level (2-tailed)

Both the Spearman and Pearson correlations yielded statistically significant values with Spearman, $r_s(79) = -.43$, $p < .001$ and Pearson, $r(78) = -.41$, $p < .001$. With the binomial effect size displays, these values show a 40% impact. Non-urbanized districts have a strong negative relationship between the fractionalization index and risk ratio for Hispanic students being

identified as having a disability. In other words, the greater the fractionalization index in non-urbanized districts, the less the risk of a Hispanic student being identified as having a disability.

Subquestion 1a asked, do differences exist in the relationship between a district's fractionalization index and risk of minority student being identified with a disability based on a district's NCES locale code? The findings suggest that yes, differences exist in the relationship between a district's fractionalization index and the risk of minority students being identified with a disability based on a district's locale code, with non-urbanized districts having a statistically significant correlation, and urbanized districts without any significant correlation between risk ratio and fractionalization index. In other words, in non-urbanized districts, outside of city and suburban areas, there is a negative relationship between the fractionalization index and the risk ratio for Black and Hispanic students.

In conclusion, when examining the relationship between fractionalization index and the risk ratio for Black and Hispanic students, the location of the school district plays a significant role. In non-urbanized communities, there is a greater risk of students being identified as having a disability if their school district has a lower fractionalization index. In urbanized communities, there is not a significant relationship.

Subquestion 1b: Is there a relationship between the percentage of low-income students in a school district and the risk of Black and Hispanic students being identified with a disability? Data were examined to see if a relationship exists between the percentage of low-income students and the risk ratio for Black and Hispanic students. First, the data were examined through scatterplots, and then correlations were conducted. Figure 29 represents the relationship between percentage of low-income students and risk ratio for Black students.

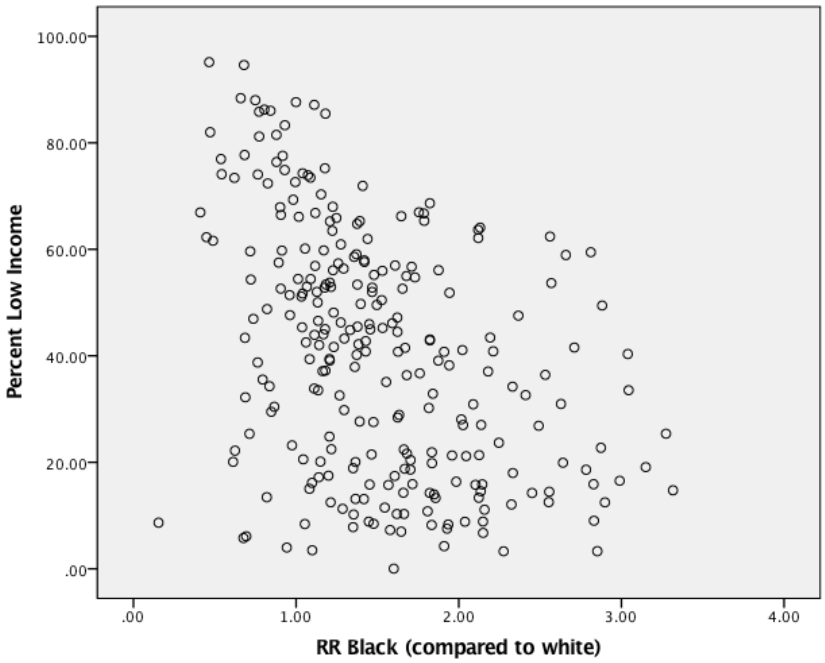

Figure 29. Scatterplot of percentage low-income students and risk ratio of Black students.

Figure 29, the scatterplot of the percentage of low-income students and risk ratio of Black students, appears to suggest a linear, negative relationship. Spearman and Pearson correlations were conducted in order to evaluate the relationships.

Table 17
Percentage Low-Income and Risk Ratio of Black Students

	Spearman			Pearson		
	N	*r*	*p*	N	*r*	*p*
RR Black (compared to White)	268	-.43**	0.000	263	-.42**	0.000

*Correlation is significant at the 0.05 level (2-tailed) **Correlation is significant at the 0.01 level (2-tailed)

The correlations for percentage of low-income students and risk ratio for Black students, as seen in table 17, yielded statistically significant results both with Spearman, $r_s(266) = -0.43$, $p < .001$, and Pearson, $r(261) = -0.42$, $p < .001$. This means that there is a strong negative

correlation between a district's percentage of low-income students and the risk of Black students being identified as having a disability, which is also supported through the binomial effect size displays, which define the impact as 40%.

The relationship between percentage low-income students and risk ratio was also examined for Hispanic students.

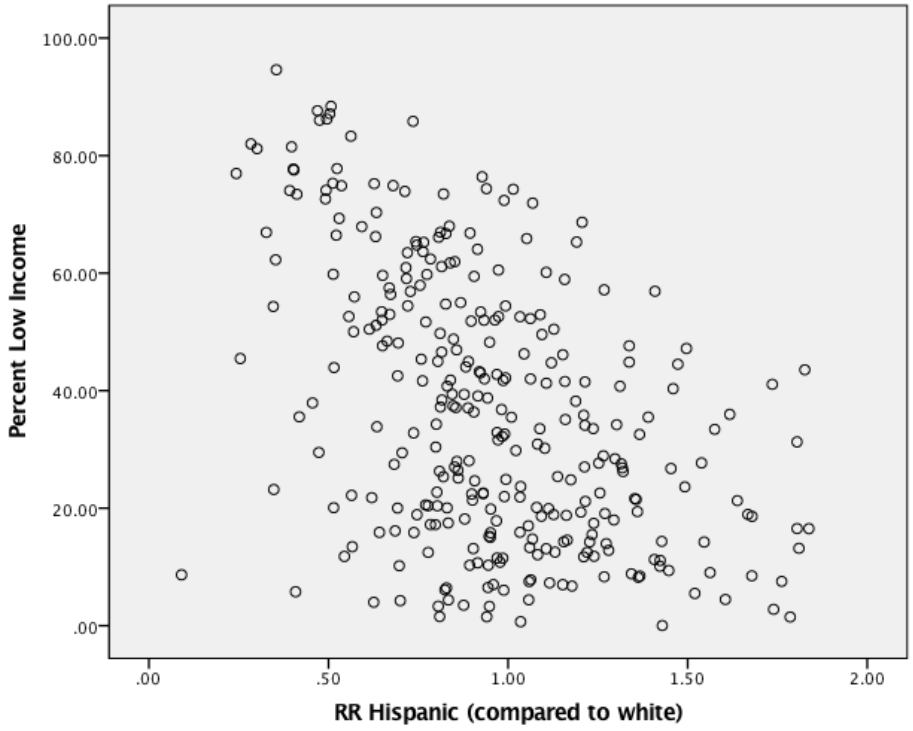

Figure 30. Scatterplot of percentage low-income students and risk ratio of Hispanic students.

The scatterplot (Figure 30) appears to demonstrate a linear, negative relationship between these two variables. The data were analyzed using correlations in order to further investigate the presence of any relationship.

Table 18
Percent Low Income and Risk Ratio of Hispanic Students

	Spearman			Pearson		
	N	*r*	*p*	N	*r*	*p*
RR Hispanic (compared to White)	317	-.46**	0.000	311	-.47**	0.000

*Correlation is significant at the 0.05 level (2-tailed) **Correlation is significant at the 0.01 level (2-tailed)

Both the Spearman's rho and Pearson correlation produced results that were statistically significant, with Spearman, $r_s(315) = -.46$, $p < .001$ and Pearson, $r(309) = -.47$, $p < .001$. A strong negative correlation is evident, given these results. In other words, the greater the percentage of low-income students in a school district, the lower the risk of Hispanic students being identified as having a disability. The binomial effect size displays provide further meaning to this value, with an almost 50% impact on risk ratio for Hispanic students based on the percent of low-income students.

Subquestion 1b asked, is there a relationship between the percentage of low-income students in a school district and the risk of Black and Hispanic students being identified with a disability? Given this analysis, it is evident that yes, there is a relationship between the percentage of low-income students in a school district and the risk of Black or Hispanic student being identified with a disability. The greater the percentage of low-income students, the lower the risk of Black and Hispanic students being identified as disabled.

Given the findings for subquestion 1a, that differences exist in urbanized and non-urbanized school districts, the relationship between risk ratio and percentage of low-income students was further explored in urbanized and non-urbanized communities. Table 19 outlines the results of the analyses.

Table 19

Correlation Table with Percentage Low-Income Students and Risk Ratios

	Percentage Low-Income Students: Correlation		Corresponding Binomial Effect Size Displays: increase in success rate
	Rho	Pearson	
RR Black	-.43**	-.42**	40%
RR Black – Urbanized Districts	-.48**	-.46**	50%
RR Black – Non-urbanized Districts	-.37**	-.33*	35%
RR Hispanic	-.46**	-.47**	45%
RR Hispanic – Urbanized Districts	-.52**	-.52**	50%
RR Hispanic – Non-urbanized Districts	-.29**	-.27*	30%

*Correlation is significant at the 0.05 level (2-tailed) **Correlation is significant at the 0.01 level (2-tailed)

The results suggest that the location of the school district has an influence on the relationship between a district's percentage of low-income students and the risk ratios for Black and Hispanic students identified as disabled. In urbanized districts, the correlation was slightly more significant for Black students and Hispanic students.

Question one looked closely at the risk of minority students, specifically Black and Hispanic students, being identified as having a disability compared to their White peers. For students in non-urbanized school districts, the risk is greater when the fractionalization index is lower. In all communities, there is a relationship between the percentage of low-income students and the risk ratio of Black and Hispanic students being identified as disabled, with the risk declining as the percentage of low-income students increases.

Question two: Does a school district's fractionalization index relate to student outcomes, as measured by the performance gap between students with and without disabilities and graduation rates? The performance gap is a value that represents the difference between the percentages of students with IEPs who are rated as proficient or above on state testing compared to students without IEPs. This value is provided for all districts, including

elementary, unit, and high school. Figure 31 provides a histogram of these values.

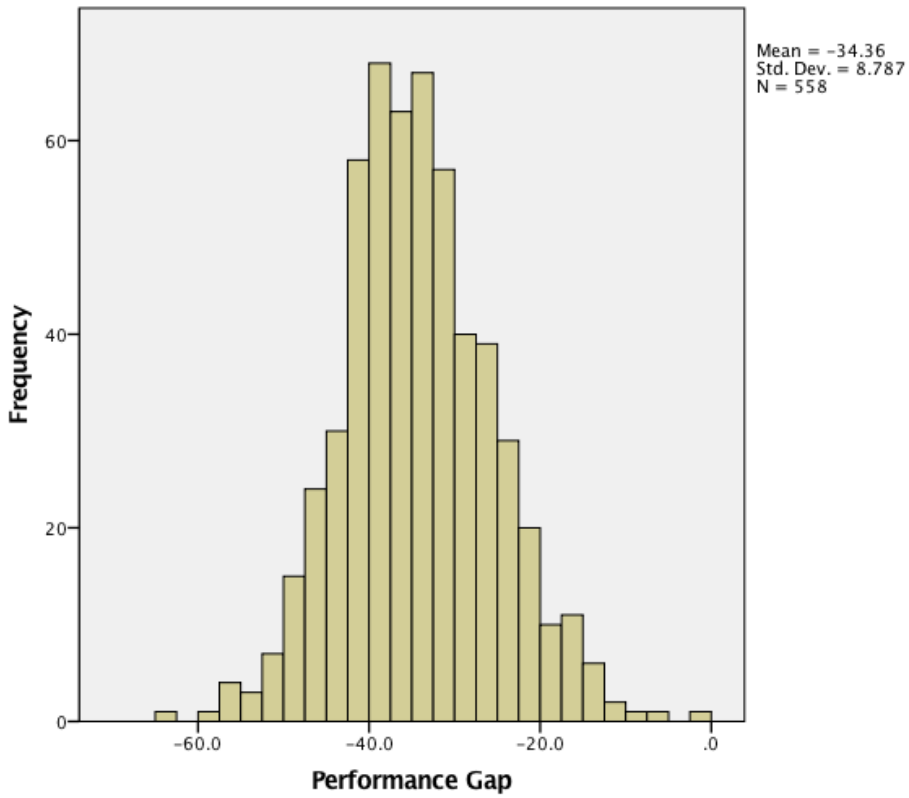

Figure 31. Histogram of the performance gap.

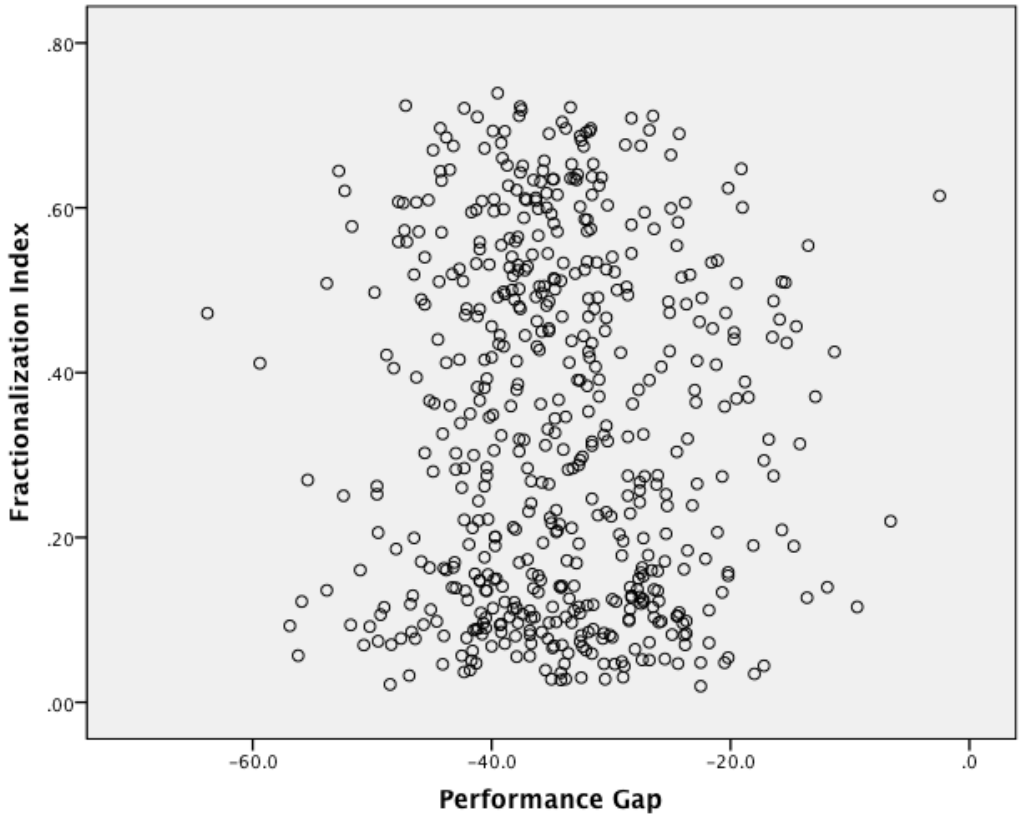

Figure 32. Scatter plot of performance gap and fractionalization index.

Figure 32 shows a scatter plot of the fractionalization index and performance gap values, and does not appear to represent a linear relationship between these values. Both Spearman and Pearson correlations, as seen in table 20, also produced results that were not statistically significant, suggesting that there is not a relationship between a school district's fractionalization index and the performance gap of students with and without disabilities.

Table 20
Fractionalization Index and Performance Gap

	Spearman			Pearson		
	N	*r*	*p*	N	*r*	*p*
Performance Gap	560	-.04	0.487	558	-.03	0.295

*Correlation is significant at the 0.05 level (2-tailed) **Correlation is significant at the 0.01 level (2-tailed).

Question two asked, does a school district's fractionalization index relate to the performance gap between students with and without disabilities? Results indicated that there is no relationship between fractionalization index and performance gap. The hypothesis stated that there is a positive correlation between a school district's fractionalization index and the performance gap between students with and without disabilities. Given the lack of correlation between the fractionalization index and performance gap, the hypothesis is rejected.

Next, graduation rates of students with disabilities were examined. For this analysis, only high school districts and unit school districts were included. The range of graduation rates was from 0-100.

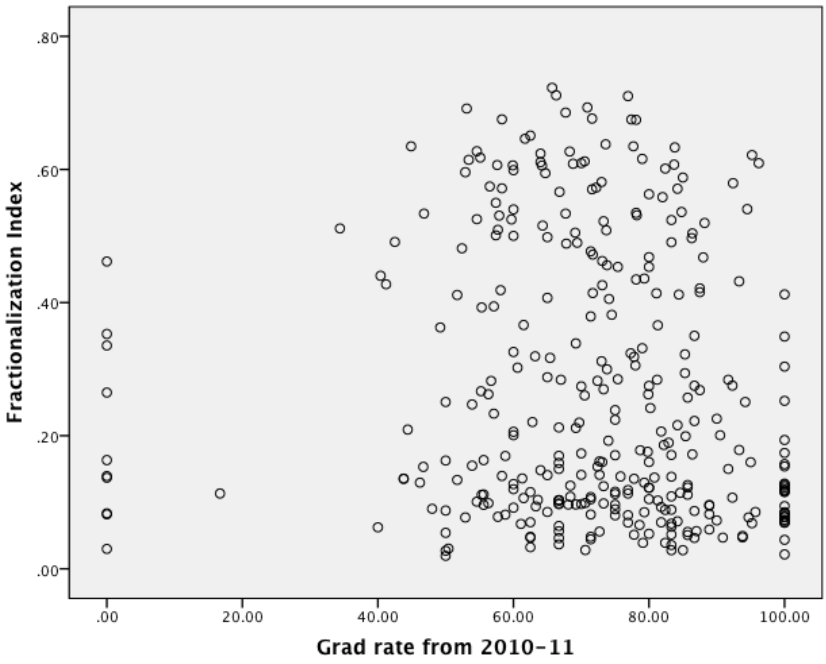

Figure 33: Scatterplot of fractionalization index and graduation rate.

The nonlinear nature of the data for the graduation rate on the fractionalization index can easily be seen in the scatterplot in Figure 33. Since this relationship does not follow the assumptions of normality needed to report using Pearson's *r*, Spearman's rho was used to examine the relationship.

Table 21
Fractionalization Index and Graduation Rate – Spearman's Rho

		Spearman	
	N	*r*	*p*
Graduation Rate	340	-.16**	0.003

elation is significant at the 0.05 level (2-tailed) **Correlation is significant at the 0.01 level (2-tailed)

Results obtained from the Spearman's rho, $r_s(338) = -.16$, $p > .001$, examining the relationship between the fractionalization index and graduation rate of students with disabilities, were statistically significant, suggesting a weak negative relationship between the fractionalization index and the high school graduation rates of students with disabilities. Further analysis through the use of the binomial effect size displays suggests an impact of 15%.

In addition to the analyses for both performance gap data and graduation rates, the data were also analyzed based on a district's location. Districts were classified as urbanized or non-urbanized based on their NCES locale codes, and Pearson correlations were conducted.

Student outcomes and urbanized communities. The relationship between the fractionalization index and student outcomes (including the performance gap and graduation rate) were first analyzed for urbanized communities (NCES locale code of city or suburb). Spearman's rho produced a significant, very weak correlation, $r_s(300) = -.13$, $p = .003$ (see table 22). There was no statistically significant correlation found between performance gap and fractionalization index for this population in the Pearson correlation.

Table 22
Fractionalization Index and Performance Gap in Urbanized Communities

	Spearman			Pearson		
	N	*r*	*p*	N	*r*	*p*
Performance Gap	301	-.12*	0.028	301	-.11	0.055

*Correlation is significant at the 0.05 level (2-tailed) **Correlation is significant at the 0.01 level (2-tailed)

An examination of the graduation rate and its relationship to the fractionalization index in urbanized districts did not yield statistically significant results (see Table 23).

Table 23

Fractionalization Index and Graduation Rate in Urbanized Communities

	Spearman		
	N	*r*	*p*
Graduation Rate	128	-.019	0.835

*Correlation is significant at the 0.05 level (2-tailed) **Correlation is significant at the 0.01 level (2-tailed)

Student outcomes and non-urbanized communities. The analysis was repeated for school districts in NCES locales of town and rural, or non-urbanized, communities. While there is no relationship found between the fractionalization index and performance gap (see table 24) and X), there is a statistically significant, weak negative relationship found between fractionalization index and graduation rate in non-urbanized communities, Spearman, $r_s(210) = -.20$, $p = .003$ (see Table 25).

Table 24
Fractionalization Index and Performance Gap in Non-Urbanized Communities

	Spearman			Pearson		
	N	*r*	*p*	N	*r*	*p*
Performance Gap	257	-.06	0.292	257	-.06	0.349

*Correlation is significant at the 0.05 level (2-tailed) **Correlation is significant at the 0.01 level (2-tailed)

Table 25

Fractionalization Index and Graduation Rate in Non-Urbanized Communities

		Spearman	
	N	*r*	*p*
Graduation Rate	212	-.20**	0.003

*Correlation is significant at the 0.05 level (2-tailed) **Correlation is significant at the 0.01 level (2-tailed)

Question two asked, does a school district's fractionalization index relate to student performance and outcomes? When looking at the sample and Illinois districts overall, there is no relationship between the school district's fractionalization index and the performance gap of students with and without disabilities. Within urbanized districts, there is a statistically significant, weak, negative relationship between the fractionalization index and the performance gap. There is a weak negative relationship between the fractionalization index and the graduation rate of students with disabilities. In non-urbanized communities, there is a statistically significant, weak negative correlation between the fractionalization index and the graduation index. Overall, when examining the relationship between a school district's fractionalization index and the student outcomes of performance gap and graduation rates, inconsistent relationships were found.

Question three: Does a school district's fractionalization index relate to the placement of students into general education environments? This question examined the relationship between a school's fractionalization index and the percentage of students (all races) spending over 80% of their school day in general education environments. The hypothesis stated that there is a negative correlation between the fractionalization index and placement of students into general education environments for 80% of their school day. In other words, it was hypothesized that the more racially diverse a school district is, the fewer students with

disabilities will be educated in general education environments for more than 80% of their school day.

A scatterplot was also developed (see Figure 34), appearing nonlinear.

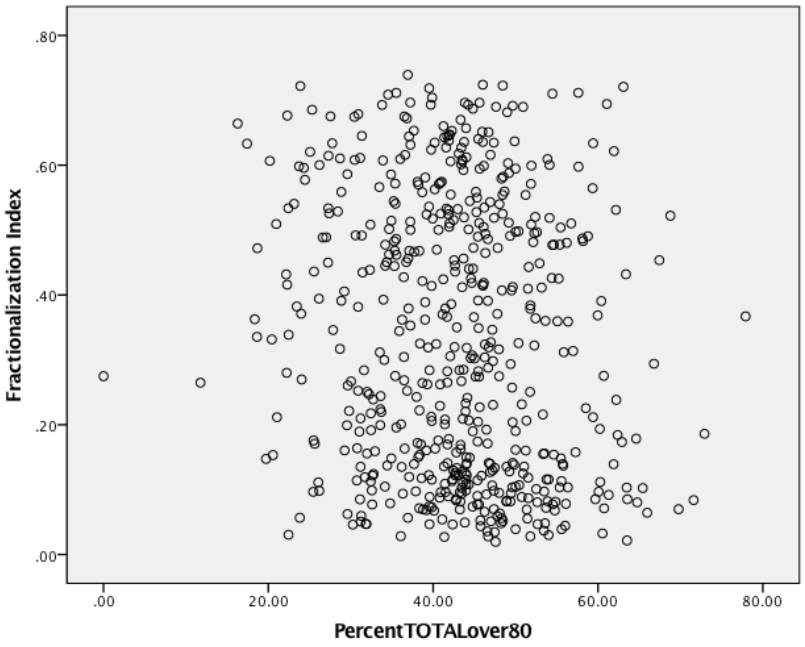

Figure 34. Scatterplot of fractionalization index and percentage of total students over 80% general education.

While the results from the Pearson correlation and Spearman's rho indicated a weak, correlation between the fractionalization index and percentage of students spending over 80% of their day in general education, analysis using the binomial effect size displays provide further insight, with an impact of about 15%.

Table 26.
Fractionalization Index and Percentage of Overall Students over 80% General Education

	Spearman			Pearson		
	N	*r*	*p*	N	*r*	*p*
Percentage of Total Students over 60% Special Education	560	-.15**	0.00	560	-.14**	0.00

*Correlation is significant at the 0.05 level (2-tailed) **Correlation is significant at the 0.01 level (2-tailed)

Question three asked, does a school district's fractionalization index relate to the placement of students into special education environments for greater than 60% of the school day? The hypothesis stated that there is a positive correlation between a school district's fractionalization index and its placement of students into general education environments for greater than 80% of the school day. Thus, evidence was found in support of the third hypothesis.

Question four: Is there a relationship between a school district's fractionalization index and disaggregated data demonstrating placement of student subgroups into general education environments for greater than 80% of the school day? For this question, data were examined for Black and Hispanic student subgroups.

Fractionalization index and percentage of Black students over 80% general education. A scatterplot was developed, representing the relationship between the fractionalization index and the percentage of black students spending over 80% of their day in general education environments.

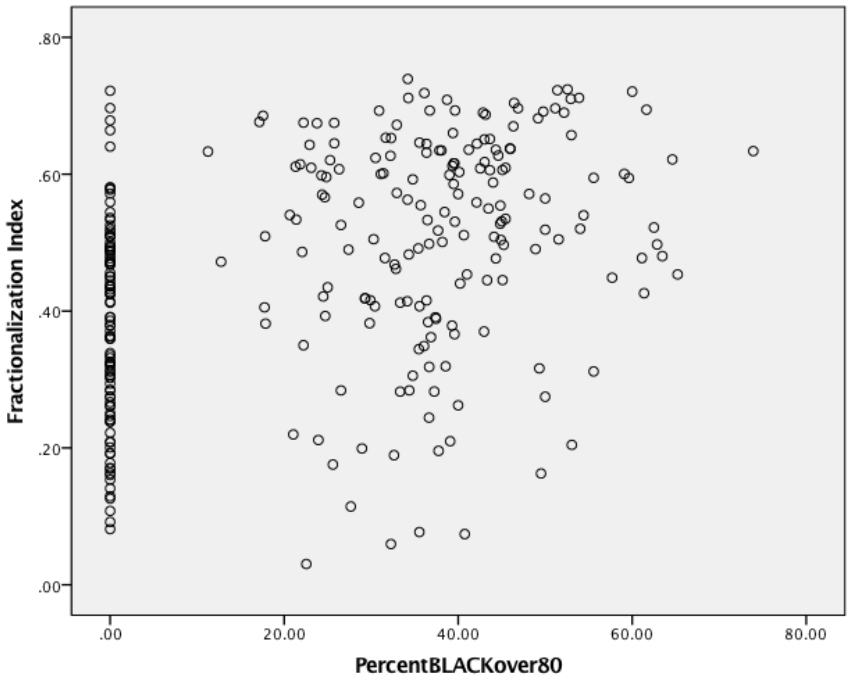

Figure 35. Scatterplot of fractionalization index and percentage of Black students spending over 80% of their day in general education.

It is notable that numerous districts have no Black students spending over 80% of their day in general education environments. This does not include districts without any black students with disabilities; only 281 districts are represented in this data set.

Correlations were utilized in order to further examine the relationship between the districts' fractionalization index and the percentage of Black students spending over 80% of their school day in general education environments. Results obtained from the Spearman correlation, $r_s(279) = .42$, $p < .001$, (see Table 27) indicate a statistically significant, positive correlation between fractionalization index and percentage of Black students over 80% general education. Results obtained from the Pearson correlation, $r(279) = .40$, $p < .001$, (table 27), also indicate a statistically significant, positive correlation between the fractionalization index and percentage of Black students spending over 80% of the school day in general education. Analysis using the

binomial effect size displays provide further insight about this relationship, demonstrating a 40% improvement.

Table 27

Fractionalization Index and Percentage of Black Students Over 80% General Education

	Spearman			Pearson		
	N	*r*	*p*	N	*r*	*p*
Percentage of Black Students over 60% Special Education	281	.42**	0.00	281	.40**	0.00

*Correlation is significant at the 0.05 level (2-tailed) **Correlation is significant at the 0.01 level (2-tailed)

Fractionalization index and percentage of Hispanic students over 80% general education. Data were examined for Hispanic students placed in general education for over 80% of the school day.

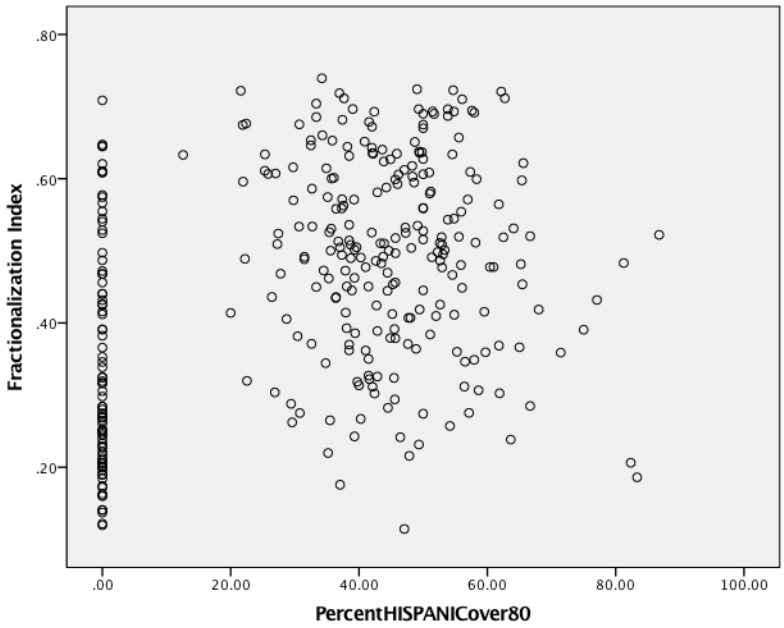

Figure 36. Scatterplot of fractionalization index and percentage of Hispanic students over 80% general education.

Results obtained from the Spearman Correlation, $r_s(323) = .28$, $p < .001$, (Table 28) indicate a statistically significant, positive correlation between fractionalization index and

percent of Hispanic students over 60% special education. The Pearson correlation results, $r(323) = .35$, $P < .001$, also support this positive correlation. Analysis using the binomial effect size displays suggest that the correlation translates into a 30% improvement.

Table 28

Fractionalization Index and Percentage of Hispanic Students Over 80% General Education

	Spearman			Pearson		
	N	*r*	*p*	N	*r*	*p*
Percentage of Hispanic Students over 60% Special Education	325	.28**	0.00	325	.35**	0.00

*Correlation is significant at the 0.05 level (2-tailed) **Correlation is significant at the 0.01 level (2-tailed)

Overall, the analysis suggests that there is a positive correlation between the fractionalization index and the percentage of Black and Hispanic students placed into general education for over 80% of the day. The greater the fractionalization index in the district, the greater the level of placement for Black and Hispanic students in general education environments for over 80% of the day, with the impact ranging from 30-40%.

Question five: Does a school district's fractionalization index relate to its wealth, effort, and resources? For this question, three specific values were obtained for each school district: wealth, representing local resources per pupil generated through local tax revenue; effort, representing a district's local burden per pupil; and resources, representing the operating expense per pupil (local, state, and federal resources together). As discussed earlier in the chapter, these data demonstrate the wide range of resources and local tax burdens for school districts.

A scatterplot was designed for each of these variables, comparing them to the fractionalization index. The first scatterplot, comparing the fractionalization index to resources (as defined by operating expense per pupil) appears to suggest a linear relationship.

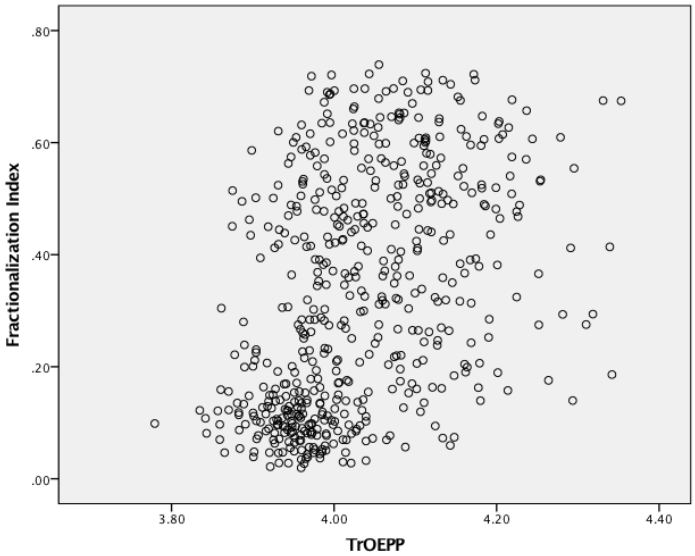

Figure 37. Scatterplot of fractionalization index and resources (log Transformation of Operating Expense Per Pupil).

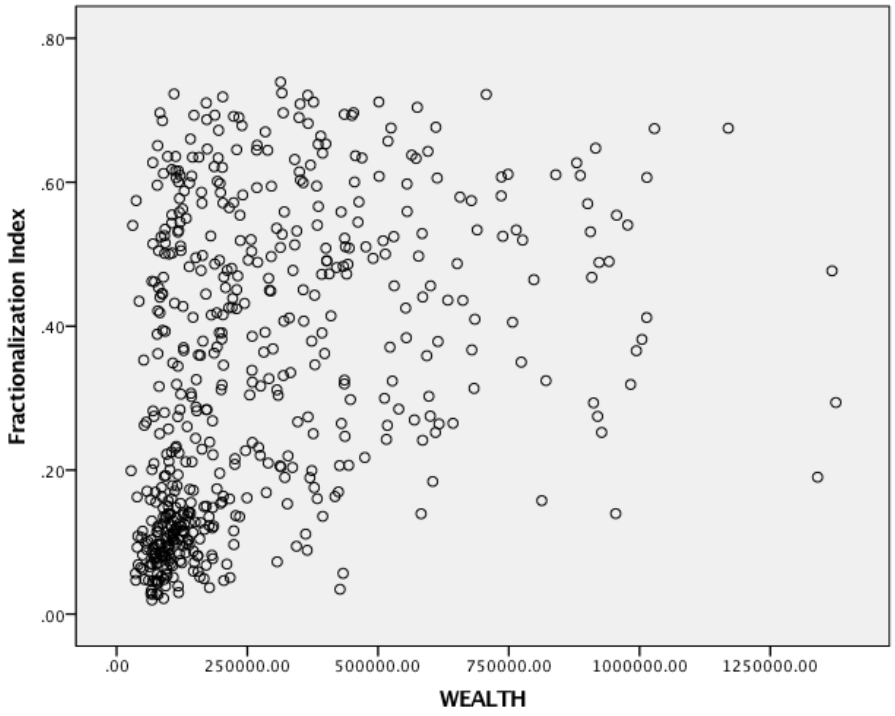

Figure 38. Scatterplot of fractionalization index and wealth.

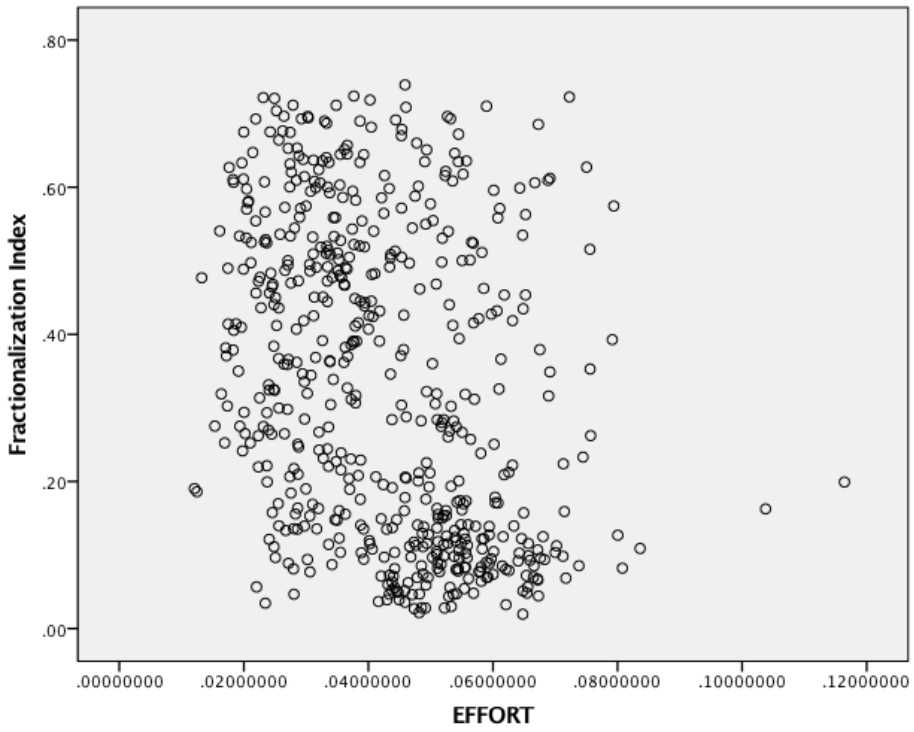

Figure 39. Scatterplot of fractionalization index and effort.

Data were analyzed using a Pearson correlation and Spearman's rho. First, the overall resources (considering operating expense per pupil, which represents local, state, and federal resources) were considered. Here, a statistically significant, moderately positive relationship was found between a school district's fractionalization index and resources, with Pearson, $r(555) = .43$, $p < .001$ and Spearman $r_s(555) = .47$, $p < .001$. There is a positive correlation between the fractionalization index and overall resources, with increased fractionalization resulting in a 50% improvement, given the use of the binomial effect size displays.

Next, the variable wealth was considered. Wealth represents the local resources per pupil, and is obtained by calculating the equalized assessed valuation per student (average daily attendance). Again, a positive correlation was found between the fractionalization index and wealth, with Pearson, $r(551) = .37$, $p < .001$ and Spearman $r_s(551) = .48$, $p < .001$. The impact

was also seen to be about 40%, using the binomial effect size displays.

Finally, the variable effort was evaluated. Effort represents the community's tax burden for education. It is influenced by not only the equalized assessed valuation, but also the local property tax rate. Effort was calculated by taking the local revenue per student and dividing it by the wealth variable (EAV per student). When comparing the fractionalization index to effort, a negative correlation was found, with Pearson, $r(551) = -.34$, $p < .001$ and Spearman $r.(551) = -.36$, $p < .001$. Thus, as a district becomes more fractionalized, the effort decreases. This impact is about 35%, given the use of the binomial effect size displays.

Table 29

Fractionalization Index and Resources

	Spearman			Pearson		
	N	*r*	*p*	N	*r*	*p*
Resources (TrOEPP)	557	.47**	0.00	557	.43**	0.00
Wealth	553	.48**	0.00	553	.37**	0.00
Effort	553	-.36**	0.00	553	-.34**	0.00

*Correlation is significant at the 0.05 level (2-tailed) **Correlation is significant at the 0.01 level (2-tailed)

Question five asked, does a school district's fractionalization index relate to its expenditures per pupil? The hypothesis stated that there is a negative correlation between a district's fractionalization index and its wealth, effort, and resources. Given the fact that a moderately positive correlation was identified between the wealth and resources, the hypothesis is rejected. However, when looking only at effort, evidence was found in support of the hypothesis.

Question six: Does a school district's fractionalization index relate to its gap in the dropout rate between students with and without disabilities? This question focused on outcomes of high school and unit school district students, as dropout rates are not applicable for

elementary school students. The dropout rate gap, as seen in Figure 40, ranges from -30 to 5, with a mean of -1.65. The dropout rate gap is the difference between students with and without disabilities dropping out of school. A negative dropout rate gap value indicates that more students with disabilities dropped out than students without disabilities.

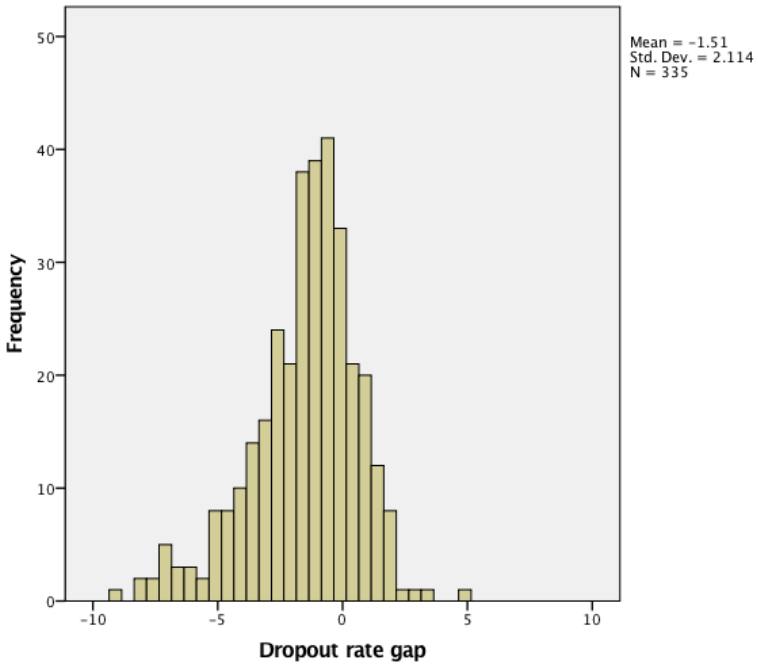

Figure 40. Histogram of dropout rate gap.

A Pearson correlation, indicated in Table 30, was utilized in order to examine the relationship between the fractionalization index and dropout rate gap. The analysis did not identify any relationship between the fractionalization index and dropout rate gap. Thus, the hypothesis is rejected.

Table 30

Fractionalization Index and Dropout Rate Gap

	Spearman			Pearson		
	N	*r*	*p*	N	*r*	*p*
Dropout Rate Gap	335	-.03*	0.553	335	-.01	0.897

*Correlation is significant at the 0.05 level (2-tailed) **Correlation is significant at the 0.01 level (2-tailed)

Question seven: If relationships exist among a district's fractionalization index and any of the other study variables, which factors serve as the strongest predictors? While the results indicate that the fractionalization index has weak to moderate correlations to the dependent variables of identification, the results of the analysis of correlations demonstrated some weak to moderate relationships between the percentage of low-income students and the student identification group of dependent variables. As a result, multiple regression techniques were utilized in order to further investigate the predictive relationships between the predictor variables fractionalization, percentage low-income students, wealth, effort, and the dependent identification variables.

Predictors for risk ratio Black. I crafted the first multiple regression model using the predictor variables: fractionalization index, percentage low-income students, wealth, and effort, along with the risk ratio Black identification dependent variable. Testing of assumptions occurred first, and there was independence of residuals, as assessed by a Durbin-Watson statistic of 1.920.

The model summary is shown in table 31, and the ANOVA is in table 32. With an R^2 value of .09, linear regression explains 9% of the variance in the data.

Table 31

Model Summary for Fractionalization Index, Percentage Low-Income Students, EFFORT, and WEALTH as Predictors of RR Black

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.496[a]	.246	.235	.53083

a. Predictors: (Constant), EFFORT, Fractionalization Index, Percent Low Income Students, WEALTH

The linear regression's F-test, as seen in Table 32, was highly significant, supporting the existence of a linear relationship.

Table 32

ANOVA for Model: Fractionalization Index, Percentage Low-Income Students, EFFORT, and WEALTH as Predictors of RR Black

	Sum of Squares	Df	Mean Square	F	Sig.
Regression	23.484	4	5.871	20.836	.000
Residual	71.855	255	.282		
Total	95.339	259			

Results of the regression are shown in Table 33, including the unstandardized model coefficients (*B)*, associated standard errors (SE *B*), standardized regression coefficients (β), and t-tests. Within the multiple regression results, three variables, fractionalization index, percentage low income and wealth, statistically significantly predicted the risk ratio for Black students.

Table 33

Multiple Regression Results for Risk Ratio Black regressed on Predictor Variables Fractionalization Index, Percentage Low-Income Students, WEALTH, and EFFORT

Variable Name	*B*	SE *B*	β	*t*	*p-value*
RR Black ($R^2 = .25$)					
Fractionalization index	-.724	.214	-.191	-3.375	.001
Percentage Low-Income Students	-.007	.002	-.247	-3.990	.000
WEALTH	7.658E-7	.000	.306	3.867	.000
EFFORT	-.279	2.987	-.007	-.093	.926

Predictors for risk ratio Hispanic. The second multiple regression model was created in order to examine the risk ratio for Hispanic students. This model was created using the predictor variables fractionalization index, percentage low income students, wealth, and effort, along with one of the dependent variables representing identification, risk ratio Hispanic. The model summary is shown in Table 34, and the ANOVA is shown in Table 35. With an R2 value of .242, linear regression explains 24% of the variance in the data.

Table 34:

Model Summary for Multiple Regression for Risk Ratio Hispanic Regressed on Predictor Variables Fractionalization Index, Percentage Low-Income Students, Wealth, and Effort

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.492[a]	.242	.232	.29010

a. Predictors: (Constant), EFFORT, Fractionalization Index, Percent Low Income Students, WEALTH

The linear regression's F-test, seen in Table 35, is highly significant, with $F(4, 303) = 24.23$, $p < .0005$, supporting the existence of a linear relationship.

Table 35

ANOVA for Model: EFFORT, Fractionalization Index, Percent Low Income Students, WEALTH as Predictors, RR Hispanic as Response

	Sum of Squares	Df	Mean Square	F	Sig.
Regression	8.155	4	2.039	24.225	.000
Residual	25.500	303	.084		
Total	33.655	307			

The multiple regression results, seen in Table 36, show that the variables fractionalization index and percentage low income students contributed statistically significantly to the prediction, $p < .05$.

Table 36

Multiple Regression Results for Risk Ratio Hispanic Regressed on Predictor Variables Fractionalization Index, Percentage Low-Income Students, Wealth, and Effort

Variable Name	*B*	SE *B*	β	*t*	*p-value*
RR Hispanic ($R^2 = .242$)					
Fractionalization index	-.264	.112	-.125	-2.360	.019
Percent Low Income Students	-.005	.001	-.352	-5.861	.000
WEALTH	1.922E-7	.000	.147	1.878	.061
EFFORT	-.497	1.704	-.021	-.292	.771

The multiple regression analyses conducted for the identification variables of risk suggest that when looking at school districts across the state, fractionalization index and percentage of low-income students are both significant predictors.

Question seven asked, if relationships exist among a district's fractionalization index and

any of the other study variables, which factors serve as the strongest predictors? The hypothesis stated that a district's fractionalization index serves as the strongest predictors of the risk ratio for Black and Hispanic students. The multiple regression analyses found that for both Black and Hispanic students, the fractionalization index is one significant predictor, along with percentage of low-income students. Thus, the hypothesis is rejected.

Low-income student percentages. In addition to the questions explored, including the influence of the percentage of low-income students analyzed in question 1b, further analyses were conducted in order to identify additional any areas in which the percentage of low-income students correlated with other dependent variables. A moderate positive correlation was seen between the percentage of low-income students and percent of IEP dropouts (see table 10). However, it should be noted that as the percentage of low-income students increased, the overall dropout rate in a school district also increased.

Summary of Findings

The primary purpose of this study was to investigate whether relationships exist among a school district's fractionalization index, financial resources, and its special education identification, placement, and outcomes. In this chapter, the results of a number of analyses were outlined. While some areas found that there is a correlation between the fractionalization index and certain variables, numerous areas found no relationship. Table 37 provides a summary of the results.

Table 37

Summary of Results

Research Question	Findings
1) Does a school district's fractionalization index relate to the risk of a minority student being identified with a disability? 1a) Do differences exist in the relationship between a district's fractionalization index and risk of a minority student being identified with a disability based on a district's NCES locale code? 1b) Is there a relationship between the percentage of low-income students in a school district and the risk of Black and Hispanic students being identified with a disability?	Negative correlation between fractionalization index and risk ratio for Black students. Binomial effect size displays (BESD) suggest a 15% impact. Negative correlation between fractionalization index and risk ratio for Hispanic students, with a 20% impact (BESD). Within urbanized communities, no relationship between fractionalization index and risk ratio. Within non-urbanized communities, negative correlation between fractionalization index and relative risk of Black and Hispanic students, with a 40% impact (BESD). Moderate negative correlation between district's percentage of low-income students and risk ratio for Black and Hispanic students, with a 40-50% increase (BESD).
2) Does a school district's fractionalization index relate to student performance and outcomes, including: a) The performance gap between students with and without disabilities? b) The graduation rates of students with disabilities? 2c) Do differences exist in the performance gap in rural vs. urban school districts?	For all districts, no relationship between school district's fractionalization index and performance gap of students with and without disabilities. When comparing all district types, a weak relationship between school district's fractionalization index and graduation rate of students with disabilities, with a 15% impact (BESD). In urbanized districts, a statistically significant, weak negative relationship between fractionalization index and performance gap. Statistically significant, weak negative correlation between fractionalization index and graduation rate in non-urbanized communities with a 15% impact (BESD).

Table 37 (cont.)

3) Does a school district's fractionalization index relate to the placement of students into general education environments?	Positive correlation between school district's fractionalization index and its placement of students with disabilities into general education environments for greater than 80% of school day, with a 15% improvement (BESD).
4) Is there a relationship between a school district's fractionalization index and disaggregated data demonstrating placement of student subgroups into general education environments for greater than 80% of the school day?	Positive correlation between fractionalization index and percentage of Black and Hispanic students placed into general education for over 80% of day. Fractionalization index and Black students in general education for over 80% of the school day has a 40% impact. Fractionalization index and Hispanic students in general education for over 80% of the school day has a 30% impact (BESD).
5) Does a school district's fractionalization index relate to district wealth, effort, and resources?	Positive correlation between district's fractionalization index and its wealth and resources, with a 50% impact for resources and 40% for wealth. Negative correlation between district's fractionalization index and its effort, with a 35% impact (BESD).
6) Does a school district's fractionalization index relate to its gap in the dropout rate between students with and without disabilities?	No relationship between fractionalization index and dropout rate gap.
7) If relationships exist among a district's fractionalization index and any of the other study variables, which factors serve as the strongest predictors?	In multiple regression models for examining risk ratio for Black and Hispanic students, percentage of low-income students and fractionalization index were both significant predictors.

Chapter Five: Summary, Discussion, Implications, and Recommendations

This chapter presents a summary of the research study. A brief description of the methodology and major findings for each research question are provided. Limitations are also provided in order for the reader to understand and interpret the results. Potential implications of this study are presented, and future research recommendations are outlined.

Summary of the Problem Statement and Methodology

The purpose of this study was to examine the relationships among the fractionalization index, school district resources, and special education identification, practices, and outcomes in public school districts within the state of Illinois. Research indicated that inequities exist in special education identification, practices, and outcomes for minority students with disabilities in many parts of the country. Given the diversity, both demographically and financially, in the over 800 school districts in Illinois, a range of experiences in special education practices, wealth, and effort could be expected. By evaluating the relationships among school district diversity, as measured through the fractionalization index, school district resources, and special education identification, practices, and outcomes, this study sought to better understand how these variables relate to one another

Using a variety of publicly-available data sources, including the 2011-12 Illinois State Board of Education special education profiles and the 2011-12 Illinois State Board of Education Fall Enrollment Counts, this study examined the relationship between Illinois school districts' diversity (as quantified through the fractionalization index) and their special education identification rates, practices, and outcomes. Quantitative data was analyzed in order to test the hypotheses using the Statistical Package of the Social Sciences (SPSS).

Findings

The study addressed seven major questions, and findings are noted in this section.

Research Question One

Does a school district's fractionalization index relate to the risk of a minority student being identified with a disability? For this question, the risk index was calculated for Black and Hispanic students. The risk index determined the risk of a Black or Hispanic student being identified with a disability compared to White students within each district. Analysis indicated that for Black and Hispanic students, there is a statistically significant, negative correlation between the fractionalization index and risk of being identified with a disability. As a school district's diversity increases, the risk of a Black or Hispanic student being identified as disabled decreases.

Within this question, there were also two subquestions that explored the potential impact of location and income. Question 1a asked, do differences exist in the relationship between a district's fractionalization index and risk of a minority student being identified with a disability based on a district's NCES locale code? Using the National Center for Education Statistics locale codes, districts were categorized as either "urbanized" or "non-urbanized." Within urbanized communities, no relationship was found between the fractionalization index and risk ratio. However, within non-urbanized communities, there was a negative correlation between the fractionalization index and the risk ratio for Black and Hispanic students. As a result, it can be concluded that in non-urbanized districts with a lower fractionalization index, Black and Hispanic students are at a 40% greater risk of being identified as having a disability.

Question 1b asked, is there a relationship between the percentage of low-income students in a school district and the risk of Black and Hispanic students being identified with a disability?

The analysis identified a negative correlation between a district's percentage of low-income students and the risk ratio for Black and Hispanic students. The higher the percentage of low-income students, the lower the risk. The lower the percentage of low-income students, the greater the risk of Black and Hispanic students being identified with disabilities. For black students, the impact was 40%, whereas for Hispanic students, the impact was 50%.

Research Question Two

Does a school district's fractionalization index relate to student performance and outcomes, including the performance gap between students with and without disabilities, and the graduation rates of students with disabilities? Do differences exist in the performance gap in rural vs. urban school districts? Question two focused on the outcomes of students with disabilities. The first analysis examined outcomes through high stakes testing. When comparing all district types, no relationship was found between a school district's fractionalization index and the performance gap of students with and without disabilities. An additional analysis considered the graduation rate for students with disabilities. Here, a weak, negative relationship was found between the fractionalization index and the graduation rate in urbanized and non-urbanized unit and high school districts

The student outcome analyses were also conducted based on locale. When the district locale was taken into consideration, there was a statistically significant, weak negative correlation between the fractionalization index and the performance gap in urbanized districts. When non-urbanized communities were examined, a weak negative correlation was found between the fractionalization index and graduation rate.

Research Question Three

Does a school district's fractionalization index relate to the placement of students into general education environments? The percent of students served in general education for over 80% of the school day served as the variable for placement. Here, analysis identified a statistically significant, negative correlation between the fractionalization index and the placement of students into general education for over 80% of the school day, with an impact of about 15%. The greater the fractionalization index, the lower the percentage of students placed into general education environments for 80% or more of their school day.

Research Question Four

Is there a relationship between a school district's fractionalization index and disaggregated data demonstrating placement of student subgroups into general education environments for greater than 80% of the school day? Placement was further evaluated for the student subgroups of Black and Hispanic. Analysis found that there is a positive correlation between the fractionalization index and the percentage of Black and Hispanic students placed into general education for over 80% of the day. School districts with less diversity have fewer Black and Hispanic students placed into general education for over 80% of the school day. The impact of fractionalization with this placement value is about 30% for Hispanic students and 40% for Black students.

Research Question Five

Does a school district's fractionalization index relate to district wealth, effort, and resources? District wealth, effort, and resources were evaluated in order to investigate their relationship with fractionalization. These three distinct yet critical financial variables shed light on school districts' local burden and means, which varies significantly. Based on the analysis,

there is a positive correlation between a district's fractionalization index and its wealth and resources. As the fractionalization index increases, resources (including state, federal, and local) increase, along with district wealth. The impact of the fractionalization index with resources is about 50%, whereas the improvement with wealth is 40%. There is a negative correlation between a district's fractionalization index and its effort, with a 35% impact. As districts' diversity increases, the local effort into funding schools decreases.

Research Question Six

Does a school district's fractionalization index relate to its gap in the dropout rate between students with and without disabilities? An additional student outcome variable, the dropout rate gap between students with and without disabilities, was also examined. Analysis found that there was no relationship between the fractionalization index and the gap in dropout rate between students with and without disabilities.

Research Question Seven

If relationships exist among a district's fractionalization index and any of the other study variables, which factors serve as the most significant predictors? The predictor values fractionalization index, percentage of low-income students, wealth, and effort were examined in multiple regression models that considered risk ratio for Black and Hispanic students. In both models, fractionalization index and percentage of low-income students were significant predictors, with percentage of low-income students being slightly more predictive.

Limitations

There were several limitations specific to this study. The data collected did not represent the most recent school year, but the 2011-12 school year. An additional limitation was the fact that research was analyzed on a district basis, as opposed to looking at individual schools.

Individual schools within a district may have different practices and patterns, representing different student populations. The district sample did not include all districts in Illinois, but school districts with more than 600 students, excluding Chicago Public Schools. Financial data were not available for all school districts. Finally, the fractionalization index itself has numerous limitations. While the index provides a meaningful value of racial diversity, it is based on the categories available. In this study, it was based on the seven race categories used defined by the Illinois State Board of Education, thus not considering other aspects of diversity. Consideration needs to be given to the meaning of diversity, as a school district that is 95% White and 5% Hispanic will have the same value as a district of the same size that is 95% Black and 5% Hispanic.

Discussion

It is clear that major accomplishments and extensive progress have been made over the years in providing access to students with disabilities within American public schools. While public school access for students with disabilities was once non-existent, now services are mandated for students in all American schools. Still, it is evident that there are continued issues related to race and the identification and placement of students with disabilities. In this study, the variability of special education identification, practices, and student outcomes was extensive, with very inconsistent patterns. Extensive research has found that student race, ethnicity, and socioeconomic status increase the chance of a student being identified with a disability (Coutinho & Oswald, 2000; Macmillan & Reschly, 1998; Coutinho, Oswald, & Best, 2002; Artiles, Harry, Reschly, & Chinn, 2002; Knotek, 2003; Hosp & Reschly, 2004; Ferri & Connor, 2005; Sullivan & Artiles, 2011). Following the disability designation, segregation and a lack of exposure to individuals without disabilities, as well as poor outcomes, have been identified as

major problems, especially for minority students. It is clear, given the large range of outcomes, that Illinois students with disabilities have very difference experiences based on their school districts.

The use of the fractionalization index in examining the influence of diversity on a population's distribution of resources has provided insight into how groups allocate resources to groups or individuals. Numerous research studies using the fractionalization index suggest a strong association between fractionalization and the provision of public goods (Alesina, Baqir, & Easterly, 1999; Alesina & Glaeser, 2009; Alesina & LaFerrara, 2000; Fink & Redaelli, 2011; Rupasingha, Goetz, & Freshwater, 2006; Sparber, 2008). Within this study, the fractionalization index was considered as one predictor of special education identification, practices, and outcomes, in order to determine if this value could help provide insight regarding the relationship between diversity and special education practices and outcomes.

The findings suggest that the fractionalization index does not serve as a consistent predictor with regards to special education identification, practices, and outcomes in Illinois school districts overall. Yet, the findings raise some interesting issues regarding relationships among diversity, wealth, community, and special education identification, practices, and outcomes. This section will discuss these findings.

Special Education Identification

The process of identifying students with disabilities is a critical step in the provision of special education services. However, many studies have highlighted issues of special education over-representation based on race, ethnicity, and socioeconomic status (Coutinho & Oswald, 2000; Macmillan & Reschly, 1998; Coutinho, Oswald, & Best, 2002; Artiles, Harry, Reschly, &

Chinn, 2002; Knotek, 2003; Hosp & Reschly, 2004; Ferri & Connor, 2005; Sullivan & Artiles, 2011).

This study sought to investigate whether a relationship exists between racial fractionalization and special education identification. Specifically, the risk of Black and Hispanic students being identified with disabilities compared to their White peers was examined. Identification variables studied were the risk ratio for Black and Hispanic students. When examining these variables, the range of practices across Illinois was evident. The original dataset, before outliers were removed, showed that Black students experienced a risk of special education identification averaging 1.62 times their White peers, with risks as great as over ten times their White peers in some districts. While overall, Hispanic students did not have a risk that stands out from White peers on average, the range of risk ratio for Hispanic students reflects great variability, with students identified at a rate of .09 to 3.58 times their White peers.

The study found that there is a weak relationship between the fractionalization index and the risk ratio for Black and Hispanic students when looking at the sample overall. However, when looking at non-urbanized districts, the correlation is stronger. Within these districts located in towns and rural areas, the greater the fractionalization index, the lower the Risk Ratio for Black and Hispanic students. In other words, as racial diversity increased, the chance of Black and Hispanic students being labeled as disabled was lower. In districts that were less racially diverse, there was a greater chance for Black and Hispanic students to be labeled as disabled.

The negative correlation seen in non-urbanized districts between the fractionalization index and risk ratio is interesting, as it supports some of the conclusions in fractionalization research. The majority of fractionalization research suggests that a higher level of diversity can negatively impact the provision of public goods. Alesina and Glaeser (2009) identified a direct

correlation between fractionalization and social welfare spending, with less diverse countries allocating more resources to social welfare. Similar findings were made in an American study, where the researchers found that a higher level of fractionalization correlated to reduced spending on productive public goods (Alesina, Baqir, & Easterly, 1999). If identification with a disability label is seen as a provision of public goods, as the label will come with services and supports, this finding is representative of this pattern, but only in non-urbanized areas.

In this study, the percentage of low-income students was also examined as one independent variable. The analysis found a moderate negative correlation between a district's percentage of low-income students and the risk ratio for Black and Hispanic students. The greater the percentage of low-income students, the lower the risk for Black and Hispanic students to be identified as disabled. This occurred within all district types.

Given the fact that multiple predictors correlated to the risk ratio for Black and Hispanic students, multiple regression analyses were conducted in order to identify the significance of the predictors. The fractionalization index and percent of low-income students were both significant in these analyses, with the percent of low income students being slightly more predictive.

Special Education Placement

In addition to examining the relationship between racial fractionalization and special education identification practices, this study also examined special education placement. The review of literature concluded that despite the least restrictive environment requirement of the Individuals with Disabilities Education Act, many students identified as having disabilities, especially in urban and low-income school districts, are placed in highly restrictive environments with limited access to general education environments with peers without disabilities (Patton, 1998; Daniels, 1998; Arnold & Lassman, 2003). Additionally, the literature suggested that the

use of self-contained, segregated learning environments was higher for students of color (Arnold & Lassman, 2003; Zion & Blanchett, 2011). As a result, the percentage of students with disabilities spending over 80% of their day in general education environments was considered, for all students and also for Black and Hispanic students as subgroups.

One of the most interesting findings when looking at the percentage of subgroups spending over 80% of their day in general education environments was the difference in the mean for White, Black, and Hispanic students. When looking at White students, the mean was 46.69%. However, for Black and Hispanic subgroups, the percentage of students spending over 80% of their school day in general education was much lower, at 33.64% for Hispanic and 24.85% for Black students.

Placement was also examined and compared to the predictor variables of fractionalization index, percentage low-income, resources, wealth, and effort. For Black and Hispanic subgroups, a positive correlation was found between the fractionalization index and percentage of students spending over 80% of their day in general education environments. The greater the racial diversity, the greater the amount of time students of color were spending in general education environments. The inverse, with less diversity meaning less access to general education for students of color, can also be concluded. Relationships were not found between the financial predictors (resources, wealth, and effort) and special education placement.

Special Education Student Outcomes

The final product of a student's educational experience is paramount. The results of high-stakes testing are one indicator of student outcomes, but graduation and dropout rates are also critical indicators of the effectiveness of the educational experience, as well as future outcomes for young adults. For students with disabilities, literature suggests that post-school outcomes are

dire, with higher dropout rates than nondisabled peers and greater involvement in the criminal justice system (Frattura & Topinka, 2006; Zion & Blanchett, 2011; Shifrer, Callahan, & Muller, 2013). Additionally, the literature has found increased negative outcomes for minority students with disabilities as opposed to their White peers, with Black students with and without disabilities experiencing the most negative outcomes (Zion & Blanchett, 2011).

Within this study, four specific outcome variables were analyzed: the performance gap, which defined the score difference between peers with and without disabilities in high stakes testing; the percentage of students with IEPs who dropped out of school; the graduation rate; and the dropout rate gap between students with and without disabilities. When examining all district types, there was no relationship between the fractionalization index and the performance gap. However, in urbanized districts, a weak negative relationship between the performance gap and fractionalization index was identified. When studying the graduation rates for unit and high school districts, there was a weak relationship found with the fractionalization index. When examining the dropout rate gap between students with and without disabilities, there was no relationship seen with the fractionalization index.

While statistically significant correlations were minimal with the relationship between the fractionalization index and outcome variables (performance gap, graduation rate, dropout rate gap), an additional predictor variable, percentage of low-income students, was also analyzed. When studying the percentage of low-income students, numerous statistically significant correlations were found. For example, there was a moderate correlation seen between the percentage of IEP dropouts and the percentage of low-income students in all districts and when looking at urbanized and non-urbanized districts. The graduation rate followed a similar pattern,

with a moderate negative correlation between the percentage of low-income students and the graduation rate.

District Resources

Financial information, including district resources, wealth, and effort, were examined in order to study how a district's financial means and effort related to the fractionalization index, as well as the dependent variables. Overall, it was evident that school districts in Illinois have very enormous disparities related to their resources, local wealth, and effort.

Operating expense per pupil was one variable examined, and included federal, state, and local funds. This value ranged from $6,016.04 to $22,552.14 per pupil, reflecting significant differences in Illinois school districts' financial means. In order to quantify a district's wealth, the equalized assessed value per student was computed for each district. The original data ranged from a minimum of $27,732.43 per student to $2,082,988.30 per student, before three outliers were removed. This difference in local resources for students is stark. Finally, the variable effort was also calculated. Effort varies in each school district due to the fact that local funds are obtained by locally-determined property tax rates and are also impacted by the property values in each district. Effort values were obtained through equalized assessed value, average daily attendance, and local revenue. Local revenue per student was divided by equalized assessed value per student, and this value provided a measure of effort. The range of district effort, 0.012 – 0.116, reflects a vast difference in the amount of tax burden that local school districts carry, based on the resources they have and the tax rate required.

In addition to demonstrating the inconsistencies in Illinois school district funding itself, the financial variables were also evaluated alongside the fractionalization index. Overall resources, as represented through the operating expense per pupil and district wealth, were

positively correlated to the fractionalization index. However, there was a negative correlation between the fractionalization index and effort. Alesina and Glaser (2009) concluded that the more fractionalized a community was, the fewer contributions were made to social welfare spending. This conclusion was supported through this study, given the negative correlation between effort and the fractionalization index.

Implications and Recommendations

This study of the relationship between the fractionalization index and special education identification, practices, and outcomes in Illinois provides some important insights with regards to the experiences of students with disabilities. The findings suggest that there are some predictors that correlate to identification, placement, and outcome variables.

One of the most noteworthy conclusions is related to the range of practices, patterns, and student outcomes across these 560 Illinois school districts. Just as school district wealth and student demographics vary greatly, so do the risk of disability designation for students of color, the use of segregated placements, and the overall outcomes for students. While Illinois school districts vary greatly with regards to their local resources, the effort that they make to fund local school districts is also negatively related to school district racial diversity as measured by the fractionalization index.

When considering the identification of students with disabilities, it is clear that Black students are at a greater risk than White and Hispanic students for being identified as disabled in most school districts. Districts with less racial diversity in rural areas present with an even greater risk of disability designation for Black students. Districts in urban areas and with more diversity overall have a slightly lower risk for Black students than their non-urbanized counterparts, closer to their White and Hispanic peers.

The presence of low-income students in a school district also leads to some significant implications for Black and Hispanic students. When there are fewer low-income students in a district, there is a greater risk of Black and Hispanic students being labeled as disabled. In districts overall, the percentage of low-income students is negatively correlated to a greater risk of disability labels for Black and Hispanic students.

While the fractionalization index correlated to risk ratio for Black and Hispanic students in non-urbanized districts, it had an elevated relationship to placement variables overall. Both the fractionalization index and the percentage of low-income students moderately correlated to the placement of students (overall, Black and Hispanic) in general education for over 80% of the school day. As school district racial diversity increases, Black and Hispanic student placements in general education environments for over 80% of their school day increases.

When examining student outcomes, few relationships were found with the fractionalization index. However, this is where the percentage of low-income students played a stronger role. It is not surprising that in districts with higher numbers of low-income students, the dropout rate increases and the gap between students with and without disabilities grows.

Recommendations for School Districts

While many of the issues outlined here would benefit from improvements and new practices on a statewide level, it is clear that school districts themselves will have the opportunity to implement practices that can have gains for students with and without disabilities. Poverty was a primary area where correlations were identified. While poverty's effects are not limited to education, the impact on special education is significant. As a result, school districts should actively work to engage community partnerships and wraparound supports, connecting families

to health care resources, mental health resources, parenting resources, and other professionals who can provide students the supports that they need.

Given the student outcomes that were identified, with higher dropout rates seen in students with disabilities than their nondisabled peers, school districts should be engaging in active transition and post-high school planning even earlier than this already occurs. Currently, the Individuals with Disabilities Education Act mandates that beginning at age 14.5, schools engage the student and family in transition planning and consideration of post-school outcomes. As opposed to just seeing it as a paperwork mandate, schools should begin this process earlier, beginning in late elementary school, in order to ensure that supports, services, and goals are connected to activities and outcomes that support students' goals beyond school. Person-centered planning is a powerful tool that can be used to motivate students and families, engaging them in realistic outcomes and connecting these plans to specific goals and supports (Miner & Bates, 1997). An additional element of transition planning is a connection to outside resources. Job coaching, connections to financial planning resources and community resources, and life skills development should all be examined and evaluated in order to provide students with wraparound supports.

Due to the fact that the percentage of low-income students was often a predictor of the outcome variables, school districts with increased numbers of low-income families should investigate evidence-based practices for supporting serving students and families from this demographic. Language barriers, education levels, and limited time off to attend meetings are all factors that may limit the opportunity for some parents to be active participants in their child's educational planning. School districts should consider how to make paperwork and special education regulations equally accessible for families who may be impacted by any of these

factors. Further, a lack of resources to solicit outside advocates can inhibit family involvement, and even result in practices and planning that families do not understand or believe are in their children's best interest.

School districts in non-urbanized areas may benefit from a closer examination of their fractionalization index and risk index for students of color, to ensure that students are identified with disabilities appropriately. In rural areas with less diversity, teacher training related to culture and race may better prepare teachers to serve Black and Hispanic students before labeling them as disabled.

Finally, school districts should evaluate their progress monitoring practices in order to ensure that the students who are receiving special education services are making appropriate gains, whether academically, emotionally, behaviorally, or functionally. Special education identification should not be seen as the endgame; rather, continual evaluation of student growth should be utilized to maximize the progress of learners with disabilities, and make changes and adjustments when progress is not occurring as expected.

Recommendations for Policy and Educational Leaders

The findings from this study have informed several recommendations for policy and educational leaders. First, it is important that the Illinois State Board of Education provide further guidance regarding disability criteria for use by local school districts, in order to standardize the process and promote equal access. Many of the disabilities are clearly defined, but others can be interpreted with subjectivity and ambiguity. Furthermore, a lack of understanding about racial or cultural differences may influence the disability identification process.

The Office of Special Education Programs within the Federal Government's Department of Education sets requirements for states to monitor special education patterns and placement. These requirements, known as indicators, are reported on an annual basis for school districts. The various indicators provide a great opportunity for ISBE to monitor patterns in districts and regions across the state, and consider how to connect their resources and services to supporting the needs in school districts.

In most districts, personnel reimbursement is provided for special education staff who are supporting students with disabilities. While this reimbursement of $9000 per certified staff member does not cover a full salary, it still provides financial support. However, it is provided on a per-staff member basis, as opposed to recognizing the number of students or the intensive needs of students. By expanding upon this model and allowing districts to be reimbursed for personnel who support students who are at risk, a preventive approach can be supported in many school districts. Early intervention can be a powerful tool for students when supports provided at a younger age can prevent special education identification. Or, by developing a distribution formula that recognizes and provides financial support based on the population of students, not just number of staff members, students with more intensive needs can be more equitably supported.

Finally, and most importantly, is the issue of school funding in Illinois. It is clear that great disparities in school resources exist when the range of operating expense per pupil is as low as $6,000 in one district to over $22,000 in another district. The primary use of local revenues for funding school districts in Illinois only contributes to an ongoing issue of resource inequalities, as seen in the disparities with regards to effort and wealth. By depending on the greatest tax burden from our communities with the least amount of wealth, we are setting up our poorest

students with an immediate lack of equity in their public schools. This raises concerns and suggests the importance of further investigation into how public schools are funded.

Recommendations for Further Research

Poverty. Research could be conducted to investigate the role of poverty in special education practices and outcomes. While this study identified some relationships between poverty and special education identification, outcomes, and practices, further research is needed. Poverty brings numerous factors that negatively impact child development and access to education. Future research could shed more light on strategies for overcoming this barrier to student learning and outcomes. Additionally, research could center on school professionals' attitudes and beliefs related to poverty, considering how may influence special education eligibility and placement decisions.

School district funding. Research could be conducted to investigate the relationship between school funding in Illinois and special education identification and practices. While this study explored the role of school district wealth as measured in operating expense per pupil, further investigation should consider other funding issues and factors, including the role of local special education spending practices. Additionally, alternative school funding structures could be explored.

Post-school outcomes. Research could be conducted to investigate ways in which post-school outcomes for students with disabilities can be monitored. This study relied on the performance gap, graduation patterns, and dropout rates in order to consider student outcomes. However, further research that highlights employment outcomes, post-secondary education, and criminal justice system involvement for students with disabilities would provide much more insight into student outcomes following K-12 education.

Involvement in criminal justice system. Research could be conducted to investigate the relationship between special education practices and outcomes that involve the criminal justice system. It is clear that numerous adults in the criminal justice system have experienced learning challenges and disability earlier in their educational experiences. Further research could look closer at this pattern, and consider ways in which special education practices can be improved.

English Language Learners. Finally, research could be conducted to investigate the relationship between English Language Learners and special education identification, practices, and outcomes. English Language Learners are a growing demographic in Illinois. These students bring cultural differences and language differences that could, in some areas, be misinterpreted as disabilities. Research examining the identification patterns of this population could bring greater awareness to this need.

Conclusion

Special education services and supports have evolved tremendously within the last century. From a system that segregated students in institutional-type settings to the current availability of resources within most public schools, the field has changed to meet the needs of students. While these extensive changes have resulted in many positive impacts, it is clear that special education practices related to identification, placement, and outcomes vary greatly throughout the state of Illinois, and that not all students' experiences are equal or equitable.

In the state of Illinois, school districts reflect incredibly variable resources, student demographics, and practices. This can be seen in the wealth that districts have, the students' resources and needs, and the outcomes of public schools overall. Special education is no exception; students' experiences can be very different depending on the resources of their

districts, the needs and abilities that they present with, and the needs and demographics of their peers.

While the fractionalization index is not the single most significant predictor of special education identification, placement, and outcomes, relationships have been found when looking at school districts' practices and the racial diversity of students. Given the inconsistencies across Illinois, school districts should examine patterns regarding the identification and outcomes of students with disabilities. Special education should not be seen as a solution or final outcome; rather, supports and services should be preparing students to make maximum contributions and achieve independence in our democratic and pluralistic society.

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Appendix A: IRB Exemption

UNIVERSITY OF ILLINOIS
AT URBANA-CHAMPAIGN

Office of Vice Chancellor for Research
Institutional Review Board
528 East Green Street
Suite 203
Champaign, IL 61820

April 17, 2013

Kern Alexander
Ed Organization and Leadership

RE: *An Investigation of the Relationship between Diversity/Racial Fractionalization and Special Education Identification Proportionality Spending and Outcomes*
IRB Protocol Number: 13770

Dear Dr. Alexander:

Thank you for submitting the completed IRB Application form for your project entitled *An Investigation of the Relationship between Diversity/Racial Fractionalization and Special Education Identification Proportionality Spending and Outcomes*. Your project was assigned Institutional Review Board (IRB) Protocol Number 13770 and reviewed.

Because your study involves analysis of unidentifiable public data, it has been determined that this project as described does not meet the definition of human subjects research as defined in 45CFR46(d)(f) or at 21CFR56.102(c)(e) and does not require IRB approval.

This determination only applies to the research study as submitted. Please note that modifications to your project need to be submitted to the IRB for review and status determination or approval before the modifications are initiated.

We appreciate your commitment to university policies and regulations regarding human research. If you have any questions about the IRB process, or if you need assistance at any time, please feel free to contact me, the IRB Office, or visit our website at http://www.irb.illinois.edu.

Sincerely,

Dustin L. Yocum

Dustin L. Yocum, Human Subjects Research Specialist, Institutional Review Board

telephone (217) 333-2670 • fax (217) 333-0405 • email IRB@illinois.edu

Appendix B: Districts and Corresponding Fractionalization Indices

District Name	Fractionalization Index
SD U-46	0.63
Indian Prairie CUSD 204	0.62
Plainfield SD 202	0.59
Rockford SD 205	0.72
CUSD 300	0.60
Valley View CUSD 365U	0.71
Naperville CUSD 203	0.50
Oswego CUSD 308	0.56
Waukegan CUSD 60	0.39
Springfield SD 186	0.61
Schaumburg CCSD 54	0.69
Peoria SD 150	0.61
Aurora East USD 131	0.28
St Charles CUSD 303	0.32
CUSD 200	0.50
Cicero SD 99	0.11
McLean County USD 5	0.50
Township HSD 211	0.61
Aurora West USD 129	0.63
Palatine CCSD 15	0.65
Township HSD 214	0.53
Joliet PSD 86	0.64
Champaign CUSD 4	0.69
Cons SD 158	0.41
Barrington CUSD 220	0.49
Decatur SD 61	0.62
Glenbard Twp HSD 87	0.61
Belvidere CUSD 100	0.53
Elmhurst SD 205	0.41
J S Morton HSD 201	0.22
Crystal Lake CCSD 47	0.39
Cons HSD 230	0.35
Moline USD 40	0.56
Edwardsville CUSD 7	0.28
Lincoln Way CHSD 210	0.24
Evanston CCSD 65	0.71

Round Lake CUSD 116	0.45
Harlem UD 122	0.35
Quincy SD 172	0.28
East St Louis SD 189	0.03
CHSD 155	0.26
Wheeling CCSD 21	0.59
Granite City CUSD 9	0.42
Maine Township HSD 207	0.57
Rock Island SD 41	0.69
Collinsville CUSD 10	0.50
Woodland CCSD 50	0.65
Comm Cons SD 59	0.64
Woodstock CUSD 200	0.53
Alton CUSD 11	0.55
Batavia USD 101	0.32
Danville CCSD 118	0.63
DeKalb CUSD 428	0.60
Geneva CUSD 304	0.24
Lake Zurich CUSD 95	0.30
Joliet Twp HSD 204	0.68
Oak Park ESD 97	0.60
New Lenox SD 122	0.23
Kankakee SD 111	0.65
CHSD 218	0.68
Bloomington SD 87	0.65
Yorkville CUSD 115	0.42
Maywood-Melrose Park-Broadview 89	0.51
Thornton Twp HSD 205	0.18
Orland SD 135	0.38
Bremen CHSD 228	0.62
CHSD 99	0.49
Crete Monee CUSD 201U	0.57
Arlington Heights SD 25	0.32
Downers Grove GSD 58	0.38
Proviso Twp HSD 209	0.53
Glenview CCSD 34	0.49
Belleville Twp HSD 201	0.57
McHenry CCSD 15	0.33
Kaneland CUSD 302	0.31
Niles Twp CHSD 219	0.67
Northfield Twp HSD 225	0.41
Galesburg CUSD 205	0.50
Troy CCSD 30C	0.59

Hinsdale Twp HSD 86	0.48
CCSD 62	0.64
Warren Twp HSD 121	0.63
Wauconda CUSD 118	0.47
West Chicago ESD 33	0.42
Park Ridge CCSD 64	0.24
North Shore SD 112	0.44
Addison SD 4	0.48
Urbana SD 116	0.69
New Trier Twp HSD 203	0.28
Cahokia CUSD 187	0.20
Freeport SD 145	0.61
Ball Chatham CUSD 5	0.28
Grayslake CCSD 46	0.56
Adlai E Stevenson HSD 125	0.47
Hinsdale CCSD 181	0.31
DuPage HSD 88	0.63
Minooka CCSD 201	0.45
Marion CUSD 2	0.31
Hawthorn CCSD 73	0.64
Rich Twp HSD 227	0.19
Lyons Twp HSD 204	0.38
CCSD 93	0.68
Berwyn South SD 100	0.36
Cook County SD 130	0.55
Sycamore CUSD 427	0.33
Pekin PSD 108	0.14
Dunlap CUSD 323	0.43
Kirby SD 140	0.31
North Chicago SD 187	0.60
Lockport Twp HSD 205	0.41
Belleville SD 118	0.55
Wilmette SD 39	0.36
Homer CCSD 33C	0.27
Twp HSD 113	0.29
Triad CUSD 2	0.14
Glen Ellyn SD 41	0.49
East Maine SD 63	0.70
Mascoutah CUD 19	0.46
Thornton Fractional Twp HSD 215	0.51
Jacksonville SD 117	0.32
Summit Hill SD 161	0.36
Central CUSD 301	0.45

O Fallon CCSD 90	0.49
Leyden CHSD 212	0.53
Mattoon CUSD 2	0.19
Berwyn North SD 98	0.34
CHSD 128	0.41
Bloom Twp HSD 206	0.61
Burbank SD 111	0.53
SD 45 DuPage County	0.65
Oak Park - River Forest SD 200	0.61
Sterling CUSD 5	0.53
Chicago Heights SD 170	0.54
Matteson ESD 162	0.20
Kildeer Countryside CCSD 96	0.51
Deerfield SD 109	0.18
Lombard SD 44	0.56
La Grange SD 102	0.41
Lake Villa CCSD 41	0.48
Highland CUSD 5	0.12
Antioch CCSD 34	0.39
Oak Lawn-Hometown SD 123	0.53
Evanston Twp HSD 202	0.67
North Palos SD 117	0.45
Woodridge SD 68	0.69
Grayslake CHSD 127	0.52
Indian Springs SD 109	0.57
Mahomet-Seymour CUSD 3	0.12
Elmwood Park CUSD 401	0.57
Dolton SD 149	0.06
Morton CUSD 709	0.15
Homewood Flossmoor CHSD 233	0.54
Bellwood SD 88	0.52
Lake Park CHSD 108	0.49
CHSD 117	0.28
Cary CCSD 26	0.37
Taylorville CUSD 3	0.11
Charleston CUSD 1	0.18
Prairie-Hills ESD 144	0.24
Zion-Benton Twp HSD 126	0.71
Zion ESD 6	0.64
Waterloo CUSD 5	0.05
Effingham CUSD 40	0.14
Marquardt SD 15	0.67
Dixon USD 170	0.30

Jersey CUSD 100	0.04
Geneseo CUSD 228	0.14
Mannheim SD 83	0.38
Canton Union SD 66	0.09
Bethalto CUSD 8	0.16
East Moline SD 37	0.66
Minooka CHSD 111	0.32
Bourbonnais SD 53	0.42
Harvard CUSD 50	0.51
Libertyville SD 70	0.30
Lyons SD 103	0.52
McHenry CHSD 156	0.28
O Fallon Twp HSD 203	0.47
Herrin CUSD 4	0.20
Mt Zion CUSD 3	0.12
Harvey SD 152	0.36
Beach Park CCSD 3	0.72
Lemont-Bromberek CSD 113A	0.30
Frankfort CCSD 157C	0.27
Tinley Park CCSD 146	0.39
Dolton SD 148	0.07
Berkeley SD 87	0.48
Lansing SD 158	0.67
Flossmoor SD 161	0.52
Ridgeland SD 122	0.45
Sandwich CUSD 430	0.29
Rochester CUSD 3A	0.13
Johnsburg CUSD 12	0.16
Plano CUSD 88	0.61
Manteno CUSD 5	0.26
Fremont SD 79	0.47
Il Valley Central USD 321	0.12
Mundelein Cons HSD 120	0.58
CHSD 94	0.58
Harrisburg CUSD 3	0.27
Mount Prospect SD 57	0.35
Prairie Central CUSD 8	0.16
Hononegah CHD 207	0.25
Massac UD 1	0.27
Ottawa ESD 141	0.36
Murphysboro CUSD 186	0.44
East Richland CUSD 1	0.09
Bensenville SD 2	0.51

Bradley Bourbonnais CHSD 307	0.41
Kinnikinnick CCSD 131	0.24
Coal City CUSD 1	0.16
Columbia CUSD 4	0.12
Aptakisic-Tripp CCSD 102	0.52
Lake Forest SD 67	0.19
Gurnee SD 56	0.72
CCSD 89	0.54
Herscher CUSD 2	0.10
Bond County CUSD 2	0.17
Pekin CSD 303	0.11
Macomb CUSD 185	0.37
Streator ESD 44	0.45
Carterville CUSD 5	0.13
Meridian CUSD 223	0.26
Queen Bee SD 16	0.68
Midlothian SD 143	0.69
ESD 159	0.20
Hillsboro CUSD 3	0.09
Olympia CUSD 16	0.10
Genoa Kingston CUSD 424	0.27
Oak Lawn CHSD 229	0.44
Frankfort CUSD 168	0.06
Roxana CUSD 1	0.15
Homewood SD 153	0.65
Palos CCSD 118	0.27
Peotone CUSD 207U	0.22
Kewanee CUSD 229	0.43
Grant CHSD 124	0.46
Clinton CUSD 15	0.14
Posen-Robbins ESD 143-5	0.53
Evergreen Park ESD 124	0.64
Mokena SD 159	0.20
Winnetka SD 36	0.14
Mount Vernon SD 80	0.53
Summit SD 104	0.37
Will County SD 92	0.22
Argo CHSD 217	0.64
Park Forest SD 163	0.32
Reavis Twp HSD 220	0.52
Monmouth-Roseville CUSD 238	0.46
Big Hollow SD 38	0.49
Reed Custer CUSD 255U	0.16

Skokie SD 68	0.72
Rochelle CCSD 231	0.59
East Peoria SD 86	0.21
Wabash CUSD 348	0.08
Mundelein ESD 75	0.58
North Boone CUSD 200	0.43
Skokie SD 69	0.74
Lake Forest CHSD 115	0.19
Monticello CUSD 25	0.09
Northbrook SD 28	0.27
CCSD 168	0.39
Forest Ridge SD 142	0.47
United Twp HSD 30	0.54
Tolono CUSD 7	0.12
Southwestern CUSD 9	0.10
Robinson CUSD 2	0.15
Bradley SD 61	0.48
North Mac CUSD 34	0.05
Lincolnshire-Prairieview SD 103	0.49
Keeneyville SD 20	0.70
Darien SD 61	0.63
Sherrard CUSD 200	0.15
Beardstown CUSD 15	0.57
Eureka CUD 140	0.10
Winnebago CUSD 323	0.23
Millburn CCSD 24	0.39
Lisle CUSD 202	0.51
Byron CUSD 226	0.21
Riverside SD 96	0.47
Steger SD 194	0.69
Rantoul City SD 137	0.70
Vandalia CUSD 203	0.09
Oregon CUSD 220	0.17
Riverton CUSD 14	0.10
CUSD 201	0.48
Litchfield CUSD 12	0.14
Rockton SD 140	0.23
Alsip-Hazlgrn-Oaklwn SD 126	0.60
Duquoin CUSD 300	0.26
Fenton CHSD 100	0.61
Lemont Twp HSD 210	0.25
Farmington Central CUSD 265	0.14
Western Springs SD 101	0.03

Channahon SD 17	0.21
Prospect Heights SD 23	0.50
Arbor Park SD 145	0.63
Riverside-Brookfield Twp SD 208	0.52
Wilmington CUSD 209U	0.12
Williamsville CUSD 15	0.08
South Holland SD 151	0.49
Carlinville CUSD 1	0.11
Marshall CUSD 2C	0.07
Carmi-White County CUSD 5	0.09
Carbondale ESD 95	0.64
Flora CUSD 35	0.10
Jasper County CUD 1	0.04
Pana CUSD 8	0.09
Paxton-Buckley-Loda CUD 10	0.09
Nippersink SD 2	0.19
La Grange SD 105 South	0.56
Whiteside SD 115	0.62
Wesclin CUSD 3	0.20
W Harvey-Dixmoor PSD 147	0.45
Auburn CUSD 10	0.11
River Trails SD 26	0.63
Ottawa Twp HSD 140	0.25
Staunton CUSD 6	0.09
Franklin Park SD 84	0.51
River Forest SD 90	0.43
Chicago Ridge SD 127-5	0.44
Centralia SD 135	0.47
Maercker SD 60	0.70
Schiller Park SD 81	0.60
Country Club Hills SD 160	0.08
Mercer County SD 404	0.08
Pontiac CCSD 429	0.31
Pikeland CUSD 10	0.04
West Carroll CUSD 314	0.22
Mendota CCSD 289	0.50
Hoopeston Area CUSD 11	0.35
Gillespie CUSD 7	0.05
Pleasant Plains CUSD 8	0.13
Princeton ESD 115	0.16
Glencoe SD 35	0.16
Mt Vernon Twp HSD 201	0.33
Calumet City SD 155	0.48

Sparta CUSD 140	0.42
El Paso-Gridley CUSD 11	0.12
Hamilton Co CUSD 10	0.07
Lincoln ESD 27	0.19
Westchester SD 92-5	0.69
Lincolnwood SD 74	0.57
La Salle-Peru Twp HSD 120	0.26
Momence CUSD 1	0.62
Lawrence County CUD 20	0.08
Fieldcrest CUSD 6	0.21
Carlyle CUSD 1	0.16
Manhattan SD 114	0.23
Rockridge CUSD 300	0.05
Shelbyville CUSD 4	0.04
Schuyler-Industry CUSD 5	0.08
Porta CUSD 202	0.10
Johnston City CUSD 1	0.10
Brookwood SD 167	0.39
Sullivan CUSD 300	0.08
Bloomingdale SD 13	0.44
Morris SD 54	0.43
Northbrook ESD 27	0.29
Washington CHSD 308	0.14
Wood Dale SD 7	0.60
East Peoria CHSD 309	0.17
Riverdale CUSD 100	0.11
Bureau Valley CUSD 340	0.10
Dupo CUSD 196	0.21
Iroquois County CUSD 9	0.25
Eldorado CUSD 4	0.11
Westville CUSD 2	0.11
Maroa Forsyth CUSD 2	0.28
Benton CCSD 47	0.09
Limestone CHSD 310	0.34
Calumet Public SD 132	0.37
Morrison CUSD 6	0.14
Carbondale CHSD 165	0.57
Central CUSD 4	0.18
Georgetown-Ridge Farm CUD 4	0.17
Central SD 51	0.16
Knoxville CUSD 202	0.12
Diamond Lake SD 76	0.56
Teutopolis CUSD 50	0.02

Northbrook/Glenview SD 30	0.46
Lincoln ESD 156	0.50
Red Hill CUSD 10	0.06
Deer Creek-Mackinaw CUSD 701	0.10
Athens CUSD 213	0.05
Midwest Central CUSD 191	0.08
Brookfield Lagrange Park SD 95	0.47
Center Cass SD 66	0.46
Marengo-Union E Cons D 165	0.45
Skokie SD 73-5	0.71
Havana CUSD 126	0.04
Gibson City-Melvin-Sibley CUSD 5	0.07
Oakwood CUSD 76	0.12
Beecher CUSD 200U	0.27
Argenta-Oreana CUSD 1	0.21
Red Bud CUSD 132	0.05
County of Winnebago SD 320	0.52
Meridian CUSD 15	0.23
Rock Falls ESD 13	0.51
Warrensburg-Latham CUSD 11	0.15
Orion CUSD 223	0.12
Tri Valley CUSD 3	0.07
Worth SD 127	0.43
Sunnybrook SD 171	0.42
Peru ESD 124	0.35
Trico CUSD 176	0.07
Hazel Crest SD 152-5	0.21
Casey-Westfield CUSD 4C	0.08
Salem SD 111	0.13
Tuscola CUSD 301	0.10
River Bend CUSD 2	0.12
County of Woodford School	0.09
Tremont CUSD 702	0.13
Richland GSD 88A	0.72
South Holland SD 150	0.21
Centralia HSD 200	0.36
Cumberland CUSD 77	0.03
Paris-Union SD 95	0.10
Chester CUSD 139	0.13
West Central CUSD 235	0.10
La Salle ESD 122	0.54
Iroquois West CUSD 10	0.50
Heyworth CUSD 4	0.10

United CUSD 304	0.14
Pecatonica CUSD 321	0.11
Norridge SD 80	0.37
Edwards County CUSD 1	0.09
Central CUSD 3	0.06
Illini Bluffs CUSD 327	0.13
Itasca SD 10	0.41
Morris CHSD 101	0.30
St Joseph CCSD 169	0.10
Gavin SD 37	0.49
Prophetstown-Lyndon-Tampico CUSD3	0.10
Belle Valley SD 119	0.62
North Greene CUSD 3	0.03
Bismarck Henning CUSD	0.08
Rochelle Twp HSD 212	0.49
Washington SD 52	0.08
Prairie Grove CSD 46	0.20
Hoover-Schrum Memorial SD 157	0.38
Putnam County CUSD 535	0.22
Lake Bluff ESD 65	0.32
Forest Park SD 91	0.66
Somonauk CUSD 432	0.15
Germantown Hills SD 69	0.12
Metamora CCSD 1	0.14
Lena Winslow CUSD 202	0.10
Central A & M CUD 21	0.08
Wolf Branch SD 113	0.44
New Berlin CUSD 16	0.08
Streator Twp HSD 40	0.34
Oak Grove SD 68	0.37
LaGrange Highlands SD 106	0.26
Christopher USD 99	0.06
Millstadt CCSD 160	0.12
Ridgewood CHSD 234	0.37
Gower SD 62	0.54
Forrestville Valley CUSD 221	0.09
Lincoln CHSD 404	0.15
Illini Central CUSD 189	0.07
Evergreen Park CHSD 231	0.61
Morton Grove SD 70	0.61
Dakota CUSD 201	0.14
East Alton SD 13	0.18
LeRoy CUSD 2	0.11

Galena USD 120	0.21
Fox Lake GSD 114	0.36
Marengo CHSD 154	0.27
Peoria Heights CUSD 325	0.38
Serena CUSD 2	0.17
Pleasantdale SD 107	0.32
Stark County CUSD 100	0.12
Blue Ridge CUSD 18	0.08
Spring Valley CCSD 99	0.50
Midland CUSD 7	0.06
Wood River-Hartford ESD 15	0.07
Bushnell Prairie City CUSD 170	0.13
Altamont CUSD 10	0.07
Pontiac Twp HSD 90	0.22
Amboy CUSD 272	0.10
Cass SD 63	0.52
Saratoga CCSD 60C	0.30
Prairie Hill CCSD 133	0.15
Arcola CUSD 306	0.52
Indian Creek CUSD 425	0.14
District 50 Schools	0.23
Princeville CUSD 326	0.17
Sangamon Valley CUSD 9	0.05
West Northfield SD 31	0.61
Richmond-Burton CHSD 157	0.14
Salem CHSD 600	0.10
Madison CUSD 12	0.16
Gallatin CUSD 7	0.07
Freeburg CCSD 70	0.05
Palos Heights SD 128	0.25
Brimfield CUSD 309	0.09
Sesser-Valier CUSD 196	0.09
Neoga CUSD 3	0.05
Abingdon CUSD 217	0.16
Rantoul Township HSD 193	0.59
Benjamin SD 25	0.44
Pontiac-W Holliday SD 105	0.66
Harmony Emge SD 175	0.60
Atwood Heights SD 125	0.69
South Central CUD 401	0.05
Norris City-Omaha-Enfield CUSD 3	0.04
Fairfield PSD 112	0.16
Hinckley Big Rock CUSD 429	0.16

Lewistown CUSD 97	0.02
Anna CCSD 37	0.12
CUSD 4	0.03
North Clay CUSD 25	0.05
Erie CUSD 1	0.07
Bunker Hill CUSD 8	0.10
Unity Point CCSD 140	0.60
Wethersfield CUSD 230	0.39
R O W V A CUSD 208	0.07
Winchester CUSD 1	0.05
East Dubuque USD 119	0.11
Eastland CUSD 308	0.09
Elmwood CUSD 322	0.08
Polo CUSD 222	0.19
Creve Coeur SD 76	0.15
Nokomis CUSD 22	0.07
Roselle SD 12	0.33
N Pekin & Marquette Hght SD 102	0.15
Rhodes SD 84-5	0.51
West Prairie CUSD 103	0.03
Liberty CUSD 2	0.03
Lockport SD 91	0.17
Brown County CUSD 1	0.05
Western CUSD 12	0.08
Fairview SD 72	0.65
Avoca SD 37	0.55
Rock Falls Twp HSD 301	0.32
Lebanon CUSD 9	0.43
Breese SD 12	0.22
Grant CCSD 110	0.59
Hardin County CUSD 1	0.12
Durand CUSD 322	0.13
Medinah SD 11	0.53
Marseilles ESD 150	0.14
Goreville CUD 1	0.06
Zeigler-Royalton CUSD 188	0.05
Silvis SD 34	0.58
Ridgeview CUSD 19	0.12
Freeburg CHSD 77	0.06
Oglesby ESD 125	0.28
Villa Grove CUSD 302	0.11
Henry-Senachwine CUSD 5	0.07
Carrollton CUSD 1	0.06

CCSD 180	0.50
Mendota Twp HSD 280	0.41
Oblong CUSD 4	0.03
Meridian CUSD 101	0.54
Stockton CUSD 206	0.07
Hiawatha CUSD 426	0.17
Union Ridge SD 86	0.48
Fisher CUSD 1	0.11