

Proportional Representation of Students with Disabilities Based on Race, Gender,
and Socio-Economic Status in Virginia

Maxine Austin Casey

Dissertation submitted to the faculty of the
Virginia Polytechnic Institute and State University
in partial fulfillment of the requirements for the degree of

Doctor of Education
in
Education Leadership and Policy Studies

Glen I. Earthman, Co-chair

Carol S. Cash, Co-chair

Travis W. Twiford

Wanda Bibb

March 24, 2017

Blacksburg, Virginia

Keywords: overrepresentation, special education, minorities, disproportionate,
disproportionality, proportionality, risk-ratio, socio-economics, and poverty

Proportional Representation of Students with Disabilities Based on Race, Gender, and Socio-Economic Status in Virginia

Maxine Austin Casey

ABSTRACT

For more than three decades, research has shown that the special education referral, identification, and placement processes can be discriminatory (Artiles, Rueda, Salazar, & Higuera, 2005). Proportionately, there are more minority students of low socio-economic status than are White students in the high incidence special education categories. Historically, overrepresentation and disproportionality of minority students in special education has been serious, persistent, and pervasive (Losen & Orfield, 2002). Moderate steps have been taken in educational reform to address educational inequities (Turnbull & Turnbull, 2000).

The purpose of this study was to investigate the status of relative representation of male and female, minority, and low socioeconomic students with disabilities served in special education programs across public school divisions in the Commonwealth of Virginia. This study examined representation statistics of specific disability categories by race and socioeconomic status from all 132 Virginia public school divisions within eight Superintendent's regions in the 2013-14 school year, including the eight superintendent's regions, as published by the Virginia Department of Education. Data from the Virginia Department Education (VDOE) were analyzed to present an analysis of three categories of the special education populations (ID, LD and ED), racial, (Black and Hispanic) and socio-economic status.

The descriptive part of the design involved a presentation of data from the VDOE. The comparative part of the research compared indexed values of disproportionality within disability categories at the school division level across the state on three metrics-by student race, gender, and socioeconomic status. These resulting index values were calculated for each of the 132 public school divisions in the Commonwealth of Virginia and compared to identify localities with particularly high occurrences of disproportionality.

Findings indicated that fewer than 50% of the school divisions in the Commonwealth of Virginia showed disproportionality, however when examined by Superintendent's regions there were some geographical areas that showed some concentrations of disproportionality.

Proportional Representation of Students with Disabilities Based on Race, Gender, and Socio-Economic Status in Virginia

Maxine Austin Casey

GENERAL AUDIENCE ABSTRACT

For more than three decades, research has shown that the special education referral, identification, and placement processes can be discriminatory (Artiles, Rueda, Salazar, & Higareda, 2005). Proportionately, there are more minority students of low socio-economic status than are White students in special education categories that are the high incidence special education categories. Students with high-incidence disabilities make up 80% of all students with disabilities. High-Incidence disabilities share these characteristics, (1) often hard to distinguish from students without disabilities, especially in non-school settings, (2) often display a combination of academic, and (3) behavioral and social problems (Friend & Bursuck, 2012).

Special Education licensure and endorsement varies from state to state, as does the terminology used in describing the knowledge that is required and the students to whom it applies. In most states students identified for special education services for the categories of Intellectual Disability (ID), Specific Learning Disability (SLD) and students with Emotional Disturbance (ED) are identified as high- incidence disabilities.

The purpose of this study was to investigate the status of relative representation of male and female, minority, and low socioeconomic students with disabilities served in special education programs across 132 public school divisions within eight Superintendent's regions in the 2013-14 school year, as published by the Virginia Department of Education. Data from the Virginia Department Education (VDOE) were analyzed to present an analysis of three categories of the special education populations (ID, SLD and ED), racial, (Black and Hispanic) and socio-economic status.

Findings indicated that fewer than 50% of the school divisions in the Commonwealth of Virginia showed disproportionality, however when examined by Superintendent's regions there were some geographical areas that showed some concentrations of disproportionality.

DEDICATION

I dedicate my dissertation to my mother the late Peggy Johnson Porter who encouraged me to get my doctorate and to never stop following my dreams. I dedicate my dissertation to my father the late George Henry Austin whom was the valedictorian of his high school senior class. When I was a young girl he inspired me and my sister to become educated black women and emphasized the importance of education as a *passport to life*.

I dedicate my dissertation to my son Austin Rickie Casey whom I wish to inspire and my husband Rickie Dale Casey who encouraged me and supported me throughout the dissertation process. They have both endured living with me throughout the dissertation process and understood the reason for the many hours I worked away from family and still encouraging me along the way.

I would like to express a special feeling of gratitude to my dear sister Patricia S. Austin whose words of prayer, encouragement, love and support that motivated me the entire way. I also dedicate this dissertation to my many friends and church family who have supported me throughout the dissertation process. I also dedicate this dissertation to several editors throughout the writing process of the dissertation along with a very special dedication to Dr. Tinkhani Ushe –White who supported me like a sister, given me her attention and has become one of my biggest cheerleaders in helping me to master aspects of a quantitative study.

ACKNOWLEDGMENT

First and foremost I would like to thank my lord and savior Jesus Christ who strengthens me. Without Christ in my life this dissertation would have remained a dream. I would like to thank my committee chair Dr. Glen Earthman for his leadership and guidance throughout the dissertation process. His wisdom and perspective on subject matter provided an enormous amount of support. Without his persistence and help this dissertation would not have been possible.

I would like to thank my committee members, Dr. Carol Cash whom I started and finished the dissertation journey with. She helped to guide and narrow down my dissertation topic and to make it manageable. Her knowledge of subject matter is impeccable and her ability to inspire others to investigate phenomenon shows true dedication to the field of education. In addition, I would like to thank Dr. Wanda Bibb and Dr. Travis Twiford who were both instrumental in lending ideas, making suggestions, and editing the final draft of my dissertation.

TABLE OF CONTENTS

ABSTRACT.....	ii
GENERAL AUDIENCE ABSTRACT	iii
DEDICATION	iv
ACKNOWLEDGMENT.....	v
LIST OF TABLES	ix
CHAPTER 1 CONTEXT OF THE STUDY	1
Introduction.....	1
Overview of the Study.....	2
Justification for the Study.....	3
Purpose of the Study	3
Definition of Terms.....	5
Limitations.....	7
Delimitations.....	8
Organization of Study	8
CHAPTER 2 REVIEW OF THE LITERATURE.....	9
Introduction.....	9
History of Special Education Legislation.....	10
Over Identification of Minorities in Special Education	12
Factors Related to Overrepresentation of Minorities in Special Education	16
Identification Process and Assessment Biases	16
Demographics and Socio-economic status on Perceived Abilities.....	18
Factors Impacting Educational Quality.....	19
Teacher Perception and Training	21
Special Education in Virginia.....	24
Conclusions.....	25

CHAPTER 3 METHODOLOGY	27
Introduction and Purpose.....	27
Research Questions	27
Research Design.....	28
Data Sources	28
Reliability and Validity	29
Permission to Conduct Study and Use Data.....	29
Data Gathering Procedures.....	30
Data Management	30
Data Analysis	31
Methodology Summary	32
CHAPTER 4 RESULTS OF THE STUDY	33
Introduction.....	33
Data Analysis by Research Question	35
<i>Main research question.</i>	35
<i>Research sub question 1.</i>	36
<i>Research sub question 2.</i>	37
<i>Research sub question 3.</i>	37
<i>Research sub question 4.</i>	38
CHAPTER 5 SUMMARY AND CONCLUSION	46
Introduction.....	46
Findings	47
<i>Finding 1: Economically Disadvantaged students were disproportionately identified for special education, Specific Learning Disabilities, Emotional Disabilities, and Intellectual Disabilities in school divisions more frequently than African American, Hispanic, or Male subgroups.</i>	47
<i>Finding 2: Female students were not disproportionately identified for overall Special Education, Emotional Disabilities, Intellectual Disabilities, or Specific Learning Disabilities, in any school divisions.</i>	48

<i>Finding 3: Male students were disproportionately identified for Emotional Disabilities in school divisions more frequently than for Intellectual Disabilities or Specific Learning Disabilities.</i>	48
<i>Finding 4: Black students were disproportionately identified for Intellectual Disabilities in school divisions more frequently than for Emotional Disabilities or Specific Learning Disabilities.</i>	49
<i>Finding 5: Hispanic students were disproportionately identified for Specific Learning Disabilities in school divisions more frequently than for Emotional Disabilities or Intellectual Disabilities.</i>	49
Conclusion	49
Implications for Practice.....	50
Suggestions for Further Study	54
Reflections	55
REFERENCES.....	56
APPENDIX A VIRGINIA POLYTECHNIC INSTITUTE AND UNIVERSITY INSTITUTIONAL BOARD REVIEW PERMISSION TO CONDUCT STUDY	65
APPENDIX B SUPPLEMENTARY TABLES	66

LIST OF TABLES

Table 1 *Number and Percent of School Divisions at Each Disproportionality Risk Ratio Level for SWD*.....35

Table 2 *Number and Percent of School Divisions at Each Disproportionality Risk Ratio Level for SLD*.....36

Table 3 *Number and Percent of School Divisions at Each Disproportionality Risk Ratio Level for ED*37

Table 4 *Number and Percent of School Divisions at Each Disproportionality Risk Ratio Level for ID (MR)*38

Table 5 *Locale Description and Student Demographic Makeup of Each Superintendent’s Region*39

Table 6 *Percent of Disproportional Identification of Black Students of Special Education Services by Superintendent’s Region*41

Table 7 *Percent of Disproportional Identification of Hispanic Students for Special Education Services by Superintendent’s Region*42

Table 8 *Percent of Disproportional Identification of Economically Disadvantaged Students for Special Education Services by Superintendent’s Region*43

Table 9 *Percent of Disproportional Identification of Male Students for Special Education Services by Superintendent’s Region*44

Table 10 *Percent of Disproportional Identification of Female Students for Special Education Services by Superintendent’s Region*45

CHAPTER 1

CONTEXT OF THE STUDY

Introduction

For more than three decades, research has shown that the special education referral, identification, and placement processes are discriminatory (Artiles, Rueda, Salazar, & Higareda, 2005). According to Artiles, Trent, and Palmer (2004) students that are in historically underserved groups continue to be disproportionately identified as requiring special education. Artiles, Trent, and Palmer (2004) identified underserved groups by describing students from diverse racial, cultural, linguistic, and economically disadvantaged backgrounds who have experienced sustained school failure overtime. Disproportionality is a multidimensional problem; families and educators (particularly special educators) have been trying to solve it, perhaps with greater intensity in the last 15 years (Artiles, Kozleski, Trent, Osher, & Ortiz, 2010).

The Individuals with Disabilities Education Act (IDEA) is the nation's federal special education law that ensures public schools serve the educational needs of students with disabilities. IDEA (2004) requires every state to issue regulations that guide the implementation of the federal law within the state. At a minimum, state regulations must provide all of the protections contained in IDEA. Some states may have additional requirements that go beyond the federal law. As of 2011, more than 6 million school-age children in the United States receive special education services as a result of IDEA. IDEA is the result of many court challenges dealing with students with disabilities. Some court challenges led to the questioning of bias. Even as court challenges of cultural bias of standardized Intelligence Quotient (I.Q) Test evolved as in the cases of *Larry P. v. Riles* (1972, 1974, 1979, 1984); *Diana v. California State Board of Education* (1970) and *PASE v. Hannon* (1980), the problem with disproportionate representation of minority students in special education has persisted (Donovan & Cross, 2002; Harry & Klingner, 2006). The challenges in these Supreme Court cases were addressing the role of assessment and the reduced educational opportunity for minorities in special education programs (Donovan & Cross, 2002; Harry & Klingner, 2006).

Recent disproportionality research yields a sharper focus on the forces that shape and maintain disproportionate representation (Artiles, 2003; Harry & Klingner, 2006; Hosp & Reschly, 2003; Skiba, Poloni-Staudinger, Gallini, Simmons & Feggins-Azziz, 2006). The

reauthorization of the Individuals with Disabilities Act (IDEA, 2004) increased the focus on equality in special education. It is no longer a choice about whether or not to investigate and address disproportionate representation in special education. A number of possible conditions or causes related to special education disproportionality have been explored. With the 2004 authorization of the Individuals with Disabilities Education Act Congress tried to develop a framework to address the disproportionality phenomenon (Artiles, Trent, & Palmer, 2004).

IDEA (1997) and the reauthorization of IDEA in 2004 significantly shaped the landscape for developing laws governing special education policies and addressed disproportionality at the state and local levels (Skiba, Simmons, Ritter, Rausch, Cuadrado, & Chung, 2008). Under the provisions of IDEA 2004, states must monitor disproportionate representation by race or ethnicity in disability categories and special education placement. A review of local policies, practices, and procedures is required when disproportionate representation is found. However, significant disproportionality is not defined in IDEA 2004 or associated regulations. Discretion is left to the states to develop the quantifiable indicators of disproportionality used for determining significance (Skiba et al, 2008). This research study will assist identifying possible disproportionality by providing data on the proportionality of students from the Commonwealth of Virginia with diverse racial backgrounds and gender in selected Special Education categories. By analyzing these data at the school division level across the Commonwealth public schools, the researcher identified ‘hot spots’ of disproportionality by special education category as a starting point for future improvement efforts. In the past, disproportionality was examined and reported by the percent of school divisions with disproportionate representation of racial groups (Black and Hispanic), and gender (male and female) in specific disability categories that is the result of inappropriate identification but not by socio-economic status (VDOE, 2014). Therefore, this study may uncover a new way to consider framing both the problem of disproportionality and the potential solutions.

Overview of the Study

In this study, the data were used to examine proportionality statistics from the Virginia Department of Education from 2013-2014 school year, identifying trends in proportionality of the students in K-12 with and without disabilities. Disability categories (ED, LD, ID) and gender(male and female) based on racial group (Black and Hispanic) and socio-economic level of economic disadvantage (based on students eligible for the National School Lunch Program,

free or reduced-price lunch) from all 132 Virginia public school divisions within eight Superintendent's regions during in the 2013-2014 school year. The data were analyzed to determine a measure of proportionality for students with and without disabilities by category using risk-ratio as a measure of disproportionality. The results were disaggregated by the demographic categories of race, gender, and socio-economic status.

Justification for the Study

Historically, overrepresentation and disproportionality of minority children in special education has been serious, persistent, and pervasive (Losen & Orfield, 2002). The U.S. Department of Education's Office of Special Education Programs (OSEP), Office of Civil Rights (OCR), and the National Center for Statistics (NCES) have conducted surveys of schools and districts across the United States to identify placement patterns of students with special needs and have documented the chronic unequal placement of certain ethnic, gender, and socio-economic groups at the national and state levels (Fierros, 2005). To quantify this disproportionality, states like Virginia developed a mathematical formula to indicate whether there was overrepresentation of certain ethnic groups in certain special education categories. This formula is known as the Indicator Risk Ratio, and will be discussed in detail in chapter three (VDOE, 2014). Virginia, while examining disproportionality within ethnic groups, there has not been examination by gender or socioeconomic status. With changes in IDEA, through reauthorizations, it is important to determine if progress has been made in addressing disproportionality. Findings from this study can be utilized by educators to understand labeling students as disabled when they really are not which leads to unwarranted services and supports. Misidentified students are likely to encounter limited access to a rigorous curriculum and diminished expectations. More important, mislabeling students creates a false impression of the child's intelligence and academic potential (Harry & Klingner, 2006; Losen & Orfield, 2002; National Alliance of Black School Educators, 2002).

Purpose of the Study

The purpose of this study was to investigate the status of relative proportionality of male or female, minority, and low socioeconomic students with disabilities served in special education programs across public school divisions in the Commonwealth of Virginia. This study examined proportionality statistics of specific disability categories by race and socioeconomic status from

all 132 Virginia public school divisions within eight Superintendent's regions in the 2013-14 school year, as published by the Virginia Department of Education. This study focused on Virginia's public school divisions, which are organized and grouped into 132 public school divisions within eight Superintendent's regions. Data from the Virginia Department Education were analyzed in order to present a comprehensive analysis of special education populations by disability category, racial and socio-economic status.

Research Questions

The research question and related sub questions guiding the researcher in investigating proportionality of students in special education programs in public school divisions in the Commonwealth of Virginia were:

- What is the status of representation of selected racial groups, gender, and the economically disadvantaged students in school divisions in special education programs in Virginia from the school year 2013-14 as defined by a risk ratio of 2.0 or greater?

Subordinate questions that embody components of the query into the proportionality of students in public school divisions in Virginia:

1. What is the status of representation of Black and Hispanic, male and female, and the economically disadvantaged students in Specific Learning Disability (SLD) special education programs in school divisions in Virginia for the school year 2013-14, as defined by a risk ratio of 2.0 or greater?
2. What is the representation of Black and Hispanic, male and female, and the economically disadvantaged students Emotional Disability (ED) special education programs in school divisions in Virginia for the school year 2013-14, as defined by a risk ratio of 2.0 or greater?
3. What is the status of representation of Black and Hispanic, male and female, and the economically disadvantaged students in Intellectual Disability (ID) or Mental Retardation(MR) special education programs in school divisions in Virginia for the school year 2013-14, as defined by a risk ratio of 2.0 or greater?
4. What is the status of representation of Black and Hispanic, male and female, and the economically disadvantaged students in various special education programs within

Superintendent's regions?

Definition of Terms

For the purpose of this study, the researcher consistently used the terms defined below. In order to create a common vocabulary, the following terms and definitions are cited from current literature in special education.

- African American - a person having origins in any of the black racial groups of Africa (VDOE, 2011).
- Disproportionality - Disproportionate representation is defined as “the extent to which membership in a given group affects the probability of being placed in a specific education category (Oswald, Coutinho, Best, & Singh, 1999). For the purpose of the study disproportionate representation will be measured by the Virginia Department of Education by school divisions that meet the established small requirements and exceed the risk-ratio threshold of 2.0 (VDOE, 2014).
- Disproportionate placement - Students of a given ethnic group in special education programs, means that the percentage of students from that group in such programs is disproportionately greater than their percentage in the school population as a whole (Jefferson-Jenkins, 2003).
- Economically disadvantaged - a student who is a member of a household that meets the income eligibility guidelines for free or reduced-price school meals (less than or equal to 185% of Federal Poverty Guidelines) (VDOE, 2012b).
- Emotional Disability - a condition exhibiting one or more of the following characteristics over a long period of time and to a marked degree that adversely affects a child's educational performance (IDEA, 1997, 34CFR 300.8(c)(4)).
 - (a) An inability to learn that cannot be explained by intellectual, sensory, or health factors and the inability to build or maintain satisfactory interpersonal relationships with peers and teachers.
 - (b) The inappropriate types of behavior or feelings under normal circumstances, general pervasive mood of unhappiness or depression.
 - (c) A tendency to develop physical symptoms or fears associated with personal or school problems.
- Hispanic - a person of Cuban, Mexican, Puerto Rican, South American, Central

American or other Spanish culture or origin (VDOE, 2011).

- Indicator 10 - the percent of school divisions with disproportionate representation of racial and ethnic groups in specific disability categories that is a result of inappropriate identification (VDOE, 2014).
- Individual with Disability Education Act (IDEA) - a federal statute that provides funds and sets standards for the provision of early intervention, education and related services for children with disabilities. Originally instituted in 1990, IDEA was reauthorized in 1997 and amended many times, most recently in 2004. Although IDEA is considered a civil rights law, states are not required to participate (IDEA, 1997 and 2004, 20 U.S.C. § 1400 (d) (3)).
- Individual Education Program (IEP) - a written program of studies and activities for a child with a disability that is developed reviewed, and revised in a team meeting. The IEP specifies the individual education needs of the child and the special education and related services that are necessary to meet the child's educational needs (IDEA, 1997, 34CFR, 300.22).
- Intellectual Disability - significantly sub-average general intellectual functioning, existing concurrently with deficits in adaptive behavior and manifested during the developmental period, that adversely affects a child's educational performance (IDEA, 1997, 34CFR 300.7 (c) (6)). This disability is formerly known as Mental Retardation (MR).
- Least Restrictive Environment (LRE) - is the idea that, to the maximum extent appropriate, children with disabilities, including children in public or private institutions or other care facilities, are educated with children who are not disabled, and that special classes, separate schooling, or other removal of children with disabilities from the regular education environment occurs only when the nature or severity of the disability is such that education in regular classes with the use of supplemental aids and services cannot be achieved satisfactorily. (IDEA, 1997, 34CFR, 300. 114) through (IDEA, 1997, 34CFR, 300.120).
- Local Educational Agency (LEA) - refers to a local school division governed by a school board, state-operated program that is funded and administered by the Commonwealth of Virginia (Virg. Leg. Code, 2001, §22.1-270); (IDEA, 1997,

34CFR, 300.28).

- Mental retardation (presently termed as Intellectual Disability) - means significantly subaverage general intellectual functioning, existing concurrently with deficits in adaptive behavior and manifested during the developmental period, that adversely affects a child's educational performance (Public Law 94-142, 89 Statute 773: 20 U.S.C. 1401(3); 1401(30)).
- Overrepresentation - the identification of a particular group served in special education that is higher than their population in general education (National Research Council, 2002).
- Race - refers to the racial category that most clearly reflects the student's recognition of whatever racial group the student identifies they are in (VDOE, 2012a).
- Risk ratio - a measure applied to public school division level data to identify potential disproportionality. In Virginia the risk ratio threshold of 2.0 (VDOE, 2014).
- Specific Learning Disability - a disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, that may manifest itself in the imperfect ability to listen, think, speak, read, write, spell, or to do mathematical calculations (IDEA, 1997, 34CFR 300.7 (c)(10)).
- Suppression Rule - any group that has fewer than 10 students is not reported in the data. Any group filtered on economically disadvantaged status, limited English proficiency status and/or disability status with fewer than 10 students is not included in the data (VDOE, 2012b).

Limitations

Limitations of the study included the collection of data from the Virginia Department of Education (VDOE). The data were limited to Fall Membership, December 1 Child Count, 2013-14 school year (latest available data). The study was limited to the use of three special education disability categories (ID, LD and ED) and two ethnic identities (Blacks and Hispanics) because there are typically more children identified for special education in these categories and are most often economically disadvantaged (Garcia-Fierros & Conroy, 2002). These data were collected by a state government agency and not the researcher, consequently, these reports were generally considered authoritative. The study was further limited by the reporting requirements related to small populations. School divisions with less than 10 students with disabilities, with

specific racial categories less than 10 students were not reported for the sake of student privacy. School divisions with less than 50 students with disabilities who were not in specific racial groups were excluded from the comparison group calculation.

Free and reduced lunch data is the proxy that the VDOE uses to identify economically disadvantaged students. Therefore, identification was limited by each family's willingness to complete and submit the paperwork necessary to be included. Thus, there could be additional students who experience economic disadvantage, but who have not been identified. The researcher chose to focus on this data source solely since it targets only students in Virginia Public Schools.

The relationship between race and the identification by category of students with disabilities were investigated within this study. Accuracy throughout the identification process was limited by school division personnel training and understanding of the measurement tools used in special education identification and placement process across public school divisions across the state of Virginia.

Delimitations

The Commonwealth of Virginia was chosen for the study because of the demographic location to the researcher. This study is not generalizable to other states. Another delimitation is that membership in racial and operationally defined by the various school divisions, leading to the potential for inconsistent racial/ethnic designations. The last delimitation for this study includes the limitation of the researcher's availability (or use) of only the Virginia Department of Education's data to identify the low-socioeconomic population sample.

Organization of Study

This study is organized into five chapters. Chapter 1 includes an introduction and justification for the study. It also contains the research questions and definitions. Chapter 2 contains a literature review that provides a foundation for this investigation. The research methodology including a description of the population is found in Chapter 3. Chapter 4 will include the data and data analysis. The findings, implications, and recommendations for future research will be found in Chapter 5.

CHAPTER 2

REVIEW OF THE LITERATURE

Introduction

The purpose of this chapter was to examine relevant literature related to the proportionality for high incidence disability categories in special education programs in the Virginia Public Schools. The review of literature includes research on students with disabilities, specifically focusing on students from lower socio-economic areas and minority children. The researcher focused primarily on the proportional representation of special education students based on race, gender and economically disadvantaged status in public school divisions in Virginia. There are seven sections included in this literature review: (a) history of special education legislation; (b) over identification of minorities in special education; (c) factors related to minorities in special education; (d) identification process and assessment bias; (e) demographics and socio-economics on perceived abilities; (f) factors impacting educational quality; and (g) teacher perception and training.

The researcher primarily used Virginia Tech's library resources to gather appropriate literature to include in this review. The search engines that were used included EBSCOhost, Education Research Complete, ERIC, Teacher Reference Center, and Sage Publications. Key search terms included overrepresentation, special education, minorities, risk-ratio, socio-economics, disproportionality, disproportionate, poverty, and proportionality. Empirical research went back as far as ten years; however statistical methodology references may be cited even before this time. During the initial search, over 246 articles were identified. The article selection process for inclusion in this review was determined by content relating to overrepresentation of minorities in special education, disproportionality in public schools, the history of special education legislation, discrimination, equality, least restrictive environment (LRE), factors relating to overrepresentation of minorities in special education, and special education in the Commonwealth of Virginia. When notable experts from the field were identified, the researcher continued to search for more related studies coinciding with this topic. The researcher first read abstracts, and critiqued articles to see if the outcome would lead to a more streamlined approach to the literature review. The researcher looked for themes and important concepts to assist in organizing the literature review. Then, the researcher narrowed research findings to studies that reflected pertinent information specific to topics to include in the

literature review. Notable and reputable experts from the field included in this review were: (a) Kauffman & Hallahan, (b) Hosp & Reschly, (c) Garcia- Fierros & Conroy, (d) Artiles & Trent, (e) Donavon & Cross, (f) Dooley & Dooley, and (g) Harry & Klingner.

History of Special Education Legislation

Kauffman and Hallahan (2005) explain two special education state level cases that ruled that children with disabilities must be given access to public education. These two pioneering special education cases were *Pennsylvania Association for Retarded Citizens (PARC) v. Pennsylvania Commonwealth* (1972) and *Mills v. D.C. Board of Ed.* (1972). In these cases the courts ruled that children with disabilities must be given access to public education (PARC, 1972; Mills 1972). In the case of *Larry P. v. Riles* (1972, 1974, 1979, 1984), the possibility of bias against minorities in standardized tests of intellectual achievement was examined. These cases appeared to be based on presumption that I.Q. tests may not account for racial differences and the results may be biased (Mercer, 1973).

Kauffman and Hallahan (2005) also noted that in 1975 a landmark education law was passed by the U.S. Congress and signed into law by President Gerald Ford. This landmark case forged the way for the Education for All Handicapped Children Act (EAHCA), often referred to as Public Law 94-142. In 1975 federal law (PL 94-142 or Education for All Handicapped Children Act (EAHCA)) became a federal law and requirement for all states and school divisions.

Other important legal influences in determining eligibility for special education services were the federal regulations concerning assessment and the decision making for students during the eligibility process for special education services. This federal regulation was known as the Protection in Evaluation Provisions (PEP), Education of All Handicapped Children Act, (EACHCA, 1975). The specific requirements in PEP were: (1) comprehensive, individualized evaluation; (2) nondiscrimination regarding ethnic and cultural minorities; (3) consideration of multiple domains of behavior and not just one measure of I.Q.; and (4) a team of professionals and the parent(s) making educational decisions (Donovan & Cross, 2002).

In 1990, a federal special education law was reauthorized by the United States Congress. This law is called the Individuals with Disabilities Education Act (IDEA). IDEA is considered to be the foundation that establishes services and supports for children with disabilities throughout the United States. This law has extensive regulations governing its funding.

In 1997 Congress enacted Public Law 105-17 an amendment to IDEA. Public Law 105-17 placed greater emphasis on the role of parents and families, general education teachers, and students in the IEP process. An underlying purpose was to ensure that students with disabilities received the same access and opportunities to the general curriculum as non-disabled peers.

IDEA '97 mandated the Least Restrictive Environment clause stating that students with disabilities must be educated with nondisabled peers “to the maximum extent appropriate” (32 CFR 300.550). It also states that students can be removed from the general education only if they cannot be satisfactorily educated with the use of supplemental aids and services (Hosp & Reschly, 2002). In determining placement for particular students the law requires that a full “Continuum of Alternate Placement,” (CAP) be considered. This law was an attempt to ensure that all handicapped children would receive a free and appropriate public education at no cost to parents or guardians. A second objective was to ensure that an appropriate education would be provided in their home school or in a typical learning environment comparable to their non-disabled peers (Kauffman & Hallahan, 2005).

The reauthorization of the Individuals with Disabilities Education Act of 1997 (IDEA 1997), established expanded requirements for states to report minority representation by special education disability category. This helps to determine if there is significant overrepresentation in certain school divisions or reporting categories. The implications that minority children were overrepresented in restrictive settings are noteworthy and disturbing (Dooley & Dooley, 2002). Dooley and Dooley (2002) suggest that it is ironic that while the early common law, developed through successful litigation in the area of civil rights, it also led to tremendous progress and strides in the area of special education. There continues to be concerns about inequitable educational practices for African American Learners (Dooley & Dooley, 2002).

While the Education of All Handicapped Act was renamed in the later reauthorizations to the Individuals with Disabilities Education Act of 1997 (IDEA 1997), the basic provisions of the law remained intact. Free and Appropriate Education, Continuum of Alternate Placement, Least Restrictive Environment, and Individualized Education Plan remain the bedrock of the law, and all other provisions are intended to guarantee these for students with disabilities (Kauffman & Hallahan, 2005). The most recent reauthorization of the Individuals with Disabilities Education Act occurred in 2004 (IDEA 2004). Through IDEA, a greater focus was placed on determining and monitoring proportionality of children being identified for special education services.

- “States must have policies and procedures in place to prevent the inappropriate over-identification or disproportionate representation by race or ethnicity of students with disabilities, including children with particular impairments” [IDEA, 1975: 34 CFR 300.173] [Public Law 94-142, 89 Statute 773: 20 U.S.C. 1412(a)(24)].
- “Each state that receives Part B funds must collect and examine special education data to determine if significant disproportionality based on race and ethnicity is occurring at state or local levels with respect to disability, placement in particular settings, or disciplinary actions, including suspensions and expulsions” [IDEA, 1975: 34 CFR 300.646(a)] [Public Law 94-142, 89 Statute 773, 20 U.S.C. 1418(d)(1)].
- “If significant disproportionality is found, states must take steps to revise policies, practices and procedures used in the identification and placement of special education students. Local education agencies identified with significant disproportionality must devote the maximum allocations of funds (15% of Part B contributions) to comprehensive early intervention programs to serve the disproportionate group identified. Changes to policies, practices and procedures must be publicly reported by the “LEA” [IDEA, 1975: 34 CFR 300.646(b)] [Public Law 94-142, 89 Statute 773, 20 U.S.C. 1418(d)(2)].
- “States must disaggregate data on suspension and expulsion rates by race and ethnicity, comparing those rates within the local education agencies, as well as, by high incidence disability categories” [IDEA, 1975: 34 CFR 300.646(b)] [Public Law 94-142, 89 Statute 773, 20 U.S.C. 1418(d)(2)].
- “States must monitor local education agencies using quantifiable indicators of disproportionate representation of racial and ethnic groups in special education and related services, to the extent the representation is the result of inappropriate identification” [IDEA, 1975: 34 CFR 300.600(d)(3)] [Public Law 94-142, 89 Statute 773, 20 U.S.C. 1416(a)(3)(C)].

Over Identification of Minorities in Special Education

In the wake of *Brown v. Board of Education* (1954) and legislative action to provide equal access to education, institutional structures such as ability grouping and segregation of special education classrooms continue to keep minority students and white students separated in the general education classroom (Losen & Welner, 2001). The disproportionate levels of

restrictiveness are most pronounced for African Americans and Hispanics (Garcia-Fierros & Conroy 2002). The National Academy of Sciences studied ethnic representation in special education and reported the following: African American children are at a higher risk of receiving a disability label on the at risk index (14.28%) in comparison to 13.0% for American Indians/Alaskan Natives, 12.10% for Whites, 11.34% for Hispanics, and 5.31% for Asians. The overrepresentation and inappropriate placement of African American males in particular, are a concern in public education (Harry & Klingner, 2006).

Children with disabilities may be viewed according to two major categories: high incidence and low incidence. “High-incidence disabilities are also referred to as mild disabilities and include the subcategories of learning disabilities (LD), emotionally disturbed (ED), mental retardation (MR), and speech and language disorders (SL)” (Cartledge & Dukes, 2009, p.383). Low-incidence disabilities are more severe in nature and include conditions such as sensory disorders (visual and hearing impairments), moderate to severe mental retardation, physical disabilities, and autism. The high and low incidence categories might also be distinguished respectively, by “clinical judgment” and biological factors (Harry & Klingner, 2006). The diagnosis for mild disabilities is relatively subjective, while low-incidence disabilities are based on medical assessments. Harry and Klingner further offered the opinion that high-incidence disabilities are rather arbitrary but often viewed as a permanent state.

Disproportionality is generally observed in high-incidence categories of LD, ED, and MR, which together constitute 59% of the students receiving special education (Data Accountability Center, 2010). A recent review of the empirical studies of disproportionality from 1968-2006 (n=42) found that many researchers (40%) focused solely on the representation of African American students in special education, while nearly a quarter examined identification patterns in the LD category exclusively, and many studies examined only the southern regions of the United States (Waitoller, Artiles, & Cheney, 2010).

In 2002, Donovan and Cross noted one of the reasons these [low-incidence] categories are not monitored by Office of Civil Rights is that for most of the disabilities represented, few would question the professional judgment or accuracy of a diagnosis in these cases. Moreover, the representation of racial/ethnic groups in these categories has not been an issue in the courts (p. 54-55). This statement suggests accuracy of professional judgment in identification of the MR, LD, and ED is expected. A landmark court case, *Larry P. v. Riles* (1972, 1974, 1979,

1984), the courts supported the charge that the IQ tests used to place children in the MR category was biased against African American children. These cases, along with others like it, have pointed to the continuing contentious nature of ethnic disproportionality in categories based on clinical judgment (Donovan & Cross, 2002).

The second critical point to note is that figures in 2002 represent an aggregate of placement rates across the United States. Black students' risk index ranges from 2.33 percent in Georgia to 12.19 percent in Delaware. For Hispanic students, the risk index ranges from 2.43 in Georgia to 8.93 in Delaware (Donovan & Cross, 2002). These researchers also noted that when data is disaggregated by state, the picture becomes very complicated, defying adequate analysis. According to Donovan and Cross (2002), there is a nationwide pattern for African Americans over represented in MR and ED categories though not in LD. A closer look shows more variability in use of this category according to the states' data. According to Donovan and Cross the national figures show no overrepresentation of Hispanics in any category.

There is a significant variability factor across ethnic groups and states, Donovan and Cross (2002) explained. There have been marked changes in overall rates of usage of these categories over time, specifically a reduction in the use of MR but a dramatic increase in the use of LD, and a notable increase in the use of ED (Donovan & Cross, 2002). According to Harry and Klingner (2006), the dramatic variability is a sign of instability and ambiguity of the eligibility categories themselves. They suggest that the MR/LD shift reflects a response to social and political pressures (Harry & Klingner, 2006). Harry and Klingner also note it is important to fully understanding the key difference between Mental Retardation and Learning Disabled.

The term Mentally Retarded is used to refer to a significant delay or impairment in overall global development and functioning, Learning Disabled indicates that the individual's overall development is within average IQ range (85-114) but that there is a specific area of learning in which the child falls significantly below the norm for his/her age (Harry & Klingner, 2006). Harry and Klingner believe it is likely that perceptions, as well as sensitivity, to interpretation of racism contributed to the dramatic reduction on the use of the MR category over the years. The possible combined detrimental implications of race, culture, gender, and disability for urban school children has been repeatedly emphasized. Research notes especially the problems of overrepresentation and segregation of racial minority students in special education (Blanchett, Klingner, & Harry, 2009; Blanchett, Mumford, & Floyd, 2005; Kozleski &

Smith, 2009; Shealey & Lue, 2006). Another scholar, Parrish (2002), reported that African American students are the most overrepresented group in special education programs in nearly every state. Parrish also reported that rates of overrepresentation tend to increase as minority group constitutes a relatively high percentage of their state's population.

Where is the advocacy for special education when the data suggest significant disproportionality and on overrepresentation racially in special education classrooms all over the United States? Most often the focus has been on students who are African American and/or those with high incidence disabilities. Although recently, some interest has been generated in examining the significance of disproportionality for other race/ethnic groups and students with severe disabilities (Oswald & Coutinho, 2001; U.S. Department of Education, 2000), the U.S. Department of Education has taken the position that the problem must be defined as possible discrimination (Turnbull & Turnbull, 2000). This has forced attention back to policies, procedures, and practices that may result in unequal and unfair treatment of students from different racial/ethnic groups. This is an important perspective that aims to drive states and school divisions towards addressing fundamental inequities. Moderate steps are being taken in educational reform to address educational inequities (Turnbull & Turnbull, 2000).

There is a disturbing pattern of isolation in special education for African-American students (Garcia-Fierros & Conroy, 2002). Garcia-Fierros and Conroy suggest that disproportionate levels of restrictiveness are most pronounced for African Americans and Hispanics. This disturbing pattern points to a larger and more complex set of issues. From the research of Garcia-Fierros and Conroy (2002), this isolation phenomenon is not uncommon in urban schools, including those with a predominantly minority population. Garcia-Fierros and Conroy suggest that in some schools, it is possible that the increased isolation of minority students disproportionately labeled for special education may be a product of racial bias. Researchers note that high poverty urban schools may be using special education as a triage due to the lack of support for inclusive educational placement (Garcia-Fierros & Conroy, 2002).

National Center for Culturally Responsive Educational Systems (NCCRESt, 2004) noted that the U.S. Department of Education (2009), in their initial implementation of IDEA 1997 mandated the monitoring disproportionality. The 28th *Annual Progress Report* indicates that states have been asked to calculate disproportionality baselines/trend data using the composition index. Analyzing data from the Office of Civil Rights (OCR), their report to Congress suggests

that “it is possible that the differences in placement by race/ethnicity may reflect the disproportional representation of some minority groups in disability categories that are predominately served in more restrictive settings” (U.S. Dept. of Education, 2009). U.S. Department of Education (2009) is examining the instructions measuring disproportionality for the 28th *Annual Progress Report*, and it’s likely that alternate methods will be used for the new data (National Center for Culturally Responsive Educational Systems, 2004).

Scholars, administrators, and politicians offer different perspectives on disproportionate representation. National data, however, show that the most common finding is the underrepresentation of Latino students in most special education service and in most categories (Coutinho & Oswald, 2000). Using an index of disproportionality, as a means of measuring disproportionality, one may assess: (a) the extent to which a group is over or underrepresented in a category compared to its proportion in the broader population (composition index); or (b) the extent to which a group is found eligible for services at a rate differing from that of other groups (risk index and risk ratio) (Skiba et al., 2008). The Children’s Defense Fund (2013) reports about 1 in 20 public school students are reported to be in a class for students with learning disabilities. African American and American Indian children are the most likely to be identified as having a learning disability.

Factors Related to Overrepresentation of Minorities in Special Education

Hosp and Reschly (2004) researched variables in an effort to better understand patterns of overrepresentation of minority students in special education. Blacks are the most overrepresented minority group in every special education category and in nearly every state (Losen & Orfield, 2002). Hosp and Reschly (2004) also noted there is a significant weakness in the research, which is the exclusion of variables that are more directly related to special education eligibility decision making and to factors that are alterable through the efforts of educators. The following factors and how they relate to the overrepresentation of minorities in special education classes will be discussed in this section: (a) the identification process and assessment biases; (b) demographics and socio-economics; (c) the influence of the environment; (d) formulas and funding; and (e) teacher perception and training.

Identification Process and Assessment Biases

IDEA, Section 104.35 (c) requires that when educators reevaluate and place students in

special education, they should draw upon information from a variety of sources, including aptitude and achievement tests, teacher recommendations, physical conditions, social or cultural backgrounds, and adaptive behaviors. Identifying children for special education has drawn much controversy. All instruments used to identify a child for special education contain a margin of error; therefore, no measurement is absolutely accurate (Kauffman & Hallahan, 2005).

Kauffman and Hallahan, explain that educational and psychological instruments estimate a hypothetically “true” measure. Kauffman and Hallahan note that some measures of psychological characteristics or educational achievement are frequently misunderstood. The researchers also assert that achievement tests and IQ tests, are just a type of assessment, and neither are extremely accurate, or reliable. However, achievement test, and IQ tests are helpful in estimating what a person knows and can be expected to do in regards to the rate of acquiring, processing, and retaining information in their educational career (Kauffman & Hallahan, 2005).

Parent involvement prior to IDEA 97 was generally limited to supplying families with educational and developmental information for the interpretation by professionals (Reiman, Beck, Coppola, & Engiles, 2010). There are several factors that have fostered parent involvement during the past decade, which have increased parent participation in the assessment process. The reauthorization of P.L. 94-142 resulted in the Infants and Toddlers with Disabilities Act of 1986 (P.L. 99-457). This mandate extended special education services to preschool children. This routine practice of evaluating younger children to determine eligibility for special education prompted a shift to more ecological assessment approaches (Telzrow & McNamara, 2001). Ecological assessment includes children being observed and assessed in different environments to see how he or she functions in different settings. This action necessitated more active parent participation in the overall educational process.

The publication of *A Nation at Risk* (United States National Commission on Excellence in Education, 1983) made increased accountability a greater focus in public education. Telzrow and McNamara (2001) note increased emphasis on accountability has paralleled new advancements in assessment technology. In 2001, Telzrow and McNamara’s study on assessments for students with disabilities found that parents and educators are less concerned about classifying students’ problems into diagnostic categories, than determining the kinds of treatment approaches that are likely to optimize students’ functioning. Utilization of assessment data has been identified as the new “gold standard” for evaluating tests and it is believed to be as

important as the more traditional indicators of technical adequacy (e.g., reliability and validity) (Telzrow & McNamara, 2001). “Assessment methods need to be both efficient and effective for monitoring student changes with instructional contexts, so that educators can address accountability standards” (Telzrow & McNamara, 2001, p. 106). The emphases on new assessment practices are clearly reflected in several IDEA 97 provisions (Bahr & Bahr, 1997). When identifying students with learning disabilities, Coutinho et al. (2002) found that assessment bias may also occur in the application of the exclusionary provision within the definition of a learning disability.

Demographics and Socio-economic status on Perceived Abilities

Coutinho et al. (2002) assessment study aimed to improve understanding of the influence of individual student and division-level variables that influence special education identification rates for minority students. In the study, researchers sought to investigate the relationships between gender and race/ethnicity among students identified with learning disabilities. The researchers used nationally represented data collected from the U.S. Office of Civil Rights that further examined the relationship between disproportionality ratios and socio-economics factors. The Coutinho et al. (2002) study also examined effects of gender and ethnicity on the portion of students identified as learning disabled. The researchers focused on students who were African American and/or those with high incidence disabilities (Learning Disabilities), Other Health Impaired (mainly Attention Deficit Disorders and Attention Deficit Disorders with Hyper Activity (ADD and ADHD)), Mental Retardation, Mild Emotional/Behavioral disorder, or Speech and Language Impairments. The study covered the largest portion of students in special education, those identified with learning disabilities.

The U.S. Department of Education, (2000) reported that during the 1998-1999 school year, approximately 2.8 million 6 to 21 year-old children were identified as having a learning disability, representing slightly more than 50% of all students who were reported as having disabilities under IDEA of 1990. Discussion about the variations among states in the definition and implementation of services for students with learning disabilities and other disabilities continues to exist.

The Children’s Defense Fund sponsored a report *State of America’s Children* (Children’s Defense Fund, 2011) reporting on children in poverty. Data show the number of children in poverty increased 28% between 2000 and 2009 (after dropping 27% between 1992 and 2000).

Data also reflected that child in poverty increased by almost 10 percent between 2008 and 2009, the largest single-year increase since 1960. Children of color continue to suffer disproportionately from poverty (Children's Defense Fund, 2011). More than one in three Black, one in three Hispanic, and one in 10 White children live in impoverished conditions. For children under the age five, 41.9% of Black, 35% of Hispanic, and almost 15% of White children are poor. More than one in six Black and one in seven Hispanic children live in extreme poverty—at half the poverty level or below. One in 20 White children lives in extreme poverty (Children's Defense Fund, 2011). Based on these facts, there is a high percentage of minorities represented in the low socio-economic category. The National Center for Education Statistics (2000) reports that low-income African American students fare poorly in today's classroom, especially when compared to their white counterparts. These statistics show significant levels of poverty among our nation's children.

The Children's Defense Fund *State of America's Children* (2011) reports the state of Virginia's children in poverty at 253,068 (13.9%) for children under the age of 18; 81,809 (15.9%) under the age of 5; 171,259 (13.1%) ages 5-7. The child poverty rate dropped in the 1960's and then rose significantly in the early 1980's (Children's Defense Fund, 2011). Great strides were made in decreasing child poverty in the late 1990's, in part due to a strong economy (Children's Defense Fund, 2011).

Socio-economic status or cultural disadvantages have been identified as a reason often given for high identification rates of minorities in special education (Miranda, 2001). So, is there a relationship between special education and socio-economic status of children? Miranda found that according to the provision, students who have learning or behavioral problems have these issues as a result of environmental causes (e.g., poverty or poor teaching). The National Center for Education Statistics (2007) examined the demographics and school characteristics of students receiving special education services. The state agencies define a school's socio-economic deprivation rate by determining which students are eligible for the National School Free and Reduced Lunch Programs. Lower poverty schools are those with more than 50 percent of student eligible for free lunch or reduced lunch (NCES, 2007).

Factors Impacting Educational Quality

Socio-demographic factors influence disability prevalence and overrepresentation of minorities in special education (Coutinho, Oswald, & Best, 2002). Using nationally

representative data collected by the U.S. Office for Civil Rights, studies examined the effects of gender, ethnicity, and socio-demographic factors on the proportion of students who are identified as having LD. The results of their study indicated a clear association between ethnicity and gender and the odds of being identified as a student with an emotional disability. Socio-demographic factors for a school district were also found to be strongly associated with the proportion of students identified as having a learning disability. A logistic regression model that included the nine socio-demographic variables, gender, and race, was significantly better at predicting ED identification than a model that included socio-demographic predictors alone. Adjusted odds ratios illustrated how the likelihood of identifying LD changes when socio-demographic influences are taken into account. Findings indicated that both individual student characteristics and district socio-demographic characteristics are important in determining the likelihood of LD identification and that the impact of the socio-demographic characteristics is different for each of the gender-ethnicity groups (Losen & Orfield, 2002, p. xvii-xviii). The work of researchers such as Ferguson (2002); Kalyanpur and Harry (2004); Harry and Klingner (2006); and Nelson, Summers, and Turnbull (2004) discuss why it is important to know a child's family and environmental factors that are influencing a student's education. Families and their children with disabilities have focused on disabilities as a fulcrum around which family dynamics are shaped (Ferguson, 2002).

Losen and Orfield (2002) note much empirical research explores patterns of overrepresentation of minority children by disability category and whether, once identified, they experience less access to the general education classroom than similarly situated White children. Evidence suggests that Black overrepresentation is substantial in state-after-state. Studies reveal wide differences in disability identification between Blacks and Hispanics and between Black girls and Black boys that cannot be explained in terms of social background or measured ability. The researchers suggest that these racial, ethnic, and gender differences are due to many complex and interacting factors, including unconscious racial bias, large resource inequalities that run along lines of race and class, unjustifiable reliance on IQ and other evaluation tools, educators' inappropriate responses to the pressures of high-stake testing, and power differentials between minority parents and school officials (Losen & Orfield, 2002 p. xvii-xviii)

Alfred J. Artiles is a pioneer in the educational research field regarding overrepresentation of specific groups in special education (Coutinho, Oswald, & Best, 2002). He

studies how a disability is constructed, and addresses the cultural and historical context within the education system. Artiles et al. (1998) described the persistence of disproportionality along a continuum ranging from discriminatory professional practices to innate deficits of minority children. They recognized that both problematic eligibility practices and socio-political factors, such as school violence and school disciplinary practices, may influence disproportionality and the identification of special needs students. Artiles et al. (1998) investigated whether family variables and student perspectives (sociocultural factors) predicted placement patterns for Hispanic, White, and African American students. Discriminant function analyses identified some LD placement predictors that differed across ethnic groups and some predictors that were significant for all students. Among factors in the Artiles study that did not predict placement within any ethnic group were “a student’s self-esteem, locus of control, behavioral history, perception of school risk and protective factors, and perception of parent expectations” (Artiles et al., 1998, p. 555).

Teacher Perception and Training

In 2005, Kunjufu studied teacher perceptions and attitudes towards students with disabilities. Teacher perceptions and attitudes are important to the success of education of a child with a disability. Kunjufu (2005) discussed teachers’ stereotyping and teachers’ views on behaviors that are culturally appropriate in students’ families, among their peers, and in their communities but considered by teachers as inappropriate, negative, overly aggressive, rude, intimidating, and threatening in a school setting. Teachers also might perceive something as simple as the walking style of African American adolescents as inappropriate behavior, which may compromise their success in a school setting (Irvine & Armento, 2002). Irvine and Armento further state that as diverse students become more tenacious in their efforts to maintain their cultural identity, teachers who are unfamiliar and inexperienced with diversity often overreact and impose unenforceable rules and expectations on their students.

Another notable researcher, Geneva Gay (2000) discussed teacher perceptions of culture-related identities and their manifestations in the classroom. Gay notes teacher perceptions are especially relevant to a student’s academic achievement in school. African American male students have the same opportunities to experience success, as their non-African American schoolmates, when their teachers understand their socio-cultural backgrounds and take them into account when designing, implementing, and evaluating student learning (Boykin & Bailey,

2000).

In 2002, the Council of Exceptional Children (CEC) published an administrator's guide addressing the overrepresentation of African American students in special education (Singhal, 1999). This guide addressed biases and indicated that while everyone has a bias; biases can impact decision-making. Biases only become problematic when they become harmful to groups or individuals (Singhal, 1999). There are also studies that show that teachers expect middle class White students to perform better than minority students, even when there are predictors such as school history, achievement test scores, and grades that predict alternate results (Singhal, 1999). Townsend (2000) wrote, "Understanding that there is greater variance within ethnic groups, teachers can identify some general behavioral styles that may cause dissonance between their own experiences, values and belief systems, and those of their African American students" (p.385).

Boykin, Tyler, Watkins-Lewis, and Kizzie (2006), published a study that examined teacher traits, working with minority students, collecting data and documenting student behaviors. This study suggested that teaching practices are believed to be guided by mainstream European cultural values. It was predicted that they would report higher levels of classroom behavior practices. Patterns of relationships among the endorsement levels of classroom behaviors were also examined and reported. Boykin et al. (2006) discussed boosting academic performance. Many researchers have called for methods of teacher training and instruction that builds on culture-based values and corresponding behaviors (Foster & Peele, 1993; Gallimore & Goldenberg, 2001; Okagaki, 2001).

It is the belief of some researchers such as Foster, Lewis, and Onafowora (2003) and Lee, Spencer, and Harpalani (2003) that academic outcomes among African American students can improve when classroom instruction activities are changed to reflect the behaviors and orientations considering life outside of school contexts. To reinforce this line of reasoning, research findings show enhanced academic performance among low-income African American students exposed to learning contexts that allow specific preferred cultural themes (Bailey & Boykin, 2001; Boykin, Coleman, Lilja, & Tyler, 2004; Boykin & Cunningham, 2001; Lee, 2001; Tucker & Herman, 2002). Researchers, Boykin, Tyler, and Miller (2005) note that cultural themes, namely communalism (a focus on mutuality and interdependence among kindred people) and verve (receptivity to high-sensate stimulation) are present and preferred in various at-home

socialization activities of students and parents. These findings support including the use of relevant culturally thematic behaviors in formal learning experiences of low-income African American students. Boykin et al. (2005) found that there was little data that exist on culture-based instructional practices of teachers serving low-income African American students.

Gravois and Rosenfield (2006) investigated the impact of implementing Instructional Consultation Teams (ICTeams) in disproportionate placement of minority students in special education. This model is based on the influence of quality classroom instruction practices as related to the referral and placement of minority students receiving special education services. The Instructional Consultation Team model creates and maintains student success within the general education environment by supporting the classroom teacher. The team is extremely grounded and serves as a delivery system of instructional consultation (Rosenfield, 2002). The team focus is on content (curriculum-based assessment, evidence-based academic and behavioral interventions) and the process (data collection, problem-solving steps, and the reflective relationships established for the classroom teacher), as well as instructional consultation seeking to improve, enhance, and increase student achievement through improving, enhancing, and increasing teacher performance (Rosenfield, 2002). Rosenfield explains this model as having explicit emphasis on supporting teachers in developing and delivering special education referrals and evaluations.

Teacher education programs (TEP's) are designed to better prepare teachers to work with diverse populations of students (Artiles, Trent, Hoffman-Kipp, & López Torres, 2000). The possibility of more effective diverse teacher training will help develop new perceptions and practices that will produce greater student achievement and ultimately reduce the number of inappropriate referrals to special education. However, implementation and methodological issues continue to plaque this area of research and its ability to address over-identification and over-representation of minority students in special education (Artiles, Trent, Hoffman-Kipp, & López Torres, 2000). Harry, Klingner, Sturges, and Moore (2002) note that the ecology of the classroom of the referred child is rarely considered. Although the reauthorization (2004) of IDEA continues to emphasize the need for early intervention in the general education arena prior to consideration of special education, as a recognition that the highest quality of instruction in the classroom must be assured prior to placing the notion of failure on the student (Gravois & Rosenfield, 2006).

Special Education in Virginia

Sharon Defur (2002) is a notable expert in the field of educational reform and high-stakes assessment, specifically with students with disabilities. She notes that for the past decade, the state of Virginia has been at the forefront of educational reform efforts to implement new standards, coupled with high-stakes assessments. Defur explains Virginia's accountability system creates standards for individual students, schools, and school districts. Students with disabilities have been fully included in Virginia's educational reform efforts in the high-stakes assessment program. Defur also reports that these students have shown small but encouraging improvements in the mastery of state standards. A survey of Virginia's special education administrators revealed general support for the inclusion of students with disabilities in the "standard movement" (Defur, 2002). The standards movement is based on standard-based instruction and taking Standards of Learning (SOL) assessments. This system may be applied to include students with disabilities. Students with disabilities must take Standards of Learning Assessments or be alternately assessed in the state of Virginia's public schools.

Students participating in the inclusion settings must be counted in the state accountability system. Defur makes two assumptions underlying the inclusion of students with disabilities in state assessment programs. The first assumption is that if students with disabilities are included in educational reform efforts, then results include higher expectations for those students. The second assumption is that high-stakes assessments lead to data-based decision making that will result in improved teaching and enhanced educational opportunities and experiences, and academic success. These assumptions lead to increased academic achievement upon graduation (Defur, 2002).

Research has also reported unintended consequences for students with disabilities participating in state assessment programs (Defur, 2002). The Virginia Standards of Learning (SOL) assessment program is one factor to consider. In Defur's 2002 study in Virginia, she surveyed ninety-eight percent (98%) of special education administrators and ninety-four percent (94%) responded. Results of the survey were: fifty-one percent (51%) of administrators identified higher rates of academic failure with special education students as a negative impact of the SOL and students' self-esteem. Sixteen percent (16%) reported a twenty percent (20%) or greater increase in referral rates as a result of the Virginia SOL, and four percent (4%) reported a great increase in exemption rates. The degree of unintended consequences may counteract any

positive benefits of the testing for students with disabilities (Defur, 2002). Defur (2002) notes that the result of her survey also provides caution regarding the unintended consequences for special education and equality in high-stakes assessments. Students must develop appropriate skills to perform well in the arena of standardized assessments.

Conclusions

This review examined literature related to the representation of minorities in special education programs in public schools in the United States. The issue of minority overrepresentation in special education programs has raised concerns about these students being placed in a class setting which denies them access to the general education curriculum. This separation and unequal educational opportunities can be viewed as a form of discrimination against African American students (Smith, 2001).

IDEA calls for individual education programs to be developed for each student placed in a special education program (IDEA, 1975: 34 CFR 300.320 through 300.324). This potentially could give students an advantage because the curriculum is adapted especially for the student in the special education setting (Public Law 94-142, 89 Statute 773, 20 U.S.C. § 1412(5)(B)). Services through special education sounds ideal for a student with a disability, however services must be monitored for success (IDEA, 1975: 34 CFR §300.600).

According to Garcia-Fierros and Conroy (2002), the national percentage rates of all students with a disability are 37% African American students and 43% Hispanic students. This equates to 80% of the special education population. The other 20% is made up of other ethnic groups. Sullivan and Kozleski (2008) note since 1994, the number of students with disabilities served in general education classrooms has increased gradually from 46% to about 57%. Artiles, Trent, and Palmer (2004) confirm that students from historically underserved groups are and have been disproportionately placed in special education.

The term *historically underserved groups* is used to describe “students from diverse racial, cultural, linguistics, and economically disadvantaged backgrounds who have experienced sustained school failure over time” (Trent in press). Garcia-Fierros and Conroy in 2002, and Sullivan and Kozleski in 2008, reveal that historically disproportionality has been at the forefront of problems of special education in public schools. Virginia’s extensive inclusion of students with disabilities in the general education classroom may have altered the trend of overrepresentation of minority students in high incidence categories of special education (Defur,

2002). A review of the data regarding the proportionality of student representation in the high incidence categories of special education in the Commonwealth of Virginia would provide a current snapshot of Virginia's progress towards proportionality, which would benefit school leaders as they continue to meet federal expectations.

The framework for this chapter provides a foundation for understanding the complexities surrounding the issue of proportionality for high incidence disability categories for students being served in special education programs in public school divisions throughout the Commonwealth of Virginia, according to gender, race/ethnicity, and socio-economic status. Through a more in-depth look at the history of special education legislation in identifying students for services in the Commonwealth of Virginia, one can better understand the complexities surrounding the process. The researcher noted a significant number of studies indicating an over identification of minorities in special education. Leading researchers in the field also report possible biases in the identification and assessment process, particularly among African-American students. The researcher believes that the results of this study will empower parents, administrators and policy makers to expand efforts to identify populations where there is a disproportionate number of students being identified for special education in comparison to their age-appropriate peers.

CHAPTER 3

METHODOLOGY

Introduction and Purpose

The purpose of this study was to investigate the status of relative proportionality of male or female, minority, and low socioeconomic students with disabilities served in special education programs across public school divisions in the Commonwealth of Virginia. This study examined proportionality statistics of specific disability categories by race, gender, and socioeconomic status from all 132 Virginia public school divisions within eight Superintendent's regions from the 2013-14 school year, as published by the Virginia Department of Education.

Research Questions

The research question and related sub questions guiding the researcher in investigating proportionality of students in special education programs in public school divisions in the Commonwealth of Virginia were:

- What is the status of representation of selected racial groups, gender, and the economically disadvantaged students in school divisions in special education programs in Virginia in the school year 2013-14 as defined by a disproportionality risk ratio of 2.0 or greater?

Subordinate questions that embody components of the query into the proportionality of students in public school divisions in Virginia:

1. What is the status of representation of Black and Hispanic, male and female, and the economically disadvantaged students in LD special education programs in school divisions in Virginia for the school year 2013-14, as defined by a disproportionality risk ratio of 2.0 or greater?
2. What is the representation of Black and Hispanic, male and female, and the economically disadvantaged students ED special education programs in school divisions in Virginia for the school year 2013-14, as defined by a disproportionality risk ratio of 2.0 or greater?
3. What is the status of representation of Black and Hispanic, male and female, and the economically disadvantaged students in ID (MR) special education programs in

- school divisions in Virginia for the school year 2013-14, as defined by a disproportionality risk ratio of 2.0 or greater?
4. What is the status of representation of Black and Hispanic, male and female, and the economically disadvantaged students in various special education programs within Superintendent's regions?

Research Design

A quantitative methodological design was used to answer the research questions. Leedeey and Ormrod (2001) noted quantitative research design is used to establish, confirm, and validate relationships, as well as to develop generalizations that contribute to theory. The descriptive part of the design involved a presentation of data from the VDOE. The comparative part of the research compared the disproportionality risk ratio within disability category at the school division level across the state on three metrics-by student race, gender and socioeconomic status. Although not part of the research questions, the disproportionality was also examined by Superintendent Region. These resulting index values were calculated for each of the 132 public school divisions in the Commonwealth and compared to identify localities with particularly high occurrences of disproportionality. Creswell (2003) noted quantitative research involves the collection of data so that information can be quantified and subjected to statistical treatment in order to support or refute "alternate knowledge claims" (Creswell, 2003, p. 6).

This descriptive research study used an ex post facto non-experimental design because the preexisting data was acquired through the Virginia Department of Education. The strength of the design is the preexistence of necessary data. The variables specifically investigated were race, gender, and socio-economic status of students identified for special education services in eligibility categories.

Data Sources

The data for this study were derived from previously-reported information provided by each of Virginia's 132 public school divisions in the Commonwealth to the Virginia Department of Education. School divisions are required to submit numerous reports to the Virginia Department of Education each year. The Student Record Collection system enables the Commonwealth of Virginia and the schools divisions to comply with the information and reporting requirements of No Child Left Behind (NCLB). The system also reduces the reporting

burden on school divisions and ensures continuity and validity in all enrollment-based data collections (VDOE, 2012a).

Two specific reports were utilized: the Fall Membership report and the December 1, 2013 Child Count. The Fall Membership report, available through the VDOE website, provided student enrollment numbers as of October 1 of each school year with the ability to customize reporting by various student subgroups and variables. School divisions are required to submit data on gender, race, and ethnicity, economic disadvantaged on students served in special education to the VDOE during the fall semester of each academic year. The report, known as the December 1 Child Count, reports the number of students in grades K-12 receiving special education services under Part B of Reauthorization of IDEA. Interactive reports can be generated through the VDOE website based on specific disability and various other student subgroup variables. The data available from these two reports provided information necessary to conduct the analysis proposed below.

Reliability and Validity

McMillan and Wergin (2002) noted the credibility of the information gathered depends on two kinds of evidence in quantitative studies: validity and reliability. Validity refers to the appropriateness of the inferences made from data collected. Reliability refers to the degree of error that exists when obtaining a measure of variable. The data used in this study utilizes preexisting data from the Virginia Department of Education (The Virginia Longitudinal Data System). These data are considered valid for several reasons: 1) because the VDOE maintains data on the total population of students in Virginia public schools which includes race, gender, socio-economic status and special education category identification; and 2) because the Virginia Department of Education provided the most comprehensive and accurate data source. The VDOE also conducts audits of the school divisions and, if errors are detected, correction and resubmission is required.

Permission to Conduct Study and Use Data

Prior to beginning the research process, written permission was sought from the Virginia Polytechnic Institute and State University's Instructional Review Board (IRB) to conduct the study. Once permission was received (see Appendix A), data were obtained from the VDOE website. The data were examined and, compiled. No personally identifying information about

students was obtained, nor was any information collected directly from students. In addition, no individuals were involved and all data are public.

Data Gathering Procedures

The researcher obtained enrollment and special education data on K-12 student populations for each of 132 public school divisions in the Commonwealth through the VDOE's Virginia Longitudinal Data System (VLDS) database representing the 2013-2014 school year. This information included numbers by disability categories and the number of students within disability groups by the key demographic variables of race and socio-economic status. The disability categories used are intellectually disabled (ID), emotional disturbance (ED), and learning disabled (LD). Data included the racial subgroups of Black and Hispanic, and gender (male and female). Data for socio-economic status included the December 1 count for those students identified as economically disadvantaged.

Data Management

In this study, data from the Special Education December 1 Child Count and the Fall Membership (Oct. 1) are combined into a single data source. The Oct. 1 Fall Membership data related to disability and demographic variables were downloaded from the VDOE website for analysis. Specifically counted, were students by ethnicity, gender, and students identified as economically disadvantaged for each of three disability designations - learning disabled (LD), emotional disturbance (ED), and intellectual disabled (ID). All data in this study were publicly available; therefore, there is no special need for the researcher to keep records confidential. The VDOE does not disseminate or allow access to any data that might violate students' rights to privacy. These data were considered de-identified data. This de-identification process is used to prevent a person's identity from being connected with information. Most often de-identification is used in human subject research for the sake of privacy of the research participants. In addition to de-identification of data, there are suppression rules in place to keep counts of students confidential if they are below a certain threshold. The suppression rule for both the Fall Membership and December 1 Child Count data sets, is any group that has fewer than 10 students is not reported in the data. Any group filtered on economically disadvantaged status, limited English proficiency status and/or disability status with fewer than 10 students will not be included in the data (VDOE, 2012b). The data will be maintained on the researcher's password-

protected computer until a successful final dissertation defense. After which time, it will be deleted.

Data Analysis

A spreadsheet was developed using Microsoft Excel software to organize data from the two VDOE report sources. The data was downloaded from the VDOE website then put into excel software to disaggregate student counts by disability status (LD, ED, ID) and demographic variables (race/ethnicity, gender, and economically disadvantaged recipients).

Once all data were obtained and organized in Excel, formulas were employed to calculate risk ratios in accordance with the formula outlined in Indicator 10 of the Special Education Performance Report. The bases of analysis were on the individual school division level, and proportionality risk-ratios will be reported on the school division level.

The formula is as follows (VDOE, 2014)

$$\text{Disproportionality Risk Ratio} = \frac{(a1/a2)(a1/a2)}{(b1/b2)(b1/b2)}$$

Where:

$a1$ = Count of SWD* who are in the specific racial, gender, or socio-economic group and have a Specific Disability (Dec. 1 Child Count)

$a2$ = Count of all students who are in the specific racial, gender, or socio-economic group (Fall Membership)

$b1$ = Count of SWD who are not in the specific racial, gender, or socio-economic group and have a Specific Disability (Dec. 1 Child Count)

$b2$ = Count of all students who are not in the specific racial group (Fall Membership)

*SWD (Students with Disabilities)

This is the official formula utilized by the Commonwealth of Virginia as a component of the Special Education Performance Report, completed, and submitted by each school division - specifically Indicator 10 of the Special Education Performance report. This formula was used to produce the risk ratio that will be used in the data analysis. The risk ratio was used to identify the percent of school divisions with disproportionate representation of gender, racial and ethnic groups in specific disability categories that is the result of inappropriate identification for special education services (VDOE, 2014).

Methodology Summary

This study provided a comparison of special education populations in public school divisions in the Commonwealth of Virginia. The information in the study was consistent with school division reports of enrollment totals. The data collected represents students (K-12) by race, gender, and socio-economic status from the total student population, special education population, and the population from specific special education categories: learning disabled, intellectually disabled, and emotionally disturbed.

In summary, this quantitative methodology was used to investigate disproportional identification of students for special education, based on race, gender, and socioeconomic status. The investigation focused on special education programs in the Commonwealth of Virginia, and the unit of analysis was disproportionality defined by the Disproportionality Risk Ratio. The study provides educators concerned with the issues surrounding disproportionality possible trends and shed light on the special education identification process with current information that potentially could contribute to more equitable practices in addressing the needs of students from various cultures and diverse backgrounds.

CHAPTER 4

RESULTS OF THE STUDY

Introduction

The purpose of this study was to investigate the status of relative proportionality of male or female, minority, and low socioeconomic students with disabilities served in special education programs across public school divisions in the Commonwealth of Virginia. This study examined proportionality statistics of specific disability categories by race and socioeconomic status from all 132 Virginia public school divisions within eight Superintendent's Regions from the 2013-14 school year, as published by the Virginia Department of Education.

The research question and related sub questions guiding the researcher in investigating proportionality of students in special education programs in public school divisions in the Commonwealth of Virginia were:

- What is the status of representation of selected racial groups, gender, and the economically disadvantaged students in school divisions within eight Superintendent's regions in special education programs in Virginia in the school year 2013-14 as defined by a disproportionality risk ratio of 2.0 or greater?

Subordinate questions that embody components of the query into the proportionality of students in public school divisions in Virginia:

1. What is the status of representation of Black and Hispanic, male and female, and the economically disadvantaged students in LD special education programs in school divisions in Virginia for the school year 2013-14, as defined by a disproportionality risk ratio of 2.0 or greater?
2. What is the representation of Black and Hispanic, male and female, and the economically disadvantaged students ED special education programs in school divisions in Virginia for the school year 2013-14, as defined by a disproportionality risk ratio of 2.0 or greater?
3. What is the status of representation of Black and Hispanic, male and female, and the economically disadvantaged students in ID (MR) special education programs in school divisions in Virginia for the school year 2013-14, as defined by a disproportionality risk ratio of 2.0 or greater?

4. What is the status of representation of Black and Hispanic, male and female, and the economically disadvantaged students in various special education programs within eight Superintendents regions in Virginia for the school year 2013-14, as defined by a disproportionality risk ratio of 2.0 or greater?

The Virginia Department of Education uses a ratio to indicate disproportionality in special education student identification for certain subgroups of the population. The state has determined that ratio of a certain subgroup's population's identification to the majority population's identification should not be greater than 2.0. This is known as a Disproportionality Risk Ratio. The Commonwealth of Virginia uses this formula to identify public schools with disproportionate representation of racial, ethnic, gender, and socioeconomic groups in specific disability categories of special education (VDOE, 2014b). The risk ratio is determined by calculating the ratio of students in the group of interest who are identified for special education to students in the group of interest who are not identified for special education. This ratio is then compared to the ratio of students NOT in the group of interest who are identified for special education to students NOT in the group of interest who are not identified for special education. The formula below shows this calculation.

$$\text{Disproportionality Risk Ratio} = \frac{(a1/a2)(a1/a2)}{(b1/b2)(b1/b2)}$$

Where:

$a1$ = Count of SWD* who are in the specific racial, gender, or socio-economic group and have a Specific Disability (Dec. 1 Child Count)

$a2$ = Count of all students who are in the specific racial, gender, or socio-economic group (Fall Membership)

$b1$ = Count of SWD who are not in the specific racial, gender, or socio-economic group and have a Specific Disability (Dec. 1 Child Count)

$b2$ = Count of all students who are not in the specific racial group (Fall Membership)

*SWD (Students with Disabilities)

The formula was used to calculate the disproportionality risk ratio for all school divisions for the categories Black, Hispanic, economically disadvantaged, male, and female. Due to some school divisions not having any female students reported in the groups of analysis, the disproportionality risk-ratio could not be calculated for all school divisions for males.

Data Analysis by Research Question

Main research question. What is the status of representation of selected racial groups, gender, and the economically disadvantaged students in school divisions within eight Superintendent’s regions in special education programs in Virginia in the school year 2013-14 as defined by a risk ratio of 2.0 or greater?

Out of 132 school divisions in the Commonwealth of Virginia, 10, or 8% identified Black students disproportionately for special education services based on risk ratio of 2.0 or greater. Two or 2% of school divisions identified Hispanic students disproportionately for special education services based on the disproportionality risk ratio of 2.0 or greater. Forty-four, or 33% of school divisions identified economically disadvantaged students for special education services disproportionately based on disproportionality risk ratio of 2.0 or greater. Twenty-four, or 18% of school divisions identified male students for special education services disproportionately based on disproportionality risk ratio of 2.0 or greater. However, there were an additional nine, or 7% of school divisions for which disproportionality risk ratio could not be calculated because although there were male students identified, there were no female students identified. There was no instance where there were no male students identified while there were female students identified. There were no school divisions that identified female students for special education services disproportionately based on disproportionality risk ratio of 2.0 or greater. See Table 1.

Table 1

Number and Percent of School Divisions at Each Disproportionality Risk Ratio Level for SWD

Disproportionality Risk Ratio Level	Black		Hispanic		Economically Disadvantaged		Male		Female	
	N	%	N	%	N	%	N	%	N	%
2.0 or greater	10	8%	2	2%	44	33%	24	18%	0	0%
Less than 2.0	122	92%	130	98%	88	67%	99	75%	132	100%
CNC	0	0%	0	0%	0	0%	9	7%	0	0%

Note: CNC = “Could Not Calculate” Disproportionality Risk Ratio because there were no female students reported in the group of analysis, therefore resulting in division by zero.

Research sub question 1. What is the status of representation of Black and Hispanic, male and female, and the economically disadvantaged SLD students in special education programs in school divisions in Virginia for the school year 2013-14, as defined by a risk ratio of 2.0 or greater? Out of 132 school divisions in the Commonwealth of Virginia, 16, or 12% identified Black students disproportionately for special education services in SLD programs based on Disproportionality Risk- Ratio. Seven or 5% of school divisions identified Hispanic students disproportionately for special education services in SLD programs based on the disproportionality risk ratio of 2.0 or greater. Forty-seven, or 36% of school divisions identified economically disadvantaged students for special education services in SLD programs disproportionately based on the disproportionality risk ratio of 2.0 or greater. Thirteen or 10% of school divisions identified male students for special education services in SLD programs disproportionately based on the disproportionality risk ratio of 2.0 or greater. However, there were an additional nine, or 7% of school divisions for which could not be calculated because although there were male students identified, there were no female students identified. There was no instance where there were no male students identified while there were female students identified. There were no school divisions that identified female students for special education services in SLD programs disproportionately based on the disproportionality risk ratio of 2.0 or greater. See Table 2.

Table 2

Number and Percent of School Divisions at Each Disproportionality Risk Ratio Level for SLD

Disproportionality Risk Ratio Level	Black		Hispanic		Economically Disadvantaged		Male		Female	
	N	%	N	%	N	%	N	%	N	%
2.0 or greater	16	12%	7	5%	47	36%	13	10%	0	0%
Less than 2.0	116	88%	125	95%	85	64%	110	83%	132	100%
CNC	0	0%	0	0%	0	0%	9	7%	0	0%

Note: CNC = “Could Not Calculate” Disproportionality Risk Ratio because there were no female students reported in the group of analysis, therefore resulting in division by zero.

Research sub question 2. What is the representation of Black and Hispanic, male and female, and the economically disadvantaged ED students in special education programs in school divisions in Virginia for the school year 2013-14, as defined by a risk ratio of 2.0 or greater?

Out of 132 school division in the Commonwealth of Virginia, 17, or 13% identified Black students disproportionately for special education services in ED programs based on the disproportionality risk ratio of 2.0 or greater. No school divisions identified Hispanic students disproportionately for special education services in ED programs based on the disproportionality risk ratio of 2.0 or greater. Thirty-five, or 27% of school divisions identified economically disadvantaged students for special education services in ED programs disproportionately based on the disproportionality risk ratio of 2.0 or greater. Thirty-one, or 23% of school divisions identified male students for special education services in ED programs disproportionately based on the disproportionality risk ratio of 2.0 or greater. However, there were an additional 45, or 34% of school divisions for which the disproportionality risk ratio could not be calculated because although there were male students identified, there were no female students identified. There was no instance where there were no male students identified while there were female students identified. There were no school divisions that identified female students for special education services in ED programs disproportionately based on the disproportionality risk ratio of 2.0 or greater. See Table 3.

Table 3

Number and Percent of School Divisions at Each Disproportionality Risk Ratio Level for ED

Disproportionality Risk Ratio Level	Black		Hispanic		Economically Disadvantaged		Male		Female	
	N	%	N	%	N	%	N	%	N	%
2.0 or greater	17	13%	0	0%	35	27%	31	23%	0	0%
Less than 2.0	11	87%	132	100%	97	73%	56	42%	132	100%
CNC	5									
	0	0%	0	0%	0	0%	45	34%	0	0%

Note: CNC = “Could Not Calculate” Disproportionality Risk Ratio because there were no female students reported in the group of analysis, therefore resulting in division by zero.

Research sub question 3. What is the status of representation of Black and Hispanic, male and female, and the economically disadvantaged ID (MR) students in special education

programs in school divisions in Virginia for the school year 2013-14, as defined by a disproportionality risk ratio of 2.0 or greater? Out of 132 school division in the Commonwealth of Virginia, 42, or 32% identified Black students disproportionately for special education services in ID programs based on the disproportionality risk ratio of 2.0 or greater. One or 1% of school divisions identified Hispanic students disproportionately for special education services in ID programs based on the disproportionality risk ratio of 2.0 or greater. Sixty or 45% of school divisions identified economically disadvantaged students for special education services in ID programs disproportionately based on the disproportionality risk ratio of 2.0 or greater. Three or 2% of school divisions identified male students for special education services in ID programs disproportionately based on the disproportionality risk ratio of 2.0 or greater. However, there were an additional 19, or 14% of school divisions for which the disproportionality risk ratio could not be calculated because although there were male students identified, there were no female students identified. There was no instance where there were no male students identified while there were female students identified. There were no school divisions that identified female students for special education services in ID programs disproportionately based on the disproportionality risk ratio of 2.0 or greater. See Table 4.

Table 4

Number and Percent of School Divisions at Each Disproportionality Risk Ratio Level for ID (MR)

<i>Disproportionality Risk Ratio Level</i>	Black		Hispanic		Economically Disadvantaged		Male		Female	
	N	%	N	%	N	%	N	%	N	%
2.0 or greater	42	32%	1	1%	60	45%	3	2%	0	0%
Less than 2.0	90	68%	131	99%	72	55%	110	83%	132	100%
CNC	0	0%	0	0%	0	0%	19	14%	0	0%

Note: CNC = “Could Not Calculate” Disproportionality Risk Ratio because there were no female students reported in the group of analysis, therefore resulting in division by zero.

Research sub question 4. What is the status of representation of Black and Hispanic, male and female, and the economically disadvantaged students in various special education

programs within eight Superintendents regions in Virginia for the school year 2013-14, as defined by a disproportionality risk ratio of 2.0 or greater?. Public school divisions in Virginia are grouped in eight Superintendent's regions based on geographical location. These locations are: Region 1- Central VA; Region 2- Tidewater Region; Region 3- Northern Neck Region; Region 4- Northern Virginia; Region 5-Valley; Region 6- Western Virginia ; Region 7 - Southwest; and Region 8- South Side. Table 5 shows the locale descriptions and student demographic makeup of each region during the 2013-2014 school year.

Table 5

Locale Description and Student Demographic Makeup of Each Superintendent's Region

Region	Locale Description	% Hispanic	% Black	% White	% Economically Disadvantaged
1	60% Rural 33% Suburban 7% City	8%	36%	48%	41%
2	33% Rural 27% Suburban 33% City 7% Town	8%	40%	41%	46%
3	76% Rural 6% Suburban 18% Town	11%	21%	59%	38%
4	47% Rural 32% Suburban 16% City 5% Town	23%	11%	46%	29%

(continued)

Table 5 (cont.)

Region	Locale Description		% Hispanic	% Black	% White	% Economically Disadvantaged
5	60%	Rural	9%	18%	66%	49%
	0%	Suburban				
	15%	City				
	25%	Town				
6	47%	Rural	6%	21%	68%	49%
	13%	Suburban				
	20%	City				
	20%	Town				
7	68%	Rural	2%	3%	93%	53%
	5%	City				
	26%	Town				
8	83%	Rural	4%	44%	48%	60%
	17%	Town				

Source: Virginia Department of Education, 2014

Tables 6, 7, 8, 9, and 10 show percent of school divisions in each of the eight Superintendent Regions that showed disproportional identification of students for special education services based on race, gender, socio-economic status, as well as the categories of disability studied. The disproportionality risk ratio status of individual school divisions is presented in appendix tables B1, B2, B3, and B4.

In examining disproportional identification of Black students by region, Region 2 and Region 8 each had over 50% of school divisions disproportionately identify Black students as ID at 67% and 58% respectively". The low count of Black students in regions 3 and also region 7 is possibly due to the low population of black students in these Superintendents regions. No other regions had over 50% of divisions disproportionately identifying Black students for any of the other categories examined." See Table 6.

Table 6

Percent of Disproportional Identification of Black Students of Special Education Services by Superintendent’s Region

Region	Total # of Divisions in Region	# of Divisions with Risk Ratio Greater than 2.0 in ED	% of Divisions with Risk Ratio Greater than 2.0 in ED	# of Divisions with Risk Ratio Greater than 2.0 in ID	% of Divisions with Risk Ratio Greater than 2.0 in ID	# of Divisions with Risk Ratio Greater than 2.0 in SLD	% of Divisions with Risk Ratio Greater than 2.0 in SLD	# of Divisions with Risk Ratio Greater than 2.0 in SWD	% of Divisions with Risk Ratio Greater than 2.0 in SWD
1	15	2	13%	7	47%	1	7%	1	7%
2	15	2	13%	10	67%	3	20%	3	20%
3	17	0	0%	4	24%	3	18%	1	6%
4	19	7	37%	4	21%	2	11%	2	11%
5	20	3	15%	6	30%	5	25%	3	15%
6	15	1	7%	3	20%	1	7%	0	0%
7	19	0	0%	1	5%	0	0%	0	0%
8	12	2	17%	7	58%	1	8%	0	0%
Grand Total	132	17	13%	42	32%	16	12%	10	8%

In examining disproportional identification of Hispanic students by Superintendents region, no school Superintendent’s region had over 50% of schools disproportionately identifying students in any category of special education studied. The low student count of Hispanic students identified in the special education categories may be due to the low population of Hispanic students in Superintendent’s regions. See Table 7.

Table 7

Percent of Disproportional Identification of Hispanic Students for Special Education Services by Superintendent’s Region

Region	Total # of Divisions in Region	# of Divisions with Risk Ratio Greater than 2.0 in ED	% of Divisions with Risk Ratio Greater than 2.0 in ED	# of Divisions with Risk Ratio Greater than 2.0 in ID	% of Divisions with Risk Ratio Greater than 2.0 in ID	# of Divisions with Risk Ratio Greater than 2.0 in SLD	% of Divisions with Risk Ratio Greater than 2.0 in SLD	# of Divisions with Risk Ratio Greater than 2.0 in SWD	% of Divisions with Risk Ratio Greater than 2.0 in SWD
1	15	0	0%	0	0%	0	0%	0	0%
2	15	0	0%	0	0%	0	0%	0	0%
3	17	0	0%	0	0%	0	0%	0	0%
4	19	0	0%	1	5%	4	21%	1	5%
5	20	0	0%	0	0%	2	10%	0	0%
6	15	0	0%	0	0%	1	7%	1	7%
7	19	0	0%	0	0%	0	0%	0	0%
8	12	0	0%	0	0%	0	0%	0	0%
Grand Total	132	0	0%	1	1%	7	5%	2	2%

In examining disproportional identification of economically disadvantaged students by region, Region 2, 4 ,7 and Region 8 all have 50% or more of their school divisions disproportionately identify as having students that are economically disadvantaged in ID ranging from 53% -68% . Region 4 also had over 50% of divisions disproportionately identifying economically disadvantaged students in SLD at 63% and in overall category of SWD at 53%. See Table 8.

Table 8

Percent of Disproportional Identification of Economically Disadvantaged Students for Special Education Services by Superintendent's Region

Region	Total # of Divisions in Region	# of Divisions with Risk Ratio Greater than 2.0 in ED	% of Divisions with Risk Ratio Greater than 2.0 in ED	# of Divisions with Risk Ratio Greater than 2.0 in ID	% of Divisions with Risk Ratio Greater than 2.0 in ID	# of Divisions with Risk Ratio Greater than 2.0 in SLD	% of Divisions with Risk Ratio Greater than 2.0 in SLD	# of Divisions with Risk Ratio Greater than 2.0 in SWD	% of Divisions with Risk Ratio Greater than 2.0 in SWD
1	15	6	40%	6	40%	2	13%	1	7%
2	15	5	33%	8	53%	7	47%	6	40%
3	17	3	18%	3	18%	5	29%	4	24%
4	19	1	5%	10	53%	12	63%	10	53%
5	20	8	40%	8	40%	8	40%	6	30%
6	15	4	27%	6	40%	2	13%	3	20%
7	19	5	26%	13	68%	6	32%	9	47%
8	12	3	25%	6	50%	5	42%	5	42%
Grand Total	132	35	27%	60	45%	47	36%	44	33%

In examining disproportional identification of male students by region, Regions 2, 4, 5, and 6 each had over 50% or more of their school divisions disproportionately identify male students as ED from 50%-58%. None of the other regions had over 50% of their divisions disproportionately identifying male students as ED." See Table 9.

Table 9

Percent of Disproportional Identification of Male Students for Special Education Services by Superintendent's Region

Region	Total # of Divisions in Region	# of Divisions with Risk Ratio Greater than 2.0 in ED	% of Divisions with Risk Ratio Greater than 2.0 in ED	Total # of Divisions in Region	# of Divisions with Risk Ratio Greater than 2.0 in ID	% of Divisions with Risk Ratio Greater than 2.0 in ID	Total # of Divisions in Region	# of Divisions with Risk Ratio Greater than 2.0 in SLD	% of Divisions with Risk Ratio Greater than 2.0 in SLD
1	9	3	33%	12	1	8%	15	2	13%
2	12	7	58%	13	0	0%	15	0	0%
3	11	2	18%	15	1	7%	14	2	14%
4	16	8	50%	18	0	0%	18	2	11%
5	11	6	55%	19	0	0%	18	1	6%
6	10	5	50%	10	0	0%	15	1	7%
7	13	0	0%	16	1	6%	18	2	11%
8	5	0	0%	11	0	0%	11	3	27%
Grand Total	87	31	36%	114	3	3%	124	13	10%

In examining disproportional identification of female students by region, there was no Superintendent's region identifying over 50% of their school divisions female students as being disproportionately identified in any special education categories examined." See Table 10.

Table 10

Percent of Disproportional Identification of Female Students for Special Education Services by Superintendent's Region

Region	Total # of Divisions in Region	# of Divisions with Risk Ratio Greater than 2.0 in ED	% of Divisions with Risk Ratio Greater than 2.0 in ED	# of Divisions with Risk Ratio Greater than 2.0 in ID	% of Divisions with Risk Ratio Greater than 2.0 in ID	# of Divisions with Risk Ratio Greater than 2.0 in SLD	% of Divisions with Risk Ratio Greater than 2.0 in SLD
1	15	0	0%	0	0%	0	0%
2	15	0	0%	0	0%	0	0%
3	17	0	0%	0	0%	0	0%
4	19	0	0%	0	0%	0	0%
5	20	0	0%	0	0%	0	0%
6	15	0	0%	0	0%	0	0%
7	19	0	0%	0	0%	0	0%
8	12	0	0%	0	0%	0	0%
Grand Total	132	0	0%	0	0%	0	0%

When examining data by superintendent's regions, it was noted that Region 2 showed high levels of disproportionality for all groups studies except females. The racial makeup of region 2 is 41% White, 40% Black, 8% Hispanic, and 46% of students were reported to be economically disadvantaged. No other region showed disproportionality in all of the categories. Table 5 gives further insight into the student makeup in each of the regions.

CHAPTER 5

SUMMARY AND CONCLUSION

Introduction

The purpose of the study, research questions driving the study, and the methodology and discussion of the findings will be presented along with implications for practice, and suggestions for future studies. A reflection on the process and experience of conducting this study will conclude the chapter. The purpose of this study was to investigate the status of relative proportionality of male or female, minority, and low socioeconomic students with disabilities served in special education programs across public school divisions in the Commonwealth of Virginia. This study examined proportionality statistics of specific disability categories by race, gender and socioeconomic status from all 132 Virginia public school divisions within eight Superintendent's regions from the 2013-14 school year, as published by the Virginia Department of Education. The public school divisions of Virginia, which are organized and grouped into 132 public school divisions within eight Superintendent's regions, were the population for this study. The main research question, followed by the subordinate research questions that guided the study are:

What is the status of representation of racial groups (Black and Hispanic), gender(male and female) and the economically disadvantaged in school divisions in special education programs in Virginia in the school year 2013-14 as defined by a disproportionality risk ratio of 2.0 or greater?

Subordinate questions that embody components of the query into the disproportionality proportionality of students in public school divisions in Virginia:

1. What is the status of representation of Black and Hispanic, male and female, and the economically disadvantaged students in LD special education programs in school divisions in Virginia for the school year 2013-14, as defined by a disproportionality risk ratio of 2.0 or greater?
2. What is the representation of Black and Hispanic, male and female, and economically disadvantaged students in ED special education programs in school divisions in Virginia for the school year 2013-14, as defined by a disproportionality risk ratio of 2.0 or greater?

3. What is the status of representation of Black and Hispanic, male and female, and the economically disadvantaged students in ID (MR) special education programs in school divisions in Virginia for the school year 2013-14, as defined by a disproportionality risk ratio of 2.0 or greater?
4. What is the status of representation of Black and Hispanic, male and female, and the economically disadvantaged students in various special education programs within eight Superintendents regions in Virginia for the school year 2013-14, as defined by a disproportionality risk ratio of 2.0 or greater?

Findings

After analyzing the data as they relate to the research questions, several findings became evident. Those findings are identified, explained, and related to prior research in the following paragraphs:

Finding 1: Economically Disadvantaged students were disproportionately identified for special education, Specific Learning Disabilities, Emotional Disabilities, and Intellectual Disabilities in school divisions more frequently than African American, Hispanic, or Male subgroups. Economically disadvantaged students were disproportionately identified as SWD in 44 school divisions which represent 33% of the school divisions in the Commonwealth of Virginia. When looking at the findings within the specific special education categories studied, findings were that 47, or 36% of the school divisions in the Commonwealth of Virginia disproportionately identified economically disadvantaged students as SLD; 35 or 26% of the school divisions in the Commonwealth of Virginia disproportionately identified economically disadvantaged students as ED, and 60 or 45% of the school divisions in the Commonwealth of Virginia disproportionately identified economically disadvantaged students as ID(MR).

Findings seem to be supported by the Children's Defense Fund (2006) which calculated that there were 12,827,000 (17.4%) children under the age of 18 identified as living in poverty. In the state of Virginia, there were 233,841 (13%) children under the age of 18 considered to be living in poverty. Additional findings support and connect poverty to special education. These findings are also supported by the study done by the National Center of Education Statistics (2007) that takes it a step forward. The Center connected poverty to special education and noted there were a higher percentage of poor students than non-poor students receiving special education (National Center of Education Statistics, 2007)

Finding 2: Female students were not disproportionately identified for overall Special Education, Emotional Disabilities, Intellectual Disabilities, or Specific Learning Disabilities, in any school divisions. Findings in the SWD group indicated that 9 or 7% of school divisions in the Commonwealth of Virginia had fewer than ten female students identified as needing special education services. Within disabilities studied (SLD, ID and ED) females were not found to be disproportionately identified in any school division. In fact, finding within the category of SLD, 8 or 7% of the school divisions in the Commonwealth of Virginia had fewer than ten female students identified as SLD. In 45, or 34% of school divisions in the Commonwealth of Virginia, fewer than 10 female students were identified as ED. In 19 or 14% of school divisions in the Commonwealth of Virginia, fewer than ten female students were identified as ID (MR). In all other school divisions with more than 10 female students identified in any category, no division was found to have identified female students disproportionately in comparison to male students.

The findings support researchers Coutinho & Oswald,(2005), Wehmeyer & Schwartz, (2001) and Depaul (2006), found that males are more likely to be identified for special education compared with females (Coutinho & Oswald, 2005; Wehmeyer & Schwartz, 2001), with African American males being most vulnerable. The empirical data on gender differences in special education are limited, but some of the existing research suggests irregularities related more to females than to males (Coutinho & Oswald, 2005; DuPaul et al., 2006; Wehmeyer & Schwartz, 2001).

Finding 3: Male students were disproportionately identified for Emotional Disabilities in school divisions more frequently than for Intellectual Disabilities or Specific Learning Disabilities. Thirty-one, or 23% of school divisions disproportionately identified male students as ED. It's worth noting that in 45 school divisions the disproportionality risk ratio of 2.0 or greater could not be calculated because there were no female students reported as ED, again indicating that there were more male students than female students identified. The findings of Harry and Klinger, (2006)in the category of ED the risk of identification in 1974 was just over 1% increasing in 1998 to just over 5%. In their 2006 study the researchers noted the dramatic variability, change over time and place agreed upon is a sign of instability and ambiguity of categories themselves. The findings were supported by Donovan and Cross (2002) they noted that there is the variability across ethnic groups and states. They also explained there

has been marked changes in overall rates of usage of these categories over time, specifically, a reduction in the use of EMR(ID), a dramatic increase in the use of LD, and a notable increase in the use of ED.

Finding 4: Black students were disproportionately identified for Intellectual Disabilities in school divisions more frequently than for Emotional Disabilities or Specific Learning Disabilities. Forty-two, or 32% of school divisions in the Commonwealth of Virginia identified Black students disproportionately as ID. The findings in the current study seem to support the Donovan and Cross (2002) study. Researchers found there is a nationwide pattern for African Americans over represented in MR (ID) and ED categories though not in LD

Finding 5: Hispanic students were disproportionately identified for Specific Learning Disabilities in school divisions more frequently than for Emotional Disabilities or Intellectual Disabilities. For SWD, two, or 2% of school divisions in the Commonwealth of Virginia identified Hispanic students disproportionately; seven or 5% school divisions in the Commonwealth of Virginia identified Hispanic students disproportionately as SLD; no school divisions in the Commonwealth of Virginia identified Hispanic students disproportionately as ED, one or 1% of school divisions in the Commonwealth of Virginia identified Hispanic students disproportionately as ID (MR). The findings in this study were supported by Donovan and Cross (2002). According to their research the national figures show no overrepresentation of Hispanics in any category.

Conclusion

The purpose of this study was to investigate the status of relative proportionality of male or female, minority, and low socioeconomic students with disabilities served in special education programs across public school divisions in the Commonwealth of Virginia. This study examined proportionality statistics of specific disability categories by race and socioeconomic status from all 132 Virginia public school divisions within eight Superintendents regions in the 2013-14 school year, as published by the Virginia Department of Education. The data analysis showed instances of disproportionality in a minority of the school divisions in Virginia. This disproportionality was most evident with economically disadvantaged who were found to be disproportionately identified in 33% of Virginia school divisions. Female students were not disproportionately identified in any school division in the Commonwealth of Virginia. Male students were disproportionately identified as ED, black students were disproportionately

identified as ID in more school divisions than other groups. Hispanic students were disproportionately identified as SWD, SLD, ED and ID (MR) in fewer school divisions than any other group other than females. It is important to note that although economically disadvantaged students were identified more disproportionately when compared to other groups, overall the majority of school divisions did not have disproportionality issues. In fact, in no case were there more than half of the school divisions that disproportionately identified students.

In summary, when examining Superintendent's regions in the Commonwealth of Virginia's public schools findings are that there is disproportional identification of Black students identified as ID in Region 2 and Region 8. However, when examining Hispanic students the examiner found that out of the eight Superintendent's regions there were no school divisions over 50% identified disproportionately in any category of special education examined. It was found that when examining disproportional identification of Economically Disadvantaged students by Superintendent's region, Region 2, 4, 7 and Region 8 all have 50% or more of their school divisions disproportionately identify as having students that are Economically Disadvantaged in the ID category. Region 4 was identified as having over 50% of its school divisions disproportionately identifying Economically Disadvantaged students in SLD and in the category of SWD. When examining disproportional identification of male students by Superintendent's region, Regions 2, 4, 5 and Region 6 all had over 50% or more of their school divisions disproportionately identify male students as ED. Again when examining female disproportional identification, like school divisions, in Superintendents regions there was no Superintendent's region identifying over 50% of their school divisions female students as being disproportionately identified in any special education categories examined. Therefore, while the Commonwealth of Virginia as a whole did not show as having any category in which there were more than 50% of school divisions disproportionately identifying students, there were concentrations of disproportionality when examining by Superintendent's regions.

Implications for Practice

The results of this study have implications for policy makers, state-level leader, division-level leaders, building administrators, and teachers. These implications will be presented by title of practitioners in the following discussion:

State level leaders

- **State level leaders need to continue to examine their accountability processes that are being used to monitor identification of students as needing special education services (Supporting Findings 1, 2, 3, 4, and 5).** State-level leaders must ensure that identification processes are being implemented with fidelity so that students are not being improperly identified as needing special education services. They must examine the school divisions that show consistent disproportionality and allocate the necessary resources to be utilized to correct the issues. Eitle (2002), like others, state that to assess a child, the examiner may need to look at the ecology of the child and monitor the child prior to making identification and placement. He stressed that the examiner must examine and consider the child's functioning from the perspective of the ecology of the educational setting. It is the state's responsibility to ensure research-based measures are being employed at the division level to identify student.

School division-level leaders

- **School Division–Level Leaders need to commit to studying these trends of overrepresentation to figure out the reason males, black students, and economically disadvantaged students are continuing to be identified at disproportionate rates than other groups studied (Supporting Findings 1, 2, 3, 4, and 5).** Local educators must form a group within the division to study and address areas within the division student population that are identified as disproportionate. Then they must develop a plan to reduce disproportionality. Socio-economic status or cultural disadvantages have been identified as a reason often given for high identification rates of minorities in special education (Miranda, 2001).
- **School division level leaders should ensure that all personnel involved in special education are properly trained in special education identification process (Supporting Findings 1, 2, 3, 4, and 5).** School divisions should mandate that all personnel operating within the division be trained and follow division level policies. School Boards and administrators must implement policy and procedure to make sure the pre-referral process is effective. This training should include diversity training so that cultural differences are not seen as disabilities.

- **School division level leaders should develop specific criteria and intervention strategies prior to the placement of students in special education Emotional Disturbance and Intellectual Disability programs (Supporting Findings 3, 4).**

Two special education category areas that most often are found to be disproportionate are the categories of Emotional Disturbance and Intellectual Disability. There is very little evidence on the effects of specific interventions on measured disproportionality, recommendations have been offered based on research related to best practices in instruction, educational leadership, and academic and behavioral interventions, as well a research relating to culturally and linguistically response practices, (Skiba, R. J., Simmons, A. B., Ritter, S., Rausch, M. K., Cuadrado, J., & Chung, C. S. (2008).

- **School division level leaders should be aware of the impact of poverty on student performance and seek ways to reduce that impact (Supporting Finding 1).**

School division leaders need to be aware that more than one in three Black, one in three Hispanic and one in 10 White children live in impoverished conditions. For children under the age five, 41.9% of Black, 35% of Hispanic, and almost 15% of White children are poor. More than one in six Black and one in seven Hispanic children live in extreme poverty—at half the poverty level or below. One in 20 White children lives in extreme poverty (Children’s Defense Fund, 2011). Based on these facts, there is a high percentage of minorities represented in the low socio-economic category. The National Center for Education Statistics (2000) reports that low-income African American students fare poorly in today’s classroom, especially when compared to their white counterparts. Socio-economic status or cultural disadvantages have been identified as a reason often given for high identification rates of minorities in special education (Miranda, 2001). Continued study the effects of poverty on student performance in an effort to reduce the impact of poverty on student performance.

Building-level leaders

- **Building-level administrators need to ensure that all teachers are aware of policies governing special education and that the policies are being implemented with fidelity (Supporting Findings 1, 3, 4, and 5).**

Building–level administrators need to work closely with their teachers and staff that

work with special education students. They must hire trained staff to implement special education policy and procedures. Continued training and in-service/professional development must be regular to keep staff updated with current regulations and Special Education law.

Teachers

- **Teachers need to be aware of special education policies governing the special education referral and identification processes to ensure students are being properly referred for special education services (Supporting findings 1, 2, 3, 4 and 5).** These policies that govern the special education identification and referral process are for all teachers. Teachers must be aware of special education policies and procedures that are in place to prevent the inappropriate over-identification or disproportionate representation by race or ethnicity of students with disabilities, including children with particular impairments” [IDEA, 1975: 34 CFR 300.173] [Public Law 94-142, 89 Statute 773: 20 U.S.C. 1412(a)(24)]. Part of continuing education for teachers should include ongoing special education training for general education as well as special education teachers to ensure policies are being applied appropriately.
- **Teachers should ensure that their own cultural biases are not informing the referral process for special education (Supporting findings 2, 3, 4, and 5).** There are issues of cultural mismatch that happen in the classroom. It is important for teachers to know how different cultures manifest themselves in behavior and learning styles. Kunjufu (2005) discussed teachers’ stereotyping and teachers’ views on behaviors that are culturally appropriate in students’ families, among their peers, and in their communities but considered by teachers as inappropriate, negative, overly aggressive, rude, intimidating, and threatening in a school setting. Most often the stereotyping and cultural bias plays vital roles in how students are perceived and referred to special education. This highlights the importance of teacher training.
- **Teachers should be aware of the impact of poverty on student performance and seek ways to reduce that impact. (Supporting finding 1).** Teacher awareness of the impact of poverty and children in public schools could help avoid over-identification of Economically Disadvantaged students to special education. Socio-

demographic factors influence disability prevalence and overrepresentation of minorities in special education (Coutinho, Oswald, & Best, 2002). The work of researchers such as Ferguson (2002); Kalyanpur and Harry (2004); Harry and Klingner (2006); and Nelson, Summers, and Turnbull (2004) discuss why it is important to know a child's family and environmental factors that are influencing a student's education.

- **Teachers need to investigate and acquire instructional strategies to teach males, diverse cultures, and students of poverty (Supporting findings 1, 2, 3, 4, and 5).** Male students, economically disadvantaged students, and students from diverse cultures come to school most often less prepared than their peers. Boykin et al. (2005) found that there was little data that exist on culture-based instructional practices of teachers serving low-income African American students. It is the belief of some researchers such as Foster, Lewis, and Onafowora (2003) and Lee, Spencer, and Harpalani (2003) that academic outcomes among African American students can improve when classroom instruction activities are changed to reflect the behaviors and orientations considering life outside of school contexts. To reinforce this line of reasoning, research findings show enhanced academic performance among low-income African American students exposed to learning contexts that allow specific preferred cultural themes (Bailey & Boykin, 2001; Boykin, Coleman, Lilja, & Tyler, 2004; Boykin & Cunningham, 2001; Lee, 2001; Tucker & Herman, 2002).

Suggestions for Further Study

1. Researchers could examine disproportionality over a series of years in Virginia and compare.
2. This study could be replicated on the national level to examine which states have disproportionate identification rates for special education
3. Researchers could examine the relationship between district size and disproportionality in Virginia.
4. Researchers could explore the other special education categories for disproportionality.
5. Researchers could explore more about the referral process. Who makes referral

- decisions and how decisions are made about the students to refer.
6. Examine disproportionality in cross categories (for example, black males, economically disadvantaged white students, Hispanic females, etc.)
 7. Examine the attitudes of regular education teachers that may have informed the referrals to special education.
 8. Examine factors contributing to the low identification of Hispanic students for special education services.

Reflections

In reflecting on the process of this research study, the researchers own experience of being a special education teacher prompted the need to explore this area. Intervention, the special education identification/ referral process, and the placement process continue to need improvement. Disproportionate representation is defined as “the extent to which membership in a given group affects the probability of being placed in a specific education category (Oswald, Coutinho, Best, & Singh, 1999). It may be easier not to focus on the “disproportionate representation” and rather focus on special education (policy, practices, and procedures) as a whole. It is important that educators continue to explore disproportionality and the factors that may contribute to it. The ultimate goal is for all students to be able to learn and have a free and appropriate education (FAPE).

REFERENCES

- Artiles, A. J. (1998). The dilemma of difference: Enriching the disproportionality discourse with theory and context. *Journal of Special Education, 32*(1), 32-36.
- Artiles, A. J. (2003). Special education changing identity: Paradoxes and dilemmas in views of culture and space. *Harvard Educational Review, 73*, 164-202.
- Artiles, A. J., Kozleski, E., Trent, S., Osher, D., & Ortiz, A. (2010). Justifying and explaining disproportionality, 1968-2008: A critique of underlying Views of Culture. *Council for Exceptional Children, 76*(3), 279-299.
- Artiles, A. J., Trent, S. C., Hoffman-Kipp, P., & López Torres, L. (2000). From individual acquisitions to cultural-historical practices in multicultural teacher education. *Remedial and Special Education, 21*, 79-91.
- Artiles, A. J., Rueda, R., Salazar, J., & Higareda, I. (2005). Within-group diversity in minority disproportionate representation: English language learners in urban school districts. *Exceptional Children, 71*(3), 283-300.
- Artiles, A. J., Trent, S. C., & Palmer, J. (2004). Culturally diverse students in special education: Legacies and prospects. In J. A. Banks & C. M. Banks (Eds.), *Handbook of research on multicultural education* (2nd ed., pp.716-735). San Francisco, CA: Jossey Bass.
- Bahr, M., & Bahr, C. (1997). Educational assessment in the next millennium: Contributions of technology. *Preventing School Failure, 41*(2), 90-94
- Bailey, C., & Boykin, A. W. (2001). The role of task variability and home contextual factors in the academic performance and task motivation of African American elementary school children. *Journal of Negro Education, 70*(1/2), 84-95.
- Blanchett, W. J., Klingner, J. K., & Harry, B. (2009). The intersection of race, culture, language, and disability: Implications for urban education. *Urban Education, 44*(4), 389-409.
- Blanchett, W. J., Mumford, V., & Beachum, F. (2005). Urban school failure and disproportionality in a post-Brown era: Benign neglect of the constitutional rights of students of color. *Remedial and Special Education, 26*(2).

- Boykin, A. W., & Bailey, C. T. (2000). *The role of cultural factors in school relevant cognitive functioning: Synthesis of findings on cultural context, cultural orientations, and individual differences*. Washington, D.C: Center for Research on Education of Students Placed at Risk.
- Boykin, A. W., Coleman, S. T., Lilja, A. J., & Tyler, K. M. (2004). *Building on children's cultural assets in simulated classroom performance environments: Research vistas in the communal learning paradigm*. (CRESPAR Technical Report No. 68). Baltimore, MD: Center for Research on the Education of Students Placed At Risk, Center for Social Organization of Schools, Johns Hopkins University.
- Boykin, A. W., & Cunningham, R. T. (2001). The effects of movement expressiveness in story content and learning context on the analogical reasoning performance of African American children. *Journal of Negro Education, 70*, 72-83.
- Boykin, S. W., Tyler, K. M., & Miller, O. A. (2005). In search of cultural themes and their expressions in the dynamics of classroom life. *Urban Education, 40*, 521-549.
- Boykin, A. W., Tyler, K. M., Watkins-Lewis, K., & Kizzie, K. (2006). Culture in the sanctioned classroom practices of elementary school teachers serving low-income African American students. *Journal of Education for Students Placed at Risk, 11*(2), 161-173.
- Brown v. Board of Education of Topeka, 347 U.S. 483 (1954).
- Cartledge, G., & Dukes, C. (2009). Disproportionality of African American children in special education: Definitions and dimensions. In L.C. Tillman (Ed.), *The SAGE handbook of African American education* (383-398). Thousand Oaks, CA: SAGE Publications.
- Children's Defense Fund. (2011). *The state of America's children 2011 report*. Retrieved from <http://www.childrensdefense.org/library/archives/state-of-americas-children/state-of-americas-children-2011/2011/>
- Children's Defense Fund: Children in Virginia. (2013, March). *The state of America's children 2013 report*. Retrieved from <https://www.childrensdefense.org/library/data/state-data-repository/cits/2013/2013-virginia-children-in-the-states.pdf>
- Council of Exceptional Children. (2002). Addressing over-representation of African American students in Special Education: An administrator's guide. Retrieved from <http://www.gpo.gov/fdsys/pkg/ERIC-ED466051/pdf/ERIC-ED466051.pdf>

- Coutinho, M. J., & Oswald, D. P. (1998). Understanding identification placement and school completion rates for children with disabilities: The influence of economics, demographic and educational variables. *Advances in Learning and Behavioral Disabilities, 12*, 43-78.
- Coutinho, M. J., & Oswald, D. P. (2000). Disproportionate representation in special education: A synthesis and recommendations. *Journal of Child and Family Studies, 9*(2), 135-156.
- Coutinho, M. J., Oswald, D. P., & Best, A. M. (2002). The influence of socio-demographics and gender on the disproportionate identification of minority students as having learning disabilities. *Remedial and Special Education, 23*(1), 49-59.
- Creswell, J. (2003). *Research design: Qualitative, quantitative and mixed methods approaches* (2nd ed.). Thousand Oaks, CA: SAGE Publications.
- Defur, S. H. (2002). Education reform, high-stakes assessment, and students with disabilities: One state's approach. *Remedial and Special Education, 23*(4), 203-211.
- Diana v. California State Board of Education. Civil Rights Action No. C-7037RFP (N. D. Cal. Jan. 7, 1970 & June 18, 1973).
- Dooley, E. A., & Dooley, K. L. (2002). Legal foundations of special education for African American learners. In F. E. Obiakor & B. A. Ford (Eds.), *Creating successful learning environments for African American learners with exceptionalities* (pp. 205-216). Thousand Oaks, CA: Corwin Press.
- Donovan, S., & Cross, C. (2002). *Minority students in special and gifted education*. Washington, DC: National Academy Press.
- Ferguson, P. M. (2002). A place in the family: An historical interpretation of research on parental reactions to having a child with a disability. *Journal of Special Education, 36*, 124-131.
- Fierros, E. G. (2005). Race and restrictiveness in special education: Addressing the problem we know too well. *Learning Disabilities: A Contemporary Journal, 3*(1), 75-85.
- Foster, M., Lewis, J., & Onafowora, L. (2003). *Anthropology, culture and research on teaching and learning: Applying what we have learned to improve practice*. Teachers College Record, 105, 261-277.
- Foster, M., & Peele, T. (1993). Teaching and learning in the contexts of African American English and culture. *Education and Urban Society, 31*, 177-189.

- Friend, M., & Bursuck, W. D. (2012). *Including students with special needs: A practical guide for classroom teachers* (6th ed.). Pearson.
- Gallimore, R., & Goldenberg, C. (2001). Analyzing cultural models and settings to connect minority achievement and school improvement research. *Education Psychologist, 36*(1), 45-56.
- Garcia-Fierros, E., & Conroy, J. W. (2002). Double jeopardy: An exploration of restrictiveness and race in special education. In D. J. Losen & G. Orfield (Eds.), *Racial inequity in special education*. (pp. 39-70). Cambridge, MA: Harvard Education Press.
- Gay, G. (2000). *Culturally responsive teaching*. New York, NY: Teachers College Press.
- Gravois, T. A., & Rosenfield, S. A. (2006). Impact of instructional consultation teams on the disproportionate referral and placement of minority students in special education. *Remedial and Special Education, 27*(1), 42-52.
- Harry, B., & Klingner, J. K. (2006). *Why are so many minority students in special education? Understanding race & disability in schools*. New York, NY: Teachers College Press.
- Harry, B., Klingner, J. K., Sturges, K. M., & Moore, R. F. (2002). Of rocks and soft places: Using qualitative methods to investigate disproportionality. In D. J. Losen & G. Orfield (Eds.), *Racial inequity in special education* (pp. 71-92). Cambridge, MA: Harvard Education Press.
- Hosp, J. L., & Reschly, D. J. (2002). Predictors of restrictiveness of placement for African American and Caucasian students. *Exceptional Children, 68*(2), 225-238.
- Hosp, J. L., & Reschly, D. J. (2003). Referral rates for intervention or assessment a meta-analysis of racial differences. *The Journal of Special Education, 37*(2), 67-80.
- Hosp, J. L., & Reschly, D. J. (2004). Disproportionate representation of minority students in special education: Academic, demographic, and economic predictors. *Exceptional Children, 70*(2), 185-199.
- Infants and Toddlers with Disabilities Act of 1986. Pub. L. No. 99-457.
- Individuals with Disability Education Act Amendments of 1997 [IDEA]. (1997). Retrieved from <http://thomas.loc.gov/home/thomas.php>
- Individuals with Disability Education Act Amendments of 2004 [IDEA]. (2004). Retrieved from <http://www.gpo.gov/fdsys/pkg/USCODE-2011-title20/pdf/USCODE-2011-title20-chap33-subchapI-sec1400.pdf>

- Individuals with Disability Education [IDEA]. (1975). (formerly Education of All Handicapped Children Act of 1975), 20 U.S.C. Section 1400 et seq. (statute); 34 CFR 300 (Regulations published in 1977).
- Individuals with Disabilities Education Act of 1997. Pub. L. No. 105-17, 111 Stat. 37-157.
- Individuals with Disabilities Education Act of 2004. Pub. L. No. 108-446, 118 Stat. 2647.
- Irvine, J. J., & Armento, B. J. (2002). *Culturally responsive teaching: Lesson planning for elementary and middle grades*. Boston, MA: McGraw-Hill.
- Jefferson-Jenkins, C. (2003). *Disproportionality: What is it? And why do we care?* Retrieved from <http://www.nccrest.org/events/forum.html>
- Kalyanpur, M., & Harry, B. (2004). Impact of the social construction of LD on culturally diverse families: A response to Reid and Valle. *Journal of Learning Disabilities, 37*(6), 530-533.
- Kaufman, J. M., & Hallahan, D. P. (2005). *Special education: What it is and why we need it*. Boston, MA: Pearson. B.
- Kozleski, E. B., & Smith, A. (2009). The complexities of systems change in creating equity for students with disabilities. *Urban Education, 44*(4), 427-451.
- Kunjufu, J. (2005). *Keeping Black boys out of special education*. Chicago, IL: African American Images.
- Larry P. v. Riles, 343 F. Supp. 342 (N. D. Cal. 1972), 502 F. 2d. 963 (9th Cir. 1974), No. C-71-2270 RFP (N.D. Cal. October 16, 1979), 793 F. 2d. 969 (9th Cir. 1984).
- Lee, C. D. (2001). Is October Brown Chinese? A cultural modeling activity system for underachieving students. *American Educational Research Journal, 38*, 97-143.
- Lee, C. D., Spencer, M. B., & Harpalani, V. (2003). "Every shut eye ain't sleep": Studying how people live culturally. *Educational Researcher, 32*, 6-13.
- Lewis, R. B., & Doorlag, D. H. (1991). *Teaching special students in the mainstream*. Columbus, OH: Merrill.
- Losen, D. J., & Orfield, G. (Eds.). (2002) *Racial inequity in special education*. Cambridge, MA: Civil Rights Project/Harvard Education Press.
- Losen, D. J., & Welner, K. G. (2001). Disabling discrimination in our public schools: Comprehensive legal challenges to inappropriate and inadequate special education services and minority children. *Harvard Civil Rights-Civil Liberties Law Review, 36*(2), 407-460.

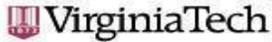
- McMillan, J. H., & Wergin, J. F. (2002). *Understanding and evaluating educational research* (4th ed.). Boston, MA: Pearson.
- Mercer, J. R. (1973). *Labeling the mentally retarded*. Berkeley: University of California Press.
- Mills v. Board of Education, 348 F. Supp.866 (D.D.C., 1972).
- Miranda, A. H. (2001). Improving outcomes for urban African American students. *The Journal of Negro Education, 70*, 255-263.
- National Alliance of Black School Educators (NABSE). (2002). *Addressing over-representation of African American students in special education: The pre-referral intervention process - An administrator's guide*. Arlington, VA: Council for Exceptional Children.
- National Center for Culturally Responsive Educational Systems (NCCREST). (2004). Practitioner Brief - Disproportionate representation of culturally and linguistically diverse students in special education: Measuring the problem. Tempe, AZ: Martha J. Coutinho & Donald P. Oswald. Retrieved from http://www.nccrest.org/Briefs/students_in_SPED_Brief.pdf
- National Center for Education Statistics. (2000). *The nation's report card*. Retrieved March 1, 2004.
- National Center for Education Statistics. (2007, July). *Demographic and school characteristics of students receiving special education in the elementary grades (Issue Brief)*. U.S. Department of Education, Jessup, MD: ED Pubs.
- National Education Association. (2007). *Truth in labeling: Disproportionality in special education*. Retrieved from <http://www.nea.org/assets/docs/HE/EW-TruthInLabeling.pdf>
- National Research Council. (2002). Minority students in special and gifted education. In M. S. Donovan & C. T. Cross (Eds.), *Committee on Minority Representation in Special Education*. Washington, D. C: National Academy Press.
- Nelson, L., Summers, A., & Turnbull, A. P. (2004). Boundaries in family-professional relationships. *Remedial and Special Education, 25*, 153-165.
- Okagaki, L. (2001). Triarchic model of minority children's school achievement. *Educational Psychologist, 36*(1), 9-20.
- Oswald, D. P., & Coutinho, M .J. (2001). Trends in disproportionate representation: Implications for multicultural education. In C.A. Utley & F. E. Obiakor (Eds), *Special education, multicultural, and school reform* (pp.53-73). Springfield, IL: Thomas.

- Oswald, D. P., Coutinho, M. J., Best, A. M., & Singh, N. N. (1999). Ethnic representation in Special education: The influence of school-related economic and demographic variables. *The Journal of Special Education, 32*(1), 194-206.
- PARC v. Commonwealth. 343 F. Supp. 279; 1972 U.S. Dist. LEXIS 13874.
- Parrish, T. (2002). Racial disparities in the identification, funding, and provision of special education. In D. J. Losen & G. Orfield (Eds.), *Racial inequity in special education*. Cambridge, MA: Harvard Education Press.
- PASE v. Hannon, 506 F. Supp. 831 (N. D. 111. 1980).
- Public Law 94-142, 89 Statute 773 (Codified as amended at 20 U.S. C. 1401-1461 (1976 & Supplement III 1979).
- Reiman, J. W., Beck, L., Coppola, T., & Engiles, A. (2010). *Parents' experiences with the IEP process: Considerations for improving practice*. Eugene, OR: Center for Appropriate Dispute Resolution in Special Education (CADRE).
- Rosenfield, S. (2002). Best practices in instructional consultation. In A. Thomas & J. Grimes (Eds.). *Best practices in school psychology* (4th ed., pp.609-623). Bethesda, MD: National Association of School Psychologists.
- Shealey, M. W., & Lue, M. S. (2006). Why are all the Black kids still in special education: Revisiting the issue of disproportionate representation. *Multicultural Perspectives, 8*, 3-9.
- Singhal, R. (1999). *The overrepresentation of minority students in special education*. (Unpublished master's thesis). University of Calgary: Alberta.
- Skiba, R. J., Poloni-Staudinger, L., Gallini, S., Simmons, A. B., & Feggins-Azziz, L. R. (2006). Disparate access: The disproportionality of African American students with disabilities across educational environments. *Exceptional Children, 72*, 411-424.
- Skiba, R. J., Simmons, A. B., Ritter, S., Rausch, M. K., Cuadrado, J., & Chung, C. S. (2008). Achieving equality in special education: history, status, and current challenge. *Exceptional Children, 74*(3), 264-268.
- Smith, D. (2001). *Introduction to special education*. Needham Heights, MA: Allyn and Bacon.
- Sullivan, A. L., & Artiles, A. J. (2011). Theorizing racial inequity in special education: Applying structural inequity theory to disproportionality. *Urban Education, 0042085911416014*.

- Sullivan, A., & Kozleski, E. B. (2008). *Part B Annual performance report analysis: Indicator 5, LRE*. Tempe, AZ: National Institute for Urban School Improvement.
- Telzrow, C. F., & McNamara, K. (2001). New directions in assessment for students with disabilities. *Work: A Journal of Prevention, Assessment and Rehabilitation*, 17(2), 105-116.
- Townsend, B. (2000). The disproportionate discipline of African American learners: Reducing school suspension and expulsion. *Exceptional Children*, 66, 381-391.
- Trent, S. C. (2010). Overrepresentation of culturally and linguistically diverse students in special education. In P. Peterson, E. Baker & B. McGaw (Eds.), *The International Encyclopedia of Education* (3rd ed.). Amsterdam, The Netherlands: Elsevier.
- Tucker, C. M., & Herman, K.C. (2002). Using culturally sensitive theories and research to meet the academic needs of low-income African American children. *American Psychologist*, 57, 762-773.
- Turnbull, H. R., & Turnbull, A. P. (2000). *Free appropriate public education: The law & children with disabilities*. Denver, CO: Love.
- United States National Commission on Excellence in Education. (1983). *A nation at risk: The imperative for educational reform: A report to the Nation and the Secretary of Education, United States Department of Education*. Washington, D.C.: The Commission.
- U.S. Department of Education. (2000). *Twenty-second annual report to Congress*. Washington, D.C: Author.
- U.S. Department of Education. (2009). *28th annual report to Congress on the implementation of the Individuals with Disabilities Education Act, 2006* [Vol. 2]. Washington, DC: Author. (Available online at <http://www.ed.gov/about/reports/annual/osep/2006/parts-b-c/index.html>)
- Virginia Department of Education (2011). *Race & ethnicity data reporting*. Richmond, VA, 2011. Retrieved from http://www.doe.virginia.gov/info_management/data_collection/student_record_collection/race_ethnicity/

- Virginia Department of Education. (2012a). *Race & ethnicity data reporting: Frequently asked questions*. Retrieved from http://www.doe.virginia.gov/info_management/data_collection/student_record_collection/race_ethnicity/race_ethnicity_faq.shtml
- Virginia Department of Education. (2012b). *Statistics and reports: Data dictionary*. Retrieved from http://www.doe.virginia.gov/statistics_reports/research_data/
- Virginia Department of Education. (2014). *Indicators 9 & 10: Calculating disproportionate representation due to inappropriate identification*. Retrieved from http://www.doe.virginia.gov/info_management/data_collection/special_education/performance/annual_performance/forms/indicator9/indicator_9_and_10_risk_ratio_calculation_process.pdf
- Virg. Leg. Code § 22.1-270 (2001 through reg session). Preschool physical examinations. Read more : http://www.ehow.com/how_8415107_cite-codes-statutes-apa-style.html
- Waitoller, F. R., Artiles, A. J., & Cheney, D. A. (2010). The miner's canary: A review of overrepresentation research and explanations. *Journal of Special Education, 44*, 29-49.

APPENDIX A
VIRGINIA POLYTECHNIC INSTITUTE AND UNIVERSITY INSTITUTIONAL
BOARD REVIEW PERMISSION TO CONDUCT STUDY



Office of Research Compliance
Institutional Review Board
North End Center, Suite 4120, Virginia Tech
300 Thierer Street NW
Blacksburg, Virginia 24061
540/231-4606 Fax: 540/231-0969
email: irb@ut.edu
website: <http://www.irb.vt.edu>

MEMORANDUM

DATE: March 23, 2016
TO: Glen I Earthman, Maxine Austin Casey
FROM: Virginia Tech Institutional Review Board (FWA00000572, expires January 29, 2021)
PROTOCOL TITLE: Proportional Representation
IRB NUMBER: 16-294

Effective March 23, 2016, the Virginia Tech Institutional Review Board (IRB) Chair, David M. Moore, approved the New Application request for the above-mentioned research protocol.

This approval provides permission to begin the human subject activities outlined in the IRB-approved protocol and supporting documents.

Plans to deviate from the approved protocol and/or supporting documents must be submitted to the IRB as an amendment request and approved by the IRB prior to the implementation of any changes, regardless of how minor, except where necessary to eliminate apparent immediate hazards to the subjects. Report within 5 business days to the IRB any injuries or other unanticipated or adverse events involving risks or harms to human research subjects or others.

All investigators (listed above) are required to comply with the researcher requirements outlined at:

<http://www.irb.vt.edu/pages/responsibilities.htm>

(Please review responsibilities before the commencement of your research.)

PROTOCOL INFORMATION:

Approved As: **Exempt, under 45 CFR 46.110 category(ies) 4**
Protocol Approval Date: **March 23, 2016**
Protocol Expiration Date: **N/A**
Continuing Review Due Date*: **N/A**

*Date a Continuing Review application is due to the IRB office if human subject activities covered under this protocol, including data analysis, are to continue beyond the Protocol Expiration Date.

FEDERALLY FUNDED RESEARCH REQUIREMENTS:

Per federal regulations, 45 CFR 46.103(f), the IRB is required to compare all federally funded grant proposals/work statements to the IRB protocol(s) which cover the human research activities included in the proposal / work statement before funds are released. Note that this requirement does not apply to Exempt and Interim IRB protocols, or grants for which VT is not the primary awardee.

The table on the following page indicates whether grant proposals are related to this IRB protocol, and which of the listed proposals, if any, have been compared to this IRB protocol, if required.

Invent the Future

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY
An equal opportunity, affirmative action institution

APPENDIX B
SUPPLEMENTARY TABLES

Table B1

Disproportionality Risk Ratio values for all school division for students identified as SWD

Division	SWD				
	Black	Hispanic	Econ Dis	Male	Female
Accomack County	1.492	0.32	1.65	1.39	0.72
Albemarle County	2.091	0.91	2.22	1.62	0.62
Alexandria City	1.556	1.31	2.01	1.83	0.55
Alleghany County	0.000	0.00	1.40	1.37	0.73
Amelia County	0.642	0.00	0.90	1.56	0.64
Amherst County	1.000	0.00	2.77	1.62	0.62
Appomattox County	1.917	0.00	2.42	2.31	0.43
Arlington County	1.732	2.18	2.42	1.33	0.75
Augusta County	1.215	1.07	1.60	1.84	0.54
Bath County	0.000	0.00	1.04	1.38	0.72
Bedford County	1.894	1.46	1.88	1.66	0.60
Bland County	0.000	0.00	1.89	CNC	0.00
Botetourt County	0.000	2.27	1.77	1.84	0.54
Bristol City	1.579	0.00	1.03	1.80	0.56
Brunswick County	1.139	0.00	1.02	1.49	0.67
Buchanan County	0.000	0.00	1.90	2.13	0.47
Buckingham County	1.280	0.00	1.51	1.51	0.66

(continued)

Table B1 (cont.)

Division	SWD				
	Black	Hispanic	Econ Dis	Male	Female
Buena Vista City	0.000	0.00	2.16	1.66	0.60
Campbell County	1.545	0.00	1.64	1.66	0.60
Caroline County	1.154	0.00	1.38	2.02	0.50
Carroll County	0.000	0.00	1.80	1.86	0.54
Charles City County	1.214	0.00	1.89	3.05	0.33
Charlotte County	1.849	0.00	2.91	1.72	0.58
Charlottesville City	3.294	0.47	2.38	1.44	0.70
Chesapeake City	1.758	0.90	2.14	1.64	0.61
Chesterfield County	1.564	0.88	1.79	1.74	0.58
Clarke County	0.000	0.00	0.00	1.87	0.53
Colonial Beach	0.000	0.00	2.86	CNC	0.00
Colonial Heights City	0.895	0.00	1.27	1.32	0.76
Covington City	0.000	0.00	1.04	2.12	0.47
Craig County	0.000	0.00	1.44	1.44	0.69
Culpeper County	1.664	0.55	1.35	1.54	0.65
Cumberland County	0.639	0.00	0.38	CNC	0.00
Danville City	1.565	0.84	1.26	1.36	0.73
Dickenson County	0.000	0.00	2.35	1.79	0.56
Dinwiddie County	1.120	0.62	1.65	1.94	0.52
Essex County	0.636	0.00	1.12	2.95	0.34

(continued)

Table B1 (cont.)

Division	SWD				
	Black	Hispanic	Econ Dis	Male	Female
Fairfax County	1.704	2.00	2.56	1.45	0.69
Falls Church City	0.000	1.40	2.15	1.49	0.67
Fauquier County	2.342	0.76	2.34	1.49	0.67
Floyd County	0.000	0.00	1.48	1.17	0.86
Fluvanna County	2.153	0.00	2.57	1.58	0.63
Franklin City	0.657	0.00	0.78	2.09	0.48
Franklin County	0.967	0.94	1.88	1.60	0.63
Frederick County	1.246	1.08	2.06	1.49	0.67
Fredericksburg City	1.752	0.35	1.96	1.76	0.57
Galax City	0.000	1.11	1.46	2.00	0.50
Giles County	0.000	0.00	1.53	2.15	0.47
Gloucester County	0.685	0.00	1.19	2.29	0.44
Goochland County	1.791	0.00	2.19	3.09	0.32
Grayson County	0.000	0.00	1.22	2.45	0.41
Greene County	1.425	0.00	2.09	3.08	0.32
Greensville County	1.796	0.00	1.17	1.99	0.50
Halifax County	1.824	0.86	2.97	1.45	0.69
Hampton City	1.487	0.61	1.57	1.53	0.66
Hanover County	1.701	0.67	1.98	1.60	0.62
Harrisonburg City	0.874	1.12	1.33	1.63	0.61

(continued)

Table B1 (cont.)

Division	SWD				
	Black	Hispanic	Econ Dis	Male	Female
Henrico County	1.891	1.08	1.91	1.71	0.58
Henry County	0.606	0.61	1.35	2.25	0.45
Highland County	0.000	0.00	0.00	CNC	0.00
Hopewell City	1.168	0.00	1.13	1.94	0.51
Isle of Wight County	2.290	0.00	2.60	1.45	0.69
King and Queen County	0.000	0.00	0.23	1.97	0.51
King George County	1.534	0.00	2.40	1.94	0.51
King William County	2.247	0.00	1.75	CNC	0.00
Lancaster County	0.737	0.00	4.05	1.42	0.70
Lee County	0.000	0.00	2.29	1.49	0.67
Lexington City	0.000	0.00	0.00	CNC	0.00
Loudoun County	2.191	1.72	2.03	1.50	0.67
Louisa County	1.485	1.19	1.57	1.71	0.58
Lunenburg County	1.589	0.00	1.24	3.15	0.32
Lynchburg City	1.420	0.00	1.34	1.98	0.51
Madison County	1.482	0.00	2.42	2.10	0.48
Manassas City	1.732	0.83	2.39	1.44	0.70
Manassas Park City	0.696	1.05	0.90	1.54	0.65
Martinsville City	0.885	0.00	1.06	2.60	0.39
Mathews County	0.000	0.00	1.27	1.54	0.65

(continued)

Table B1 (cont.)

Division	SWD				
	Black	Hispanic	Econ Dis	Male	Female
Mecklenburg County	1.875	0.00	2.02	1.79	0.56
Middlesex County	0.000	0.00	1.90	CNC	0.00
Montgomery County	1.164	1.07	2.31	1.77	0.57
Nelson County	1.066	1.49	1.47	1.77	0.56
New Kent County	0.969	0.00	1.56	2.04	0.49
Newport News City	1.607	0.92	1.40	1.56	0.64
Norfolk City	1.578	0.70	1.43	1.74	0.58
Northampton County	1.717	1.04	2.28	1.60	0.62
Northumberland County	1.575	0.00	1.54	2.23	0.45
Norton City	0.000	0.00	1.38	1.53	0.66
Nottoway County	0.974	0.00	0.94	1.77	0.56
Orange County	1.686	0.90	1.62	2.04	0.49
Page County	0.000	0.00	2.58	2.25	0.45
Patrick County	0.000	1.40	1.78	1.89	0.53
Petersburg City	0.746	0.95	0.79	2.06	0.48
Pittsylvania County	1.816	0.61	2.08	1.64	0.61
Poquoson City	0.000	0.00	1.24	1.72	0.58
Portsmouth City	1.634	0.56	1.68	1.67	0.60
Powhatan County	0.974	0.00	1.97	1.96	0.51
Prince Edward County	1.060	0.00	2.64	2.06	0.49

(continued)

Table B1 (cont.)

Division	SWD				
	Black	Hispanic	Econ Dis	Male	Female
Prince George County	1.029	0.90	1.27	1.93	0.52
Prince William County	1.668	1.08	1.91	1.48	0.67
Pulaski County	1.539	0.00	1.59	1.53	0.65
Radford City	0.000	0.00	4.98	0.85	1.18
Rappahannock County	0.000	0.00	0.98	CNC	0.00
Richmond City	2.347	0.46	1.24	1.58	0.63
Richmond County	0.833	0.00	0.81	1.75	0.57
Roanoke City	1.150	0.34	1.38	1.55	0.64
Roanoke County	1.680	0.86	2.06	1.55	0.65
Rockbridge County	0.000	0.00	1.98	1.68	0.60
Rockingham County	1.648	0.40	1.60	1.76	0.57
Russell County	0.000	0.00	2.21	1.92	0.52
Salem City	1.837	0.00	1.95	1.72	0.58
Scott County	0.000	0.00	4.23	1.57	0.64
Shenandoah County	0.000	0.61	1.73	1.95	0.51
Smyth County	0.000	0.00	1.31	1.57	0.64
Southampton County	1.780	0.00	2.26	1.64	0.61
Spotsylvania County	1.530	0.67	1.74	1.70	0.59
Stafford County	1.942	0.78	2.15	1.58	0.63
Staunton City	1.322	0.00	1.15	1.58	0.63

(continued)

Table B1 (cont.)

Division	SWD				
	Black	Hispanic	Econ Dis	Male	Female
Suffolk City	1.745	0.52	1.87	1.67	0.60
Surry County	1.494	0.00	0.58	1.45	0.69
Sussex County	0.547	0.00	0.58	2.98	0.34
Tazewell County	0.000	0.00	2.17	1.75	0.57
Virginia Beach City	1.852	0.95	2.04	1.79	0.56
Warren County	1.067	0.00	1.69	1.71	0.58
Washington County	0.000	1.42	2.67	1.73	0.58
Waynesboro City	0.844	1.14	1.13	1.52	0.66
West Point	0.000	0.00	0.00	CNC	0.00
Westmoreland County	0.708	0.00	1.59	1.31	0.76
Williamsburg-James City County	2.360	0.74	2.20	1.39	0.72
Winchester City	1.878	0.61	1.40	1.54	0.65
Wise County	0.000	0.00	2.11	1.53	0.65
Wythe County	0.000	0.00	2.02	2.05	0.49
York County	2.260	0.98	1.84	1.42	0.70

Note: CNC = "Could Not Calculate" the Disproportionality Risk Ratio because there were no female students reported in the group of analysis, therefore resulting in division by zero.

Table B2

Disproportionality Risk Ratio values for all school division for students identified as ID

Division	ID				
	Black	Hispanic	Econ Dis	Male	Female
Accomack County	3.27	0.000	5.32	1.27	0.79
Albemarle County	2.80	0.000	2.72	1.18	0.85
Alexandria City	1.77	0.827	2.09	1.28	0.78
Alleghany County	0.00	0.000	1.75	0.88	1.14
Amelia County	0.00	0.000	0.00	0.00	0.00
Amherst County	0.00	0.000	7.32	1.08	0.92
Appomattox County	11.18	0.000	1.49	0.00	0.00
Arlington County	1.47	2.067	2.87	1.13	0.89
Augusta County	0.00	0.000	2.61	1.33	0.75
Bath County	0.00	0.000	0.00	0.00	0.00
Bedford County	2.13	0.000	1.93	0.90	1.11
Bland County	0.00	0.000	2.56	CNC	0.00
Botetourt County	0.00	0.000	0.00	CNC	0.00
Bristol City	3.60	0.000	0.85	1.60	0.62
Brunswick County	2.06	0.000	3.65	1.06	0.95
Buchanan County	0.00	0.000	2.85	1.84	0.54
Buckingham County	1.87	0.000	1.42	1.02	0.98
Buena Vista City	0.00	0.000	0.00	0.00	0.00
Campbell County	2.64	0.000	2.65	1.68	0.59

(continued)

Table B2 (cont.)

Division	ID				
	Black	Hispanic	Econ Dis	Male	Female
Caroline County	3.25	0.000	1.51	2.60	0.38
Carroll County	0.00	0.000	2.70	1.22	0.82
Charles City County	0.00	0.000	0.00	0.00	0.00
Charlotte County	3.86	0.000	4.84	1.52	0.66
Charlottesville City	4.29	0.000	2.39	1.72	0.58
Chesapeake City	2.58	1.054	2.80	1.14	0.88
Chesterfield County	2.30	0.801	1.95	1.27	0.79
Clarke County	0.00	0.000	0.00	0.00	0.00
Colonial Beach	0.00	0.000	0.00	0.00	0.00
Colonial Heights City	0.00	0.000	2.01	1.35	0.74
Covington City	0.00	0.000	2.93	CNC	0.00
Craig County	0.00	0.000	0.00	0.00	0.00
Culpeper County	1.36	0.000	1.97	1.04	0.96
Cumberland County	0.00	0.000	0.00	0.00	0.00
Danville City	2.39	0.000	1.87	1.63	0.61
Dickenson County	0.00	0.000	2.47	CNC	0.00
Dinwiddie County	2.59	0.000	5.67	1.61	0.62
Essex County	2.50	0.000	3.07	CNC	0.00
Fairfax County	1.77	1.253	2.17	1.20	0.84
Falls Church City	0.00	0.000	0.00	0.00	0.00

(continued)

Table B2 (cont.)

Division	ID				
	Black	Hispanic	Econ Dis	Male	Female
Fauquier County	1.79	0.000	2.43	1.25	0.80
Floyd County	0.00	0.000	2.10	0.00	0.00
Fluvanna County	6.04	0.000	8.65	0.00	0.00
Franklin City	2.11	0.000	0.78	CNC	0.00
Franklin County	0.00	0.000	1.70	1.97	0.51
Frederick County	0.00	1.305	2.48	1.80	0.55
Fredericksburg City	1.32	0.000	1.62	1.20	0.83
Galax City	0.00	0.000	0.00	0.00	0.00
Giles County	0.00	0.000	3.13	CNC	0.00
Gloucester County	0.00	0.000	1.96	1.96	0.51
Goochland County	6.04	0.000	5.06	CNC	0.00
Grayson County	0.00	0.000	1.71	0.00	0.00
Greene County	0.00	0.000	3.81	0.00	0.00
Greensville County	6.01	0.000	10.34	1.01	0.99
Halifax County	3.33	0.000	2.92	1.25	0.80
Hampton City	1.93	0.000	1.43	1.13	0.89
Hanover County	3.35	0.000	2.54	0.96	1.04
Harrisonburg City	0.00	0.000	0.87	0.00	0.00
Henrico County	2.48	0.683	2.23	1.43	0.70
Henry County	0.00	0.000	2.85	CNC	0.00

(continued)

Table B2 (cont.)

Division	ID				
	Black	Hispanic	Econ Dis	Male	Female
Highland County	0.00	0.000	0.00	0.00	0.00
Hopewell City	1.45	0.000	2.21	2.09	0.48
Isle of Wight County	1.61	0.000	3.44	0.78	1.29
King and Queen County	0.00	0.000	0.78	1.65	0.61
King George County	2.90	0.000	7.92	1.52	0.66
King William County	4.04	0.000	1.98	CNC	0.00
Lancaster County	0.00	0.000	0.00	0.00	0.00
Lee County	0.00	0.000	2.49	1.34	0.75
Lexington City	0.00	0.000	0.00	0.00	0.00
Loudoun County	2.11	1.536	1.90	1.05	0.96
Louisa County	5.59	0.000	3.80	1.26	0.79
Lunenburg County	0.00	0.000	0.00	0.00	0.00
Lynchburg City	1.70	0.000	1.11	1.03	0.97
Madison County	0.00	0.000	3.91	CNC	0.00
Manassas City	3.14	0.711	3.17	0.95	1.06
Manassas Park City	0.00	0.000	0.00	0.00	0.00
Martinsville City	0.85	0.000	0.67	CNC	0.00
Mathews County	0.00	0.000	0.00	0.00	0.00
Mecklenburg County	4.72	0.000	4.13	1.18	0.85
Middlesex County	0.00	0.000	0.00	0.00	0.00

(continued)

Table B2 (cont.)

Division	ID				
	Black	Hispanic	Econ Dis	Male	Female
Montgomery County	0.00	0.000	1.51	0.98	1.02
Nelson County	0.00	0.000	0.00	0.00	0.00
New Kent County	0.00	0.000	0.00	0.00	0.00
Newport News City	2.18	0.787	1.44	1.09	0.91
Norfolk City	2.21	0.738	1.44	1.14	0.88
Northampton County	5.76	0.000	3.21	CNC	0.00
Northumberland County	0.00	0.000	0.00	0.00	0.00
Norton City	0.00	0.000	0.00	0.00	0.00
Nottoway County	0.00	0.000	1.76	CNC	0.00
Orange County	2.69	0.000	2.33	1.05	0.95
Page County	0.00	0.000	2.33	0.00	0.00
Patrick County	0.00	0.000	2.04	1.31	0.76
Petersburg City	0.90	0.000	0.59	1.82	0.55
Pittsylvania County	2.46	0.000	2.49	1.14	0.88
Poquoson City	0.00	0.000	0.00	0.00	0.00
Portsmouth City	1.72	0.000	1.80	1.28	0.78
Powhatan County	0.00	0.000	0.00	CNC	0.00
Prince Edward County	2.64	0.000	3.11	1.30	0.77
Prince George County	1.70	0.000	1.14	1.18	0.85
Prince William County	1.76	0.995	1.80	1.00	1.00

(continued)

Table B2 (cont.)

Division	ID				
	Black	Hispanic	Econ Dis	Male	Female
Pulaski County	0.00	0.000	3.80	0.80	1.25
Radford City	0.00	0.000	0.00	0.00	0.00
Rappahannock County	0.00	0.000	0.00	0.00	0.00
Richmond City	2.33	0.562	1.47	1.36	0.73
Richmond County	0.00	0.000	0.00	0.00	0.00
Roanoke City	1.65	0.000	1.63	1.61	0.62
Roanoke County	2.87	0.000	1.60	1.01	0.99
Rockbridge County	0.00	0.000	0.88	CNC	0.00
Rockingham County	0.00	0.000	1.99	1.06	0.95
Russell County	0.00	0.000	5.12	3.11	0.32
Salem City	0.00	0.000	14.13	CNC	0.00
Scott County	0.00	0.000	7.58	1.23	0.81
Shenandoah County	0.00	0.000	3.26	1.56	0.64
Smyth County	0.00	0.000	1.50	1.43	0.70
Southampton County	2.25	0.000	3.05	0.95	1.05
Spotsylvania County	1.53	0.000	1.47	1.17	0.86
Stafford County	1.93	0.882	3.30	0.98	1.02
Staunton City	0.00	0.000	1.90	0.56	1.78
Suffolk City	3.99	0.000	2.62	1.52	0.66
Surry County	9.20	0.000	0.00	0.00	0.00

(continued)

Table B2 (cont.)

Division	ID				
	Black	Hispanic	Econ Dis	Male	Female
Sussex County	1.38	0.000	0.00	CNC	0.00
Tazewell County	0.00	0.000	2.46	1.70	0.59
Virginia Beach City	1.73	0.984	1.56	1.25	0.80
Warren County	0.00	0.000	1.39	1.50	0.66
Washington County	0.00	0.000	3.66	1.33	0.75
Waynesboro City	0.00	0.000	1.25	0.87	1.15
West Point	0.00	0.000	0.00	0.00	0.00
Westmoreland County	1.85	0.000	1.10	0.95	1.05
Williamsburg-James City County	3.56	0.000	2.56	1.45	0.69
Winchester City	3.96	0.614	1.74	1.11	0.90
Wise County	0.00	0.000	3.54	0.89	1.12
Wythe County	0.00	0.000	3.20	1.03	0.97
York County	3.10	0.000	2.85	1.06	0.95

Note: = "Could Not Calculate" the Disproportionality Risk Ratio because there were no female students reported in the group of analysis, therefore resulting in division by zero.

Table B3

Disproportionality Risk Ratio values for all school division for students identified as ED

Division	ED				
	Black	Hispanic	Econ Dis	Male	Female
Accomack County	0.000	0.00	1.39	CNC	0.00
Albemarle County	2.803	0.00	2.16	2.15	0.47
Alexandria City	2.597	0.49	0.97	3.31	0.30
Alleghany County	0.000	0.00	0.00	0.00	0.00
Amelia County	0.000	0.00	0.00	0.00	0.00
Amherst County	0.000	0.00	2.84	CNC	0.00
Appomattox County	0.000	0.00	4.17	CNC	0.00
Arlington County	1.854	1.36	1.74	1.53	0.65
Augusta County	0.000	0.00	0.76	CNC	0.00
Bath County	0.000	0.00	0.00	0.00	0.00
Bedford County	2.245	0.00	2.11	1.63	0.61
Bland County	0.000	0.00	0.00	0.00	0.00
Botetourt County	0.000	0.00	2.77	CNC	0.00
Bristol City	0.000	0.00	1.36	CNC	0.00
Brunswick County	1.543	0.00	0.00	0.00	0.00
Buchanan County	0.000	0.00	0.00	0.00	0.00
Buckingham County	0.000	0.00	0.94	CNC	0.00
Buena Vista City	0.000	0.00	0.00	0.00	0.00
Campbell County	1.410	0.00	2.25	2.43	0.41

(continued)

Table B3 (cont.)

Division	ED				
	Black	Hispanic	Econ Dis	Male	Female
Caroline County	0.000	0.00	1.24	1.80	0.56
Carroll County	0.000	0.00	2.02	CNC	0.00
Charles City County	0.000	0.00	0.00	0.00	0.00
Charlotte County	0.000	0.00	4.65	CNC	0.00
Charlottesville City	4.266	0.00	1.43	2.44	0.41
Chesapeake City	2.254	0.57	2.50	2.73	0.37
Chesterfield County	1.613	0.50	2.19	3.03	0.33
Clarke County	0.000	0.00	0.00	CNC	0.00
Colonial Beach	0.000	0.00	0.00	0.00	0.00
Colonial Heights City	0.000	0.00	2.05	1.44	0.70
Covington City	0.000	0.00	0.00	0.00	0.00
Craig County	0.000	0.00	0.00	0.00	0.00
Culpeper County	2.135	0.00	0.92	3.09	0.32
Cumberland County	0.000	0.00	0.00	0.00	0.00
Danville City	1.668	0.00	0.71	2.69	0.37
Dickenson County	0.000	0.00	2.33	0.95	1.05
Dinwiddie County	0.000	0.00	0.00	CNC	0.00
Essex County	0.000	0.00	1.17	CNC	0.00
Fairfax County	2.197	0.84	1.57	1.91	0.52

(continued)

Table B3 (cont.)

Division	ED				
	Black	Hispanic	Econ Dis	Male	Female
Falls Church City	0.000	0.00	0.00	CNC	0.00
Fauquier County	2.368	0.00	2.74	2.09	0.48
Floyd County	0.000	0.00	0.00	0.00	0.00
Fluvanna County	0.000	0.00	2.64	CNC	0.00
Franklin City	0.000	0.00	0.00	0.00	0.00
Franklin County	0.000	0.00	1.62	3.11	0.32
Frederick County	0.000	0.00	1.56	1.58	0.63
Fredericksburg City	1.714	0.00	1.65	CNC	0.00
Galax City	0.000	0.00	0.00	0.00	0.00
Giles County	0.000	0.00	0.00	0.00	0.00
Gloucester County	0.000	0.00	0.00	CNC	0.00
Goochland County	0.000	0.00	3.94	CNC	0.00
Grayson County	0.000	0.00	0.00	CNC	0.00
Greene County	0.000	0.00	3.05	CNC	0.00
Greensville County	2.003	0.00	0.65	CNC	0.00
Halifax County	1.112	0.00	6.02	1.73	0.58
Hampton City	1.335	0.00	1.33	2.42	0.41
Hanover County	0.912	0.00	2.66	2.06	0.48
Harrisonburg City	0.000	0.86	0.90	CNC	0.00

(continued)

Table B3 (cont.)

Division	ED				
	Black	Hispanic	Econ Dis	Male	Female
Henrico County	1.852	0.47	2.05	1.93	0.52
Henry County	0.000	0.00	2.15	CNC	0.00
Highland County	0.000	0.00	0.00	0.00	0.00
Hopewell City	0.986	0.00	0.89	1.58	0.63
Isle of Wight County	1.664	0.00	2.20	1.32	0.76
King and Queen County	0.000	0.00	0.00	CNC	0.00
King George County	0.000	0.00	2.34	0.00	0.00
King William County	0.000	0.00	0.00	CNC	0.00
Lancaster County	0.000	0.00	0.00	0.00	0.00
Lee County	0.000	0.00	1.90	0.98	1.02
Lexington City	0.000	0.00	0.00	0.00	0.00
Loudoun County	2.218	0.78	1.57	1.77	0.57
Louisa County	0.697	0.00	1.44	2.12	0.47
Lunenburg County	0.000	0.00	0.00	CNC	0.00
Lynchburg City	1.086	0.00	1.12	2.77	0.36
Madison County	0.000	0.00	0.00	0.00	0.00
Manassas City	3.695	0.18	1.20	5.09	0.20
Manassas Park City	0.000	0.74	0.56	1.29	0.77
Martinsville City	0.000	0.00	0.85	CNC	0.00

(continued)

Table B3 (cont.)

Division	ED				
	Black	Hispanic	Econ Dis	Male	Female
Mathews County	0.000	0.00	0.00	0.00	0.00
Mecklenburg County	2.094	0.00	1.38	CNC	0.00
Middlesex County	0.000	0.00	0.00	0.00	0.00
Montgomery County	0.000	0.00	3.24	CNC	0.00
Nelson County	0.000	0.00	2.13	CNC	0.00
New Kent County	0.000	0.00	0.00	CNC	0.00
Newport News City	1.251	0.73	0.79	3.26	0.31
Norfolk City	1.391	0.00	1.07	2.48	0.40
Northampton County	0.000	0.00	0.00	0.00	0.00
Northumberland County	0.000	0.00	0.00	CNC	0.00
Norton City	0.000	0.00	0.00	0.00	0.00
Nottoway County	0.000	0.00	0.00	0.00	0.00
Orange County	0.000	0.00	1.13	CNC	0.00
Page County	0.000	0.00	0.00	0.00	0.00
Patrick County	0.000	0.00	0.00	0.00	0.00
Petersburg City	2.295	0.00	0.43	CNC	0.00
Pittsylvania County	2.249	0.00	1.71	2.27	0.44
Poquoson City	0.000	0.00	0.00	CNC	0.00
Portsmouth City	1.203	0.00	1.13	2.00	0.50
Powhatan County	0.000	0.00	2.58	1.82	0.55

(continued)

Table B3 (cont.)

Division	ED				
	Black	Hispanic	Econ Dis	Male	Female
Prince Edward County	0.000	0.00	1.98	CNC	0.00
Prince George County	0.000	0.00	1.34	CNC	0.00
Prince William County	2.185	0.45	1.47	2.53	0.40
Pulaski County	0.000	0.00	2.34	1.19	0.84
Radford City	0.000	0.00	0.00	0.00	0.00
Rappahannock County	0.000	0.00	0.00	0.00	0.00
Richmond City	6.147	0.00	0.76	2.42	0.41
Richmond County	0.000	0.00	0.00	0.00	0.00
Roanoke City	1.449	0.00	0.91	2.54	0.39
Roanoke County	0.000	0.00	4.67	3.42	0.29
Rockbridge County	0.000	0.00	2.15	CNC	0.00
Rockingham County	0.000	0.00	0.96	3.48	0.29
Russell County	0.000	0.00	0.00	0.00	0.00
Salem City	0.000	0.00	0.00	CNC	0.00
Scott County	0.000	0.00	0.00	0.00	0.00
Shenandoah County	0.000	0.00	1.27	3.86	0.26
Smyth County	0.000	0.00	1.26	CNC	0.00
Southampton County	1.872	0.00	1.32	CNC	0.00
Spotsylvania County	1.344	0.50	1.93	2.08	0.48
Stafford County	1.350	0.00	2.85	2.70	0.37

(continued)

Table B3 (cont.)

Division	ED				
	Black	Hispanic	Econ Dis	Male	Female
Staunton City	0.000	0.00	0.00	CNC	0.00
Suffolk City	1.334	0.00	1.32	2.25	0.44
Surry County	0.000	0.00	0.00	0.00	0.00
Sussex County	0.000	0.00	0.00	CNC	0.00
Tazewell County	0.000	0.00	0.00	CNC	0.00
Virginia Beach City	1.852	0.66	2.05	2.95	0.34
Warren County	0.000	0.00	1.75	2.02	0.50
Washington County	0.000	0.00	2.40	CNC	0.00
Waynesboro City	0.000	0.00	0.00	CNC	0.00
West Point	0.000	0.00	0.00	0.00	0.00
Westmoreland County	0.000	0.00	4.11	0.00	0.00
Williamsburg-James City County	2.331	0.00	2.13	3.86	0.26
Winchester City	0.000	0.00	1.05	2.22	0.45
Wise County	0.000	0.00	3.35	1.63	0.61
Wythe County	0.000	0.00	0.00	0.00	0.00
York County	1.925	0.00	2.53	1.71	0.59

Note: CNC = "Could Not Calculate" the Disproportionality Risk Ratio because there were no female students reported in the group of analysis, therefore resulting in division by zero.

Table B4

Disproportionality Risk Ratio values for all school division for students identified as SLD

Division	SLD				
	Black	Hispanic	Econ Dis	Male	Female
Accomack County	1.48	0.45	1.36	1.28	0.78
Albemarle County	1.85	1.29	2.17	1.59	0.63
Alexandria City	1.38	1.63	2.34	1.76	0.57
Alleghany County	0.00	0.00	1.67	1.58	0.63
Amelia County	0.99	0.00	1.63	1.56	0.64
Amherst County	1.56	0.00	2.41	1.40	0.71
Appomattox County	1.84	0.00	2.45	1.74	0.58
Arlington County	1.73	2.42	2.56	1.32	0.76
Augusta County	1.58	1.39	1.61	1.71	0.58
Bath County	0.00	0.00	1.04	1.38	0.72
Bedford County	1.75	2.27	1.81	1.98	0.51
Bland County	0.00	0.00	1.58	CNC	0.00
Botetourt County	0.00	2.98	1.84	1.36	0.73
Bristol City	1.15	0.00	1.09	1.64	0.61
Brunswick County	0.79	0.00	1.14	1.95	0.51
Buchanan County	0.00	0.00	1.71	2.23	0.45
Buckingham County	1.90	0.00	1.87	1.17	0.85
Buena Vista City	0.00	0.00	2.16	1.66	0.60
Campbell County	1.41	0.00	1.42	1.53	0.65

(continued)

Table B4 (cont.)

Division	SLD				
	Black	Hispanic	Econ Dis	Male	Female
Caroline County	0.98	0.00	1.35	1.89	0.53
Carroll County	0.00	0.00	1.59	1.71	0.58
Charles City County	1.21	0.00	1.89	3.05	0.33
Charlotte County	1.91	0.00	2.50	1.53	0.65
Charlottesville City	2.90	0.74	2.83	1.20	0.84
Chesapeake City	1.63	0.94	2.04	1.57	0.64
Chesterfield County	1.43	0.96	1.70	1.70	0.59
Clarke County	0.00	0.00	2.45	1.40	0.72
Colonial Beach	0.00	0.00	2.86	CNC	0.00
Colonial Heights City	1.22	0.00	1.11	1.29	0.77
Covington City	0.00	0.00	1.22	1.42	0.71
Craig County	0.00	0.00	1.44	1.44	0.69
Culpeper County	1.58	0.94	1.41	1.36	0.74
Cumberland County	1.09	0.00	0.81	CNC	0.00
Danville City	1.43	1.17	1.29	1.20	0.83
Dickenson County	0.00	0.00	2.34	1.72	0.58
Dinwiddie County	1.02	0.82	1.57	1.84	0.54
Essex County	0.59	0.00	0.76	1.52	0.66
Fairfax County	1.63	2.33	2.80	1.42	0.71
Falls Church City	0.00	2.08	3.10	1.19	0.84

(continued)

Table B4 (cont.)

Division	SLD				
	Black	Hispanic	Econ Dis	Male	Female
Fauquier County	2.43	1.07	2.25	1.43	0.70
Floyd County	0.00	0.00	1.88	1.75	0.57
Fluvanna County	2.43	0.00	2.25	1.54	0.65
Franklin City	0.90	0.00	1.91	1.67	0.60
Franklin County	1.22	1.17	1.93	1.45	0.69
Frederick County	1.66	1.25	2.09	1.44	0.69
Fredericksburg City	1.89	0.56	2.16	1.37	0.73
Galax City	0.00	1.11	1.46	2.00	0.50
Giles County	0.00	0.00	1.30	1.67	0.60
Gloucester County	0.91	0.00	1.30	2.11	0.47
Goochland County	1.80	0.00	1.70	2.32	0.43
Grayson County	0.00	0.00	1.98	1.97	0.51
Greene County	2.21	0.00	1.74	2.24	0.45
Greensville County	1.39	0.00	0.98	2.04	0.49
Halifax County	1.82	1.23	2.66	1.44	0.69
Hampton City	1.44	0.88	1.66	1.49	0.67
Hanover County	1.74	0.88	1.80	1.60	0.62
Harrisonburg City	1.16	1.43	1.52	1.57	0.64
Henrico County	1.81	1.28	1.83	1.73	0.58
Henry County	0.76	0.76	1.22	1.81	0.55

(continued)

Table B4 (cont.)

Division	SLD				
	Black	Hispanic	Econ Dis	Male	Female
Highland County	0.00	0.00	2.74	CNC	0.00
Hopewell City	1.03	0.00	0.81	1.93	0.52
Isle of Wight County	2.47	0.00	2.57	1.57	0.64
King and Queen County	0.00	0.00	0.00	1.65	0.61
King George County	1.69	0.00	1.89	2.09	0.48
King William County	2.24	0.00	2.16	0.00	0.00
Lancaster County	1.44	0.00	9.29	1.42	0.70
Lee County	0.00	0.00	2.31	1.67	0.60
Lexington City	0.00	0.00	0.00	CNC	0.00
Loudoun County	2.20	2.00	2.16	1.53	0.65
Louisa County	1.37	1.80	1.42	1.69	0.59
Lunenburg County	2.70	0.00	4.71	2.47	0.40
Lynchburg City	1.53	0.00	1.48	1.96	0.51
Madison County	1.94	0.00	2.15	1.58	0.63
Manassas City	1.39	1.02	2.58	1.31	0.77
Manassas Park City	0.99	1.42	1.28	1.62	0.62
Martinsville City	1.51	0.00	1.35	1.54	0.65
Mathews County	0.00	0.00	1.27	1.54	0.65
Mecklenburg County	1.49	0.00	1.93	1.48	0.68
Middlesex County	0.00	0.00	1.90	CNC	0.00

(continued)

Table B4 (cont.)

Division	SLD				
	Black	Hispanic	Econ Dis	Male	Female
Montgomery County	1.56	1.43	2.46	1.80	0.56
Nelson County	1.53	2.09	2.08	1.43	0.70
New Kent County	1.21	0.00	2.06	1.78	0.56
Newport News City	1.60	0.99	1.58	1.46	0.68
Norfolk City	1.52	0.78	1.48	1.80	0.56
Northampton County	1.48	1.25	2.17	1.34	0.75
Northumberland County	2.42	0.00	3.46	1.84	0.54
Norton City	0.00	0.00	1.38	1.53	0.66
Nottoway County	1.55	0.00	1.21	1.53	0.65
Orange County	1.75	1.36	1.53	2.12	0.47
Page County	0.00	0.00	2.63	2.25	0.45
Patrick County	0.00	1.73	1.72	2.06	0.49
Petersburg City	0.58	1.85	1.13	1.76	0.57
Pittsylvania County	1.49	1.04	2.00	1.83	0.55
Poquoson City	0.00	0.00	2.06	1.27	0.79
Portsmouth City	1.69	0.74	1.75	1.71	0.58
Powhatan County	1.34	0.00	2.15	1.76	0.57
Prince Edward County	1.22	0.00	2.57	2.30	0.44
Prince George County	1.07	1.30	1.30	1.94	0.51
Prince William County	1.58	1.22	2.01	1.47	0.68

(continued)

Table B4 (cont.)

Division	SLD				
	Black	Hispanic	Econ Dis	Male	Female
Pulaski County	1.96	0.00	1.38	1.73	0.58
Radford City	0.00	0.00	4.98	0.85	1.18
Rappahannock County	0.00	0.00	1.75	CNC	0.00
Richmond City	2.09	0.52	1.31	1.53	0.65
Richmond County	1.41	0.00	1.96	1.75	0.57
Roanoke City	1.00	0.51	1.43	1.43	0.70
Roanoke County	1.79	1.04	1.92	1.49	0.67
Rockbridge County	0.00	0.00	2.31	1.14	0.88
Rockingham County	2.31	0.57	1.62	1.86	0.54
Russell County	0.00	0.00	1.64	1.58	0.63
Salem City	2.44	0.00	1.98	1.35	0.74
Scott County	0.00	0.00	3.90	1.64	0.61
Shenandoah County	0.00	0.96	1.59	1.80	0.56
Smyth County	0.00	0.00	1.29	1.50	0.67
Southampton County	1.62	0.00	2.25	1.62	0.62
Spotsylvania County	1.56	0.82	1.76	1.76	0.57
Stafford County	2.07	0.92	1.86	1.61	0.62
Staunton City	2.05	0.00	1.46	1.67	0.60
Suffolk City	1.60	0.71	1.87	1.63	0.62
Surry County	1.04	0.00	1.20	1.45	0.69

(continued)

Table B4 (cont.)

Division	SLD				
	Black	Hispanic	Econ Dis	Male	Female
Sussex County	0.67	0.00	0.74	1.81	0.55
Tazewell County	0.00	0.00	2.46	1.65	0.60
Virginia Beach City	1.87	0.99	2.09	1.76	0.57
Warren County	1.89	0.00	1.78	1.69	0.59
Washington County	0.00	1.79	2.56	1.66	0.60
Waynesboro City	1.35	1.82	1.70	1.46	0.68
West Point	0.00	0.00	0.00	CNC	0.00
Westmoreland County	0.62	0.00	1.64	1.58	0.63
Williamsburg-James City County	2.22	0.96	2.16	1.24	0.81
Winchester City	1.90	0.76	1.41	1.56	0.64
Wise County	0.00	0.00	1.82	1.76	0.57
Wythe County	0.00	0.00	1.83	2.46	0.41
York County	2.20	1.38	1.59	1.44	0.69

Note: = "Could Not Calculate" the Disproportionality Risk Ratio because there were no female students reported in the group of analysis, therefore resulting in division by zero.