THE RELATIONSHIPS BETWEEN SOCIODEMOGRAPHIC CHARACTERISTICS

OF TEXAS SCHOOL DISTRICTS AND THE TEXAS EDUCATION AGENCY'S

INDICATORS OF DISPROPORTIONATE REPRESENTATION IN SPECIAL

EDUCATION PROGRAMS

A Dissertation

by

ELEAZAR RAMIREZ

Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

August 2008

Major Subject: School Psychology

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ABSTRACT

The Relationships Between Sociodemographic Characteristics of Texas School Districts

and the Texas Education Agency's Indicators of Disproportionate Representation in

Special Education Programs. (August 2008)

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Despite considerable efforts, the disproportionate representation of students from culturally and linguistically diverse backgrounds in special education programs remains among the most persistent problems in the field of education. Using data from Texas' public school districts, this study examined the relationships between a set of school districts' sociodemographic variables on the proportion of students identified with LEP and students identified as economically disadvantaged served in special education programs. Results indicate a strong association between the sociodemographic variables examined and the overrepresentation of these two student populations in special education programs. In addition, a logistic regression analysis revealed that including the statewide geographic region where a school district resides as a variable was a significantly better model than examining only sociodemographic characteristics. Findings indicate that knowing a school district's sociodemographic characteristics is important in determining the likelihood of students being identify as needing special

education services but it is important to note that the impact of the sociodemographic characteristics differs by statewide geographic region. Recommendations for policy, practice, and research are discussed.

ACKNOWLEDGEMENTS

The completion of this project and my graduate studies would not have been possible without the support and assistance of many individuals. Throughout the course of my studies, I drew on the expertise of many friends and colleagues. I would like to thank my committee chair, Dr. Michael Ash, and my committee members, Dr. Cynthia Riccio, Dr. William Rae, and Dr. Saenz, for their guidance, support, and valuable feedback throughout the course of this research and my graduate studies. I also express my sincere gratitude to Dr. Salvador Hector Ochoa and Dr. James F. McNamara for the time and energy they spent helping me conceptualize the research questions and design of the study.

Thanks also go to ALL my friends and colleagues for helping me through this long journey. Thank you for the help you gave and for the help you didn't know you were giving. Thank you for your enthusiasm and lively interest. You have no idea how much your question, "How's the dissertation going?" actually helped it to "go"!

Most important, I want to thank my family: my mother, father, sister, and wife for their tireless encouragement and support. Without their patience and love this would have not been possible. Thank you, Lord, for all your blessings.

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CHAPTER I

INTRODUCTION

The disproportionate representation of students from culturally and linguistically diverse (CLD) backgrounds in special education programs remains among the most persistent problems in the field of education. For nearly four decades researchers have investigated ethnic representation patterns in special education programs with findings consistently revealing widespread patterns of disproportionality (Chinn & Hughes, 1987; Dunn, 1968; Harry, 1994; Heller, Holtzman, & Messick, 1982; NRC, 2002; Oswald, Coutinho, Best, & Singh, 1999). Numerous attempts have been made to address this educational concern, starting with studies that documented the existence of disproportionate patterns in special education programs. Findings from these studies served as support for recognizing the presence of educational inequities, brought forth through key litigation cases (e.g., Larry P. v. Riles; Diana v. State Board of Education). The results from these cases helped shape influential legislative mandates (e.g., Education for All Handicapped Children Act of 1975, later renamed to the Individuals with Disabilities Education Act) that paved the way for educational reform. However, despite these formidable efforts, there continues to be indisputable evidence of disproportionate patterns for students from CLD backgrounds in special education programs (Artiles & Trent, 1994; Hosp & Reschly, 2004; Losen & Orfield, 2002b; NRC, 2002; Skiba, Poloni-Staudinger, Simmons, Feggins-Azziz, & Chung, 2005).

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This dissertation follows the style and format of the Journal of Special Education.

Operational Definition of Disproportionate Representation

Presently, there are no clear federal standards that help define disproportionate representation in special education programs; consequently, all state departments of education must develop their own criteria to determine disproportionality in their respective educational system resulting in multiple definitions of disproportionality (Coutinho & Oswald, 1998b; Markowitz, 1996b; Skiba, Poloni-Staudinger, Simmons, Feggins-Azziz & Chung, 2005). Variations in defining and measuring disproportionate representation in special education programs often result in inconsistent findings that lead to confusion. To avoid these types of problems, Coutinho and Oswald (1998a) recommended that researchers clearly state the specific operational definition of disproportionality, as well as the specific population, used in investigations.

Following Coutinho and Oswald's (1998) recommendation, this study uses the definition adopted by the Texas Education Agency for the 2000–2001 academic school year. Tables 1.1 and 1.2 provide the TEA formulas used in this study to determine disproportionate representation in Texas's public school districts for two specific student populations: students identified with limited English proficiency (LEP) and students identified as economically disadvantaged.

Table 1.1
Special Education Data Element No. 3.
District-level Analysis of Potential Disproportion of Students Identified with
Limited English Proficiency (LEP) Served in Special Education

1. For each school district a special education LEP percentage was calculated.

$$\text{Special education LEP percentage} = \frac{\text{\# of special education students identified as LEP}}{\text{\# of special education students enrolled in the district}}$$

2. For each school district an overall LEP percentage was calculated.

$$\text{Overall LEP percentage} = \frac{\text{\# of LEP students enrolled in the district}}{\text{\# of students enrolled in the district}}$$

3. For each school district the special education LEP percentage was subtracted from the overall LEP percentage.

$$\text{Difference score} = \text{Overall LEP percentage minus Special education LEP percentage}$$

4. The frequency distributions of difference scores were used to identify the state median.

5. The district-level difference score was compared to the state median and, using the statewide distribution, a Risk Level was assigned.

Table 1.2
Special Education Data Element No. 4.
District-level Analysis of Potential Disproportion of Students Identified as
Economically Disadvantaged Served in Special Education

1. For each school district a special education economic disadvantage percentage was calculated.

$$\text{Special education economic disadvantage percentage} = \frac{\text{\# of special education students identified as economically disadvantaged}}{\text{\# of special education students enrolled in the district}}$$

2. For each school district an overall economic disadvantaged percentage was calculated.

$$\text{Overall economic disadvantage percentage} = \frac{\text{\# of students identified as economically disadvantaged}}{\text{\# of students enrolled in the district}}$$

3. For each school district the special education economic disadvantaged percentage was subtracted from the overall economic disadvantaged percentage.

$$\text{Difference score} = \text{Overall economic disadvantaged percentage minus special education economic disadvantaged percentage}$$

4. The frequency distributions of difference scores were used to identify the state median.

5. The district-level difference score was compared to the state median and, using the statewide distribution, a Risk Level was assigned.

Shifts in Research Efforts

Over the last decade, there have been two important shifts in research efforts that should help advance the understanding of the disproportionate representation of students from CLD backgrounds in special education programs. First, the literature has a long history of documenting the existence of disproportionate patterns and only recently have researchers begun examining possible sociodemographic variables that may predict these patterns (Coutinho, Oswald, Best, & Forness, 2002; Hosp & Reschly, 2004; Oswald, Coutinho, Best, & Singh, 1999; Skiba, Poloni-Staudinger, Simmons, Feggins-Azziz & Chung, 2005). Second, the review of the literature revealed that most disproportionality studies have focused on differences between ethnic groups with few studies examining patterns in other subgroups. Only recently have more studies begun to examine the representation patterns of other subgroups in special education programs such as students identified with limited English proficiency and students classified as economically disadvantaged (Artiles, Rueda, Salazar, & Higareda, 2002).

In an attempt to advance the knowledge base of possible sociodemographic variables that may predict disproportionality as well as to develop a better understanding of how these variables affect the representation patterns of multiple subgroups in special education programs, the U.S. Congress made significant amendments to the Individuals with Disabilities Education Act (IDEA, 1997) with specific mandates that require state education agencies to improve special education data collection efforts. These congressional mandates require states to collect and examine enrollment of students from CLD backgrounds receiving special education

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services, to monitor these types of data, and to intervene where disproportionate patterns occur (Hehir, 2002). If state education agencies do not comply with these mandates, they run the risk of losing eligibility to receive federal funds under the IDEA making these mandates a very practical concern for all state departments of education (Hehir, 2002). More importantly, with the introduction of these legislative amendments and the adoption of the mandates, Congress has made significant refinements in law that more directly address disproportionality (Daughtery, 1999). These legislative changes are expected to improve datasets that will help advance investigations of disproportionality from the old practice of simple documentation of the existence of representation patterns to a more thorough examination of sociodemographic variables associated with or influencing disproportionality as well as to obtain a better understanding of how theses variables affect the representation patterns of multiple subgroups in special education programs (Artiles et al. 2002; Coutinho & Oswald, 2000).

Statement of the Problem

Despite numerous efforts, the disproportionate representation of students from culturally and linguistically diverse backgrounds in special education programs remains an unresolved issue. The review of the literature revealed several areas that warrant further investigation. This study addresses two identified concerns.

The first concern is the limited understanding of sociodemographic variables associated with or influencing disproportionate patterns. Identification and exploration

of key sociodemographic variables that may predict disproportionate patterns in special education will help improve practices with regard to special education placement.

The second concern is that most studies have focused their investigation on African American students and few studies have examined the disproportionate representation of other subgroups; in particular, students identified with LEP or students identified as economically disadvantaged. Accordingly, there is a need to investigate the representation patterns of both student populations in special education programs as well as identify and explore variables associated with disproportionate patterns of these students.

Purpose of the Study

This study will depart from the old practice of only documenting the existence of disproportionate patterns by extending the research of examining sociodemographic variables that may predict disproportionate patterns in special education programs. More specifically, the purpose of this study is to examine possible common sociodemographic characteristics that exist in Texas's public school districts that evidence disproportionate representation for students identified with LEP and students identified as economically disadvantaged. This intent will be accomplished by examining information from a statewide database developed by the Texas Education Agency (TEA) to address disproportionate representation in special education programs. Accordingly, several sociodemographic variables pertaining to students identified with LEP and students identified as economically disadvantaged will be examined.

Four specific research questions were developed to guide the empirical efforts undertaken in this study.

Research Question One

The first research question was answered using a single Texas Education Agency indicator (referenced as DAS data element no. 3 in the TEA Special Education Data Analysis System). This indicator reflects the representation of students identified with limited English proficiency in special education programs in Texas's public school districts. This research question was as follows:

1. For the 2000–2001 school year, were there bivariate relationships between a school district's DAS data element no. 3 rating level (district-level analysis of potential disproportion of students identified with limited English proficiency served in special education) and each of these corresponding school district characteristics: (a) total school district enrollment; (b) the proportion of Hispanic students in the school district; (c) the proportion of Hispanic students in special education in the school district; (d) the proportion of students identified with LEP in the school district; (e) the proportion of students identified as economically disadvantaged in the school district; (f) the proportion of students receiving special education services in the school district; and (g) the statewide geographic region in which the school district resides?

Research Question Two

The second research question was answered using a different Texas Education Agency indicator (referenced as DAS data element no. 4 in the TEA Special Education

Data Analysis System). This indicator reflects the representation of students identified as economically disadvantaged in special education programs in Texas's public school districts. This research question was as follows:

2. For the 2000–2001 school year, were there bivariate relationships between a school district's DAS data element no. 4 rating level (district-level analysis of potential disproportion of students identified as economically disadvantaged served in special education) and each of these corresponding school district characteristics: (a) total school district enrollment; (b) the proportion of Hispanic students in the school district; (c) the proportion of students identified with LEP in the school district; (d) the proportion of students identified as economically disadvantaged in the school district; (e) the proportion of students receiving special education services in the school district; and (f) the statewide geographic region in which the school district resides?

Research Question Three

Research question three utilized the same TEA indicator explored in research question one. In this case, the statewide relationships from research question one are reexamined for the seven geographic regions of the state. It asked:

3. Were bivariate relationships elaborated in research question one different for each of the seven geographic regions of the state?

Research Question Four

Research question four utilized the same TEA indicator explored in research question two. In this case, the statewide relationships from research question two were reexamined for the seven geographic regions of the state. It asks:

4. Were bivariate relationships elaborated in research question two different for each of the seven geographic regions of the state?

Significance of the Study

Given the research design for this study, two significant outcomes were anticipated. First, the results for research questions one and two will determine statewide relationships between the TEA indicators of disproportionality and actual school district characteristics. Second, the results for research questions three and four will reveal whether relationships uncovered at the state level are consistent for well-defined demographic regions of the state. Specifically, if relationships uncovered at the state level are consistent, then future improvements can be developed for the state at large. On the other hand, if statewide relationships are inconsistent, planning only on the basis of statewide results are far less likely to be meaningful in that they do not represent actual conditions in individual regions of the state. Either conclusion has direct implication for future policy and intervention research.

Organization of the Study

The dissertation is divided into eight chapters. Chapter I provides the problem specification and the purpose of the study, including the four research questions that are used to guide the empirical analyses. Chapter II contains the review of the literature that

establishes the theoretical framework for the study. Chapter III and IV provides the methods used to generate and analyze the empirical evidence used to answer the four research questions. The next three chapters are used to present the findings. Chapters V to VII provide the research findings, with each chapter dedicated to reporting the findings for one of the research questions. The final chapter presents a synthesis of the empirical findings with a view toward documenting both the commonalities and differences for the two criterion variables (TEA indicators of disproportionality). In addition, the chapter provides a summary of all study results and conclusions derived from them as well as the implications for future research and practice.

CHAPTER II

REVIEW OF THE LITERATURE

Chapter II provides a review of relevant literature on the disproportionate representation of students from culturally and linguistically diverse (CLD) backgrounds served in special education programs. More specifically, this chapter examines five areas in the literature that establishes the conceptual framework for the present study. First, the chapter describes five factors that highlight the educational and social significance of disproportionality in special education programs. Second, the chapter provides a historical overview of empirical investigations documenting the consistent and widespread patterns of disproportionality across time as well as discusses key litigation, legislation, and education reform efforts developed to address such patterns. Third, the chapter describes the limited but growing literature on studies examining sociodemographic variables that may help predict disproportionality in special education. Fourth, the chapter summarizes trends that present challenges in interpreting findings uncovered in empirical investigations. Finally, the purpose of this study and the research questions are reviewed.

Significance of Disproportionality in Special Education

Disproportionate representation in special education programs is an emotional and controversial topic with deep sociopolitical and historical roots that alludes to issues of institutional discrimination and unfair educational practices (Artiles & Trent, 1994, Daniels, 1998; Patten, 1998). Researchers (Daniels, 1998; Figueroa & Artiles, 1999; Oswald, Coutinho, Best, & Nguyen, 2001) suggest that disproportionality serves as an

index of systemic educational failures that bring to light inequities that have contributed to poor educational and social outcomes for students from CLD backgrounds. Five factors that highlight some of the educational and social significance of this long-standing concern include: (a) perceptions of special education, (b) patterns in special education disability categories, (c) deficit view/philosophy of students from CLD backgrounds, (d) concerns over civil rights, and (e) demographic changes in enrollment figures of public schools.

Perceptions of Special Education

MacMillian and Reschly (1998) and the National Research Council (Donovan & Cross, 2002) suggested that one of the factors that bring to light both the educational and social significance of disproportionality is the perception that special education services are ineffective and stigmatizing.

Over the years, researchers have expressed concerns regarding the effectiveness of special education services. Harry and Anderson (1994) suggested that special education programs may not prepare students from CLD backgrounds to be productive and responsible members of society. In addition, the President's Commission on Excellence in Special Education (2002) expressed the following concerns regarding the effectiveness of special education: (1) once students are served in special education programs it is difficult for them to get dismissed from special education, (2) special education services limits the quality of education students receive, (3) students served in special education programs have higher drop out rates, (4) students served in special

education programs are least likely to obtain a higher education, and (5) special education services limits the potential income individuals will earn in the future.

Similarly, researchers have expressed concerns regarding the potential stigmatizing effects to students served in special education programs. Researchers (Artiles & Trent, 1994; Donovan & Cross, 2002; Dunn, 1968) note that students assigned with a special education label may experience lowered self-esteem and social status. In addition, a special education label may lower teachers' and others' expectations of what students can accomplish (Artiles, 1998; Brophy & Good, 1986; Losen & Orfield, 2002). The perception that special education services are ineffective and stigmatizing contributes to the believe that students who are disproportionately served in special education programs experience undesirable educational and social outcomes that may have lifelong implications (Daughtery, 1999).

Patterns of Disproportionality

A second factor that emphasizes the educational and social significance of disproportionality is the representation patterns that have emerged in special education categories. MacMillian and Reschly (1998) and the National Research Council (Donovan & Cross, 2002) suggested that concerns of discriminatory and unfair educational practices associated with disproportionality are based on the differential patterns of representation among low incidence disabilities versus high incidence disabilities. Low incidence disabilities are described as disabilities diagnosed to a relatively smaller absolute number of students that are generally diagnosed outside the school setting by medical professionals. These disabilities are regarded as biologically

determined and typically have physical, sensory, or organic causes. Low incidence disabilities include diagnoses of deafness, blindness, physical impairments, and traumatic brain injuries. Empirical evidence does not suggest a disproportionate representation of low incidence disabilities in special education programs for students from CLD backgrounds (Donovan & Cross, 2002).

The controversy surrounding disproportionality is focused primarily on the percentage of students from CLD backgrounds identified with high incidence disabilities. High incidence disabilities are diagnosed for a larger number of students and are generally diagnosed within the school setting by a team of educators. These disabilities are considered to be "judgmental or subjective" categories because they do not have a clear biological basis and may be influenced by subjective judgments (Donovan & Cross, 2002; MacMillan & Reschly, 1998). Mild mental retardation, emotional disturbance, learning disabilities, and speech and language disorders make up the high incidence disability categories.

Deficit View/Philosophy

A third factor highlighting the significance of disproportionality is the maintenance of a deficit view/philosophy of students from culturally and linguistically diverse backgrounds (Artiles & Trent, 1994, Artiles, 1998). A deficit view/philosophy suggests that there is a tendency for school personnel to incorrectly assume that low academic achievement is the product of a deficit within the student rather than a deficit with the educational system (Moll & Gonzalez, 1994). Equating cultural differences

with disabilities has resulted in undesirable educational and social outcomes for students from CLD backgrounds (Artiles, 1998).

Civil Rights Concerns

A fourth factor underscoring the social significance of disproportionality is the possibility of violating students' civil rights (Dunn, 1968; Losen & Orfield, 2002b). According to the Individuals with Disabilities Education Act (IDEA), every student should have equal access to an appropriate education rather than being segregated from a specific curriculum based on racial, ethnic, cultural, or linguistic factors (Artiles & Trent, 1994; Losen & Orfield, 2002b). The disproportionate placement of students from CLD backgrounds in special education programs has the potential of violating students' civil rights by denying them equal access to a general education curriculum.

Changing Demographics in Public Schools

A fifth factor relating to the educational and social significance of disproportionality is the dramatic demographic changes that have occurred over the last three decades. The U.S. Congress considers the persistent patterns of disproportionality for students from CLD backgrounds in special education programs a significant educational and social concern due to the increasing percentages of these student populations, particularly in the enrollment figures of public schools (Oswald, Coutinho, Best, & Singh, 1999).

Over the last few decades the United States has experienced major demographic shifts that have dramatically changed the composition of its population (U.S. Census, 2000). The nation has become increasingly more diverse as evident by the significant

growth of individuals from culturally and linguistically diverse backgrounds (Klein, Blugarin, Beltranena, & MacArthur, 2004). To complicate matters, this considerable growth has not been distributed evenly across the nation. A few states and large metropolitan areas have experienced most of these demographic shifts (Hodgkinson, 1998; Kindler, 2002).

Birth rates and immigration trends contribute significantly to the aforementioned demographic shifts (Artiles & Ortiz, 2002; Hodgkinson, 2000). Moreover, projection studies indicate that the populations of individuals from culturally and linguistically diverse backgrounds will continue to grow at a faster rate than the White population, further increasing the nation's diversity (Hodgkinson, 1992; Klein, Blugarin, Beltranena, & McArthur, 2004).

While these demographic changes provide many opportunities to grow and learn as a nation, they also pose new challenges. One of the unique challenges of dealing with these demographic shifts lies in the changing enrollment of public education (Hodgkinson, 1998). Demographic shifts have profound implications in public education. Thus, projection studies need to be considered in decisions made by school planning officials and policymakers because they affect the type of services and funding necessary to operate school districts (Artiles & Ortiz, 2002; Hodgkinson, 2000; Kindler, 2002).

Students Identified with Limited English Proficiency. A significant focus of the current discussion is on the demographic changes in the school populations and the subsequent challenges created by the rapid increase of the culturally and linguistically

diverse student population, in particular students identified with limited English proficiency (LEP). A brief summary of the current and projected demographics of students with LEP in both the United States and the state of Texas illustrates the challenges that educators, policymakers, advocates, and other stakeholders will face in improving the education for all students (Kindler, 2002; Klein, Blugarin, Beltranena, & McArthur, 2004; Macias, 1998).

Nationally, school populations have changed drastically, especially in larger school districts. In addition to increasing ethnic diversity, the number of students identified with limited English proficiency (LEP) continues to increase at a rapid rate both in absolute numbers and as percentage of the student population (Kindler, 2002). A survey conducted by the U. S. Department of Education's Office for Bilingual Education and Minority Language Affairs (OBELMA) indicates that in the 1989-1990 academic school year approximately 5% of school age students in the United States were identified with LEP (Kindler, 2002). The same survey indicated that by the 1999-2000 academic school year, the student population identified with LEP was a little over 9%. The total United States student population was estimated to have increased by only 24%, while the student population identified with LEP increased by 105%. The survey also indicates that Spanish is the most prevalent spoken language by students identified with LEP. Approximately 77% of students with LEP speak Spanish with Vietnamese being a distant second with about 2% of this population.

Survey results of Texas revealed similar findings (Kindler, 2002). In the 1989-1990 academic school year Texas' student population identified with LEP was

approximately 9% of the total school population. By the 1999-2000 academic school year, this population was 14% of the total school population. Texas's total student population increased by 18%, while Texas's student population identified with LEP increased by 84%. Again, Spanish was reported as the most prevalent language spoken by students identified with LEP approximately 94%, Vietnamese was a distant second with 2% of this population.

Academic and Special Education Implications. The significant growth of the student population identified with LEP in public schools presents challenges for many school systems because while the student population is becoming more heterogeneous, educators (e.g. teachers, principals, administrators, support staff personnel) are remaining relatively homogeneous (Artiles & Ortiz, 2002; Klein, Blugarin, Beltranena, & MacArthur, 2004). Educators can experience difficulties and frustration when teaching large numbers of students whose primary language is not English (Harry, 1994). Some believe that this may lead to educators feeling overwhelmed due to the inability to effectively teach students with LEP and may result in inappropriate referrals for a special education evaluation. This trend in part has been associated to the disproportionate representation of students identified with LEP in special education (Harry, 1994).

Data indicate that the student population identified with limited English proficiency (LEP) is one of the fastest growing in the schools and that this trend is expected to continue. Based on the current and projected growth of this student population, significant changes are needed in the educational system of many school

districts to meet the associated challenges of appropriately educating students identified with LEP.

Summary of the Significance of Disproportionality

In summary, the five factors discussed above (a) perceptions of special education, (b) patterns in special education categories, (c) deficit view/philosophy of students from CLD backgrounds, (d) concerns over civil rights, and (e) changes in enrollment figures of public schools help establish the educational and social significance of disproportionality in special education programs. These and other concerns suggest that further empirical investigations are needed to develop a greater understanding of key variables that should help address this persistent problem.

<div align="center">Historical Overview</div>

Empirical investigations documenting the consistent and widespread patterns of disproportionality in special education programs in American public schools have a long history. An examination of these investigations as well as a review of key litigation, legislation, and education reform efforts provide both an overview of the progress made in the field and bring to light areas that deserve further consideration.

Evidence of Disproportionality

Since 1968, the Office for Civil Rights (OCR) has collected demographic information on the enrollment figures of students receiving special education services through bi-annual surveys of elementary and secondary schools. The datasets obtained from these surveys has been the primary source used to establish the existence of disproportionate patterns in special education programs (Rhodes, Ochoa, & Ortiz,

2005). For over three decades, researchers (Chinn & Hughes, 1987; Donovan & Cross, 2002; Dunn, 1968; Finn, 1982; Harry, 1994; Heller, Holtzman, & Messick, 1982, Losen & Orfield, 2002b; Oswald, Coutinho, Best, & Singh, 1999) have been examining the OCR datasets and consistently find patterns of disproportionality.

Dunn (1968) was the first scholar to question and publish on the disproportionate number of students from CLD backgrounds served in special education programs and stated that these patterns raised serious educational and civil rights concerns. In this influential article, Dunn (1968) noted that in his "best judgment" about 60 to 80 percent of students placed in special education programs were from ethnic minority backgrounds, came from economic disadvantaged families, and/or were students identified with limited English proficiency. Dunn's observations brought to light the potential impact that poverty, language proficiency, and individually administered intelligence measures may have on representation patterns in special education programs.

Dunn's (1968) article initiated major research, litigation, and legislative efforts (e.g., Education for All Handicapped Children Act, 1975; Deno, 1970; Diana v. California Board of Education, 1970; Larry P. v. Riles, 1972; Mercer, 1973) that confirmed disproportionate patterns as well as other indices of inequities in special education programs. The findings from these early empirical investigation, litigation, and legislation efforts prompted the U.S. Congress to commission a panel of prominent scholars from the National Academy of Sciences to conduct a comprehensive study on the nature and extent of disproportionality in public schools. The study developed into a

report entitled Placing Children in Special Education: A Strategy for Equity (Heller, Holtzman, & Messick, 1982). Findings from this study confirmed that certain groups of students from CLD backgrounds were disproportionately assigned to special education programs compared to white students. In particular, the study found disproportionate patterns for African American students and to some extend for Hispanic students. The study concluded that African Americans were more likely to be assigned to classes for the mentally retarded. This finding confirmed observations noted in previous research and court cases. Further, this comprehensive study was also the first to note an intriguing yet consistent trend with the Hispanic student population. That is, data suggested that there were no disproportionate patterns with the Hispanic student population in special education programs when data were examined at the national level. However, when data were disaggregated at the state level, findings revealed that Hispanic students were over-identified as needing special education services in states and school districts with large percentage of Hispanic students (Finn, 1982).

Five years later, Chinn and Hughes (1987) obtained similar findings in their examination of the OCR survey datasets from 1978 through 1984. Their analyses indicated that three student populations from CLD backgrounds were more likely to be assigned to special education programs. African American students were more likely to be identified as needing special education services for all datasets examined, particularly in the serious emotional disturbance and educable mentally retarded disability categories. Hispanic students were more likely to be identified as needing services for learning disabilities in the datasets for 1980, 1982, and 1984. Finally,

Native Americans students were more likely to be identified as needing services for the mental retardation disability category in the datasets for 1978, 1980, and 1982. The authors noted that what makes the aforementioned patterns more striking is that white students were underrepresented in special education programs in all datasets examined.

A few years later, Harry (1994) examined the OCR datasets for 1986 and 1990. Her analyses, similar to previous research, revealed patterns of disproportionality for African American and Hispanic students in special education programs. African American students were over-identified as needing special education services for the mental retardation and emotional disturbance disability categories. In addition, her findings noted that Hispanic students were more likely to be identified as needing special education services in states with large percentage of Hispanic students (e.g., Arizona, California, Texas, etc.).

In 2000, after nearly two decades of consistent research demonstrating disproportionate patterns in special education, the U.S. Congress re-commissioned the National Research Council to examine disproportionality issues once again. This study developed into the report entitled Minority Students in Special and Gifted Education (NRC, 2002). The educational context had changed significantly since the first NRC report was published, especially in terms of student demographics. Yet, the trends associated with disproportionality in special education were conceptually similar. African American students were twice as likely to be identified as needing services for mental retardation and more than one and half times as likely to be identified as needing services for emotional disturbance as their white counterparts. Native

American/Alaskan Native students were at higher risk of being identified as needing services for mental retardation and learning disabilities. Once again, similar to findings by Finn (1982) and Harry (1994), data revealed that there was no apparent disproportionate pattern with the Hispanic student population, but when data were disaggregated at the state level the recurrent trend emerged: Hispanic students were more likely to be identified as needing special education services in states with large percentages of Hispanic students.

In summary, empirical investigations over the past three decades have demonstrated and documented the persistent and widespread patterns of disproportionality in special education programs in American public schools. The consistency of these findings, despite numerous reform efforts, highlights the importance to continue to search for methods to reduce this educational concern. This review of empirical investigations identified two recurrent trends: (1) disproportionate patterns are at times masked when data are examined at an aggregate level (i.e., national level) and (2) early investigations primarily focused in examining differences among ethnic groups. The present study addressed these two concerns by examining data disaggregated at the state and school district level and by examining trends in student populations other than ethnic differences such as students identified as limited English proficient and students classified as economically disadvantaged.

Litigation

Empirical investigations documenting disproportionate patterns in special education initiated litigation efforts aimed at reducing such patterns. These litigation

efforts have played a significant role in passing federal legislation designed to protect the rights of individuals with and without disabilities as well as establishing policies and procedures designed to create greater educational equity for all children (Coutinho & Oswald, 2000; Figueroa & Artiles, 1999; Losen & Orfield, 2002b; Oswald, Coutinho, Best, & Nguyen, 2001; Reschly, 1991). Some of the most notable court decisions resulting from litigation include the requirement that assessment, identification, and placement procedures must be conducted in a nondiscriminatory manner (Artiles & Trent, 2000). As a result of litigation mandates, guidelines for assessment procedures were established to improve educational practices (Artiles & Trent, 1994; Reschly, 1991). Two of the most influential litigation efforts—Diana v. California State Board of Education (1970) and Larry P. v. Riles (1972)—are discussed to illustrate how litigation has helped reform special education policies, procedures, and practices.

Diana v. California State Board of Education. One of the first major court case addressing disproportionality issues was Diana v. California State Board of Education (1970). This case addressed the overrepresentation of Latino students in special education programs. Specifically, plaintiffs challenged (a) the logic of using English language intelligence measures with students who had limited exposure to or command of English to determine eligibility for special education programs, (b) the procedural safeguards used with these students and their families, and (c) the training of evaluators and special educators working with students identified with limited English proficiency (Coutinho & Oswald, 2000; Reschly, 1991).

This case had significant influence on special education legislation and helped in securing and protecting the rights of individuals with and without disabilities (Artiles & Trent, 2000). The resolutions of this case resulted in reforming assessment procedures, establishing more appropriate procedural safeguards, and improving training requirements for special educators (Figueroa & Artiles, 1999; Losen & Orfield, 2002b; Reschly, 1991). Rulings of the Diana case stipulate that evaluations for special education eligibility need to be conducted in a student's primary language as well as the use of other measures such as nonverbal intelligence and adaptive behavior assessments (Coutinho & Oswald, 2000; Reschly, 1991). Changes in policies, procedures, and practices that resulted from this court decision helped address the overrepresentation of Latino students in special education programs (Reschly, 1991).

Larry P. v. Riles. The case of Larry P. v. Riles (1972) was another pivotal litigation effort. This case involved the overrepresentation of African American students in the state of California. Similar to Diana (1970), plaintiffs challenged the appropriateness of using individually administered intelligence measures, in this case with African American students, citing that such measures were not valid with this population of students.

The Larry P. case had significant influence on special education legislation, particularly in the state of California. The court ruled that there was an overrepresentation of African American students in special education programs and ordered changes in educational practices to help reduce such overrepresentation (MacMillian & Barlow, 1991; Reschly, 1988). More specifically, the court ruled that

individually administered intelligence measures were not sufficiently valid for African American students (Coutinho & Oswald, 2000). As a result of this decision, the court banned the use of individually administered intelligence measures with African American students in the state of California if the outcome of testing was to identify and place African American students in special education programs (Reschly, 1991).

Summary. Litigation has resulted in significant changes in educational practices related to special education assessment procedures and placement decisions (Figueroa & Artiles, 1999). Litigation efforts has helped affirm the following: (a) some intelligence measures may be culturally and linguistically inappropriate for some student populations, (b) inappropriate assessment measures may contribute to disproportionality in special education, (c) alternative assessment procedures are needed to better assess students' abilities (e.g., nonverbal measures, assessment in student's native language), and (d) many students may need to be retested and perhaps reclassified (Artiles & Trent, 2000). Litigation and subsequent court mandates have had a considerable impact on the field of special education such as helping to secure and protect the rights of students and their families as well as establishing procedures aimed at improving equitable educational benefits for all students (Donovan & Cross, 2002; Losen & Orfield, 2002b; MacMillian, Hendrick, & Watkins, 1988). Based on the persistent and widespread patterns of disproportionality, litigation must continue to play a significant role if there is to be hope of meaningful and lasting improvement.

Legislation

Litigation efforts and the civil rights movement were influential in passing laws that provide critical legal protection for students from CLD backgrounds. Some of these laws include: the Equal Protection Clause of the 14th Amendment of the United States Constitution; Title VI of the Civil Rights Act (1964); Title II of the American with Disabilities Act (1973); and the Individuals with Disabilities in Education Act (1997) (Coutinho & Oswald, 2000; Losen & Welner, 2002; Oswald, Coutinho, Best, & Singh, 1999). Collectively, these laws protect students from discrimination on the basis of race, color, national origin, or disability and provide substantial procedural safeguards and due process for students who have been or may be inappropriately identified and placed in special education programs (Losen & Welner, 2002). Because the focus of the current study is on the disproportionate representation of students from CLD backgrounds in special education, a brief discussion of the Individuals with Disabilities Education Act and how it addresses disproportionality follows.

The passage of the Education for All Handicapped Children Act in 1975, reauthorized as the Individuals with Disabilities Education Act in 1991, has been one of the most significant and comprehensive legislative accomplishments in the history of special education (Artiles, 2003; Coutinho & Oswald, 2000; Oswald, Coutinho, Best, & Singh, 1999). The provisions in the IDEA have made a significant difference in the education and lives of students with disabilities and their families. The IDEA gave students with disabilities and their families a number of important rights including, but not limited to: a free and appropriate public education (FAPE); access to individualized

education plans (IEPs) and related services that address students' unique needs; individualized and nondiscriminatory assessment, identification, and placement decisions; education in least restrictive environment; parents' rights to be informed of evaluation and placement decisions; and procedural safeguards that include the right to due process hearings (Artiles, 2003; Coutinho & Oswald, 2000; Hehir, 2002; Oswald, Coutinho, Best & Singh, 1999).

The IDEA specifies evaluation procedures for establishing eligibility criteria for special education services and provides guidelines of disability conditions that help clarify the types of students that must be served, the types of services that should be provided, the educational settings where services should be provided, and how such services should be provided (Coutinho & Oswald, 2000; Hehir, 2002). The IDEA also emphasizes that special education programs should not be regarded as a placement destination for students but rather that these programs are a vehicle to provide students with individualized supports and services that will allow students optimal success (Losen & Welner, 2002). In an effort to address the educational experience of students from CLD backgrounds, the IDEA cautions that children who experience academic difficulties due to differences related to ethnic, cultural, and/or linguistic differences are not to be identified as individuals with disabilities (Coutinho & Oswald, 1998a; Coutinho & Oswald, 2000; Hehir, 2002; Oswald, Coutinho, Best, & Singh, 1999).

The U.S. Congress has made important amendments to the IDEA that has promoted further understanding of disproportionality issues. The most notable amendment was the requirement of state education agencies to collect, review, and

analyze data on students from CLD backgrounds in special education programs for the purpose of monitoring and reducing disproportionality (Burnette, 1998; Coutinho & Oswald, 2000; Oswald, Coutinho, Best, & Nguyen, 2001; Oswald, Coutinho, Best, & Singh, 1999; Losen & Orfield, 2002b). However, researchers cautioned that state education agencies must not focus only on aggregate data such as statewide data, namely because disproportionality at the school district or campus level may be masked by data aggregated at the state level (Artiles & Trent, 1994; Harry, 1994; Losen & Welner, 2002).

Another amendment to the IDEA was the requirement for state and local education agencies to report inappropriate identification, placement, and service patterns. This amendment creates accountability measures for state and local education agencies. That is, state and local education agencies must intervene where there is evidence of disproportionality through revisions of policies, procedures, and practices used in special education identification and placement (Coutinho and Oswald, 1998b; Coutinho & Oswald, 2000; Hehir, 2002; Losen & Orfield, 2002b; Losen & Welner, 2002). Therefore, this places the responsibility of monitoring and intervening in cases where disproportionality is evident on state and local education agencies or these agencies run the risk of losing federal funds under the IDEA (Artiles, 2003; Hehir, 2002; Oswald, Coutinho, Best, & Singh, 1999).

United States Department of Education

Empirical investigations, litigation, and legislation efforts have influenced and helped shape education reform aimed at reducing disproportionality. Two federal

agencies within the United States Department of Education that have contributed significantly in advocating for educational reform in this area are the Office of Special Education Programs (OSEP) and the Office for Civil Rights (OCR) (Burnette, 1998; Donovan & Cross, 2002; Markowitz, Garcia, & Eichelberger, 1997).

Both agencies have designated disproportionality as a programmatic priority (Burnette, 1998). In addition to collecting and reporting data on the enrollment of students in special education programs to the U.S. Congress (Donovan & Cross, 2002; Losen & Orfield, 2002b), OSEP and OCR disseminate resource materials to help state and local educational agencies address and reduce disproportionality (Burnette, 1998; Markowitz, Garcia, & Eichelberger, 1997). While both agencies conduct similar activities aimed at advancing the field, it is important to note that these agencies are charged with different responsibilities in their pursuit to understand and address disproportionality (Hehir, 2002). The differences in responsibilities as well as data collection and enforcement issues are discussed below.

OSEP. The Office of Special Education Programs (OSEP) is responsible for proper implementation of the Individuals with Disabilities Education Act (IDEA) (Burnette, 1998). Consequently, one of OSEP's primarily responsibilities is to ensure that state departments of education properly enforce the provisions concerning the disproportionality of students from CLD backgrounds in special education delineated in the IDEA Part B (students age 3-21) (Hehir, 2002).

OSEP also funds important research, initiatives, and technical assistance activities designed to provide insight that advance the knowledge and understanding of

issues and strategies that should help reduce disproportionality (Burnette, 1998; Markowitz, Garcia, & Eichelberger, 1997).

OCR. The Office for Civil Rights (OCR) is responsible for monitoring and enforcing anti-discrimination statues that affect the education and rights of students with disabilities—e.g., Title II of the American with Disabilities Act (ADA) and Section 504 of the Rehabilitation Act of 1973 (Oswald, Coutinho, & Best 2002; Oswald, Coutinho, Best, & Nguyen, 2001; Markowitz, Garcia, & Eichelberger, 1997). Accordingly, OCR ensures that state departments of education properly enforce statues that prohibit discrimination of students with disabilities (Markowitz, Garcia, & Eichelberger, 1997).

Over the years, OCR has considered the disproportionate representation of students from CLD backgrounds in special education as potential discrimination and has designated this as a priority enforcement issue (Burnette, 1998; Markowitz, Garcia, & Eichelberger, 1997; Coutinho & Oswald, 2000). Consequently, OCR conducts hundreds of compliance activities related to disproportionality. Specifically, OCR monitors the representation of students from CLD backgrounds in special education programs at both the state and local education level: OCR requires school systems to implement corrective plans when there is evidence of disproportionate representation in special education (Coutinho & Oswald, 2000).

OCR also provides education, training, technical assistance, and guidance on issues related to disproportionality (Markowitz, Garcia, & Eichelberger, 1997). Thus, OCR works with representatives of state and local agencies with data analyses and

interpretations concerning disproportionality patterns as well as to develop and monitor agreements based on compliance activity findings.

Data Collection by OSEP and OCR. In their efforts to monitor and examine disproportionality patterns, OSEP and OCR have collected data over the past few decades. Such data have provided insight regarding disproportionality; however, there are some limitations in both datasets due to the methodology used throughout the data collection (Donovan & Cross, 2002; Harry, 1994). The major limitation in the OSEP's database is that data have not been disaggregated by race/ethnic groups until recently, limiting the interpretability of such data until now (Donovan & Cross, 2002). Federal mandates in amendments to the IDEA (1997), for states to collect and examine disproportionality data by racial/ethnic groups and disability categories, provide newfound hope for insight and understanding,

Since 1968, OCR has also been collecting disproportionality data through bi-annual surveys of school districts (Coutinho & Oswald, 2000). Unlike the OSEP dataset, OCR's data has been disaggregated by race/ethnic categories. Unfortunately, OCR only included three disability categories—mild mental retardation (MMR), learning disabilities (LD), and emotional disturbance (ED)—in their analyses. Other special education disabilities categories have not been included in the bi-annual surveys due to the fact that OCR did not encounter disproportionate representation in other special education categories in their initial analyses (Artiles, Harry, Reschly, & Chinn, 2002).

Enforcement Issues. Historically, the overall enforcement efforts by OSEP and OCR regarding violations related to disproportionate representation in special education programs have been relatively weak (Hehir, 2002). This observation is based on the limited actions that OSEP and OCR have used against school districts that have consistently demonstrated evidence of disproportionality. Although OSEP and OCR have the authority to withhold partial or all federal education funding from a school district failing to address disproportionality, it appears that these agencies are somewhat hesitant in using this type of consequence (Hehir, 2002; Losen & Welner, 2002). Further research is necessary to determine the effectiveness of enforcement by OSEP or OCR.

Examination of Sociodemographic Variables

For nearly four decades educators, parents, researchers, and other interested stakeholders have tried to address the persistent and wide-spread patterns of disproportionality in special education programs (Dunn, 1968; Chinn & Hughes, 1987; Donovan & Cross, 2002; Harry, 1994; Heller, Holtzman, & Messick, 1982; Loosen & Orfield, 2002b); however, despite numerous educational reform efforts, disproportionality remains an unresolved issue. Various researchers (Artiles, Rueda, Salazar, & Higareda, 2002; Coutinho & Oswald, 1998a; Coutinho & Oswald 1998b; Coutinho, Oswald, Best, & Forness, 2002; Hosp & Reschly, 2004; MacMillian & Reschly, 1998; Oswald, Coutinho, Best, & Singh; 1999) suggested a reason for the limited success in addressing disproportionate patterns in special education is the inadequate understanding of what variables cause or influence such patterns. The

literature review revealed that the majority of empirical investigations have analyzed local, state, and national datasets to simply identify general trends of representation patterns at the individual level: trends based on the characteristics of students such as ethnicity, gender or socioeconomic background. Although identification of general trends at the individual level are informative, these types of analyses are insufficient to develop effective responses.

Researchers also need to develop a greater understanding of the influence system level variables such as the percentage of students from an ethnic background, percentage per pupil expenditure, or the student-teacher ratio in a school district have on placement patterns in special education (Coutinho, Oswald, Best, & Forness, 2002). Unfortunately, at this time, there are few studies that have examined variables at the system level. The identification and examination of such variables should help in developing more effective responses.

The initial identification and examination of sociodemographic variables at the system level associated with disproportionality began in the 1980's. Finn (1982) was among the first researchers to call national attention to relationships between special education patterns and sociodemographic variables. His analyses of the OCR survey datasets revealed that Hispanic students were over-identified as needing special education services in states and school districts with a large percentage of Hispanic students. Similar results were detected by Noel and Fuller (1985), who examined national datasets to analyze the influence of state level economic and sociodemographic variables on the identification rate of students from culturally and linguistically diverse

backgrounds in special education. The variables they examined included characteristics of school age population, measure of state educational fiscal resources, total number of students receiving services in special education programs, percentage of students living in poverty, percentage of students from culturally and linguistically diverse backgrounds, and number of student receiving services for learning disabilities. Their findings indicated that overall school districts with greater financial resources identified fewer students as needing special education services. Results also revealed that as the percentage of students from CLD backgrounds increased, the likelihood of identification of these students in programs for learning disabilities increased.

Finn's (1982) and Noel and Fuller's (1985) empirical investigations initiated an interest in identifying and exploring the influence sociodemographic variables at the system level may have on special education placement of student from CLD backgrounds. However, it was not until the mid 1990's that researchers began to consistently conceptualize investigations that thoroughly examined sociodemographic variables as predictors of disproportionality.

One of the first studies that conceptualized sociodemographic variables at the system level as predictors of disproportionality was the work of Serwatka, Deering, and Grant (1995). These authors utilized data from all the school districts from the state of Florida to investigate the influence of 15 sociodemographic variables on the disproportionate representation of African American students in programs for the emotional disturbed. The variables used in this study included size of student population, the size of African American school population, the percentage of African

Americans in different staff positions in the district, and the disproportionate representation of African American students in other special education categories. The data showed the following three relationships: as the percentage of African American student population increased, the overrepresentation of this student population in programs for the emotional disturbed decreased; as the percentage of teachers who are African American increased, the overrepresentation of African American students in the programs decreased; and school districts with an overrepresentation of African American students in programs for learning disabilities had a similar overrepresentation in programs for the emotional disturbed.

Oswald, Coutinho, Best, and Singh (1999) built on the work of Serwatka, Deering, and Grant (1995). Instead of analyzing data at the local and state level, Oswald et al (1999) used the 1992 OCR national dataset to investigate the extent to which sociodemographic variables influence the identification of African American students in programs for emotional disturbance and mental retardation. Results suggested that sociodemographic variables such as median value of housing, median household income, and percentage of adults who did not obtained a high school diploma were significantly related to African American students being identified in both the emotional disturbance and mental retardation categories. However, the authors noted that when these variables were controlled for, ethnicity still significantly influenced the likelihood of being identified as needing services for emotional disturbance and mental retardation.

Oswald, Coutinho, Best, and Nguyen (2001) used information from the 1994 OCR survey dataset to investigate the extent to which sociodemographic variables were

associated with the overrepresentation of students from CLD backgrounds in programs for mental retardation. The sociodemographic variables examined in the study included per pupil expenditure, percentage of students enrolled who are not White, median household income, percentage of children in households below poverty level, percentage of enrolled students identified with limited English proficiency, and percentage of adults who have not obtained a high school diploma. Findings indicate that the mental retardation rate increased for African American and Hispanic students in school districts with a high poverty rate, high percentage of students from CLD background, and high percentage of adults who do not have a high school diploma. Data also revealed that the mental retardation rate decreased in school districts that had higher per pupil expenditures, higher median household income, and higher percentage of students identified with limited English proficiency.

Similar to Oswald et al. (2001), Coutinho, Oswald, Best, and Forness (2002) used information from the 1994 OCR survey dataset to investigate the extent to which sociodemographic variables were associated with the overrepresentation of students from CLD backgrounds in a specific special education category. The special education category of interest in this study was emotional disturbance. The study examined the same sociodemographic variables used in the study by Oswald et al. (2001). Findings indicated that the identification rate for emotional disturbance increased in school districts with higher poverty rate. In addition, the authors noted that the likelihood of being identified as needing services for emotional disturbance increased for African American students in school districts with lower percentage of students from CLD

backgrounds. These authors also found an interesting paradox between individual and system level variables and their influence on special education patterns. They observed that while individual student characteristics such as low economic status was associated with a higher likelihood of being placed in special education, system level variables such as school districts with higher wealth identified more students for special education. This type of paradox highlights the importance of investigating both the individual and system level variables to help determine whether some part of the disproportionate representation attributed to individual characteristics may be explained by differences in systems characteristics (Coutinho, Oswald, Best, & Forness, 2002).

Finally, the work of Hosp and Reschly (2004) support previous research by Oswald et al. (1999), Oswald et al. (2001), and Coutinho et al. (2002). Similar to previous research, they found that sociodemographic variables have an influence on representation patterns in special education. They examined two national datasets: the 1998 OCR survey and the 2000 Common Core of Data and uncovered significant relationships between sociodemographic variables and special education placement. Sociodemographic variables examined included percentage of students in the district identified as having a disability, percentage of students identified as having a limited English proficiency, median housing value, median household income, and percentage of adults who have not obtained a high school diploma. For Asian/Pacific Islanders students they found significant relationships between sociodemographic variables and special education placement in the mental retardation, emotional disturbance, and learning disability categories and for Latino and African American students they found

relationship between sociodemographic variables and placement in the emotional disturbance and learning disability categories.

Based on relationships uncovered through empirical investigations, Coutinho and Oswald (2000) proposed two hypotheses to help explain why such disproportionality might occur. One hypothesis suggests that there may be a bias in the way special education referral, assessment, and eligibility processes measure and interpret ability, achievement, and behavior across groups of students. Their second hypothesis suggests that the underlying distribution of educational disability may vary across ethnic groups and that exposure to certain sociodemographic variables at the system level may result in differential susceptibility to needing special education services. The present study explored the latter hypothesis. That is, certain student populations may be susceptible to being identified as needing special education services as a result of exposure to system level sociodemographic variables.

Complexities Associated with Empirical Investigation Efforts

Before reviewing the purpose and the research questions undertaken in this study it is important to note several trends and issues uncovered during the literature review that have increased the difficulty of interpreting findings of investigation efforts.

Change in Terminology

One notable trend that increased the scope of empirical investigations is the change in terminology from over-representation to disproportionate representation (Donovan & Cross, 2002). This change in terminology increased the focus from only examining over-representation patterns to include the examination of under-

representation patterns. The change in terminology acknowledged that both over- and under-representation patterns of certain student populations in special education programs have the potential to adversely affect lives. Over-representation potentially denies students access to the general education curriculum while under-representation denies them access to needed special education services (Donovan & Cross, 2002). That is, disproportionate representation, either over- or under-representation, leads to inadequate instructional services. The addition of examining under-representation patterns brought to light issues that were previously ignored such as students from CLD backgrounds being underserved in the Other Health Impairment category. Researchers hypothesized that students from CLD backgrounds are underrepresented in the Other Health Impairment category because it is one of the most difficult categories to obtain services that often require legal representation that most families from CLD backgrounds are not able to afford. If researchers do not focus on both over- and under-representation patterns in special education programs, trends as this would go unnoticed.

Shift in Representation Patterns of Special Education Disabilities

Another trend that has impacted empirical investigations has been the shifts in numbers and percentages of students from CLD backgrounds in specific special education categories. Researchers have noted that several states virtually eliminated the disproportionate representation of African Americans and Hispanics in the mental retardation category, while the numbers and percentages of these groups of students dramatically increased in other special education categories (e.g., learning disabilities)

during the same time period (Artiles & Trent, 1994; Coutinho & Oswald, 2000; Donovan & Cross, 2002; Figueroa & Artiles, 1999; Oswald, 1995; Oswald, Coutinho, Best, & Nguyen, 2001; Reschly, 1991). That is, instead of reducing the disproportionate representation of students from CLD background in special education programs, many students were re-identified under a different special education disability category (Donovan & Cross, 2002; Oswald, Coutinho, Best, & Nguyen, 2001).

Researchers hypothesized that these shifts in disproportionality numbers and percentages occurred due to changes in state definitions of disability categories, as well as the tendency to replace the mental retardation label with a less stigmatizing label such as learning disability, developmental delay, or developmental disability (Oswald, 1995; Wright & Cruz, 1983). Another hypothesis is that these shifts occurred because students who may have mental retardation or learning disabilities are now identified as needing speech or bilingual services (Oswald, 1995). The shift toward using less stigmatizing labels masks the disproportionate representation for some groups and subsequently makes it appear as if there is less disproportionality in certain special education programs (Artiles & Trent, 1994; Figueroa & Artiles, 1999).

By examining these shifts it is evident that monitoring numbers and percentages of students in a specific special education category is not the solution (Artiles & Trent, 1994; Coutinho & Oswald, 2000; Donovan & Cross, 2002; Figueroa & Artiles, 1999; Oswald, 1995; Reschly, 1991). Continued examination of disproportionality data and subsequent effects on special education eligibility patterns may enhance our ability to address this complex issue.

Analysis of Disproportionality Data

Disproportionate representation is considered the product of a complex interaction among many variables. Part of this complexity rises from several methodological and conceptual issues that need to be considered when examining disproportionality. Researchers (Artiles & Trent, 1994; Harry, 1994; Markowitz, 1996a) suggest that the following three important issues should be considered in examining disproportional data: (a) methodological limitations in data used to examine the disproportionate problem, (b) lack of standard definitions among states on eligibility criteria used for identification of disability categories, and (c) different operational definitions used among states on the construct of disproportionality.

Methodological Limitations. The first issue, methodological limitations in data, refers to the limitations that are associated with the survey data used to examine the prevalence of disproportionality. Three major concerns were addressed regarding this issue. First, the Office of Civil Rights (OCR) surveys utilized to examine disproportionate representation patterns were not national representative samples (Finn, 1982). A second concern affecting the interpretation of the data was that the methods utilized for each survey varied throughout the years making it difficult to make comparisons (MacMillian & Reschly, 1998). Finally, survey studies have primarily reported national-level data and neglected to include state-level data (Harry, 1994).

Lack of Standard Definitions of Disability Categories. A second major issue affecting the interpretations of the findings is that there are no standard definitions for disability categories among states. This leads to much variance among states regarding

the number of students identified in any given disability category (Finn, 1982; Harry, 1994). For example, a student who meets eligibility criteria for services as a student with a learning disability in Texas may not meet eligibility criteria in Georgia.

Lack of Standard Definitions of Disproportionality. A final issue is that there is no standard definition to indicate what constitutes disproportionality; consequently, states determine disproportionate representation at different levels (Markowitz, 1996b). Research findings varied depending on the definition used to define disproportionate representation (Oswald, Coutinho, Best & Singh, 1999). Therefore, it is important for readers to have an understanding on how each study defines disproportionality because the definition used in a study influences not only the presentation of results but also the general impressions the study conveys.

Rationale for Study

Based on the aforementioned research findings and limitations, researchers have made several recommendations to improve future studies that should help increase our understanding of the sociodemographic variables involved in the disproportionate representation of minority students. This study analyzed data at a state level and focused on two specific populations–students identified with limited English proficiency (LEP) and students identified as economically disadvantaged.

There are several reasons for choosing these two populations. First, demographic trends indicate that the population of students with limited English proficiency (LEP) is rapidly growing and is projected to continue to grow at a faster rate than other populations (Kindler, 2002). Moreover, research suggests that students with

limited English proficiency are overrepresented in special education (Artiles, Rueda, Salazar, and Higareda, 2002; Harry, 1994), which establishes a need to investigate why such practices occur. Second, research suggests that many students identified with LEP and students identified as economically disadvantaged are over-identified as individuals needed special education services (Donovan & Cross, 2002), that also establishes a need to examine these two populations. Finally, researchers (Artiles & Trent, 1994; Harry, 1994) recommended using studies of state level data analysis instead of national data level, establishing the need to examine data at a state level.

Other studies have indicated that it is important to examine the variable of low socioeconomic status. Researchers suggested that poverty, not ethnicity, is the important factor influencing disproportionate representation (MacMillan & Reschly, 1998; Wagner, 1995). This is an important variable to consider because if poverty can explain more than other variables than the focus of research and educational strategies will take a new direction; however, these are early preliminary findings and future studies are needed to determine how much of an influence poverty has on the disproportionality problem.

Purpose of Study

This study departed from the old practice of only documenting the existence of disproportionate patterns associated with individual student characteristics by extending the research of examining sociodemographic variables at the system level that may help predict disproportionate patterns in special education programs. More specifically, the purpose of this study was to examine possible common sociodemographic

characteristics that exist in Texas's public school districts that evidence disproportionate representation for students identified with limited English proficiency (LEP) and students identified as economically disadvantaged. This intent was be accomplished by examining information from a statewide database developed by the Texas Education Agency (TEA) to address disproportionate representation in special education programs. Accordingly, several sociodemographic variables pertaining to students identified with LEP and students identified as economically disadvantaged were examined. Four specific research questions were developed to guide the empirical efforts undertaken in this study:

Research Question One

The first research question was answered using a single Texas Education Agency indicator (referenced as DAS data element no. 3 in the TEA Special Education Data Analysis System). This indicator reflects the representation of students identified with limited English proficiency in special education programs in Texas's public school districts. This research question was as follows:

1. For the 2000–2001 school year, were there bivariate relationships between a school district's DAS data element no. 3 rating level (district-level analysis of potential disproportion of students identified with limited English proficiency served in special education) and each of these corresponding school district characteristics: (a) total school district enrollment; (b) the proportion of Hispanic students in the school district; (c) the proportion of Hispanic students in special education in the school district; (d) the proportion of students identified with

LEP in the school district; (e) the proportion of students identified as economically disadvantaged in the school district; (f) the proportion of students receiving special education services in the school district; and (g) the statewide geographic region in which the school district resides?

Research Question Two

The second research question was answered using a different Texas Education Agency indicator (referenced as DAS data element no. 4 in the TEA Special Education Data Analysis System). This indicator reflects the representation of students identified as economically disadvantaged in special education programs in Texas's public school districts. This research question was as follows:

2. For the 2000–2001 school year, were there bivariate relationships between a school district's DAS data element no. 4 rating level (district-level analysis of potential disproportion of students identified as economically disadvantaged served in special education) and each of these corresponding school district characteristics: (a) total school district enrollment; (b) the proportion of Hispanic students in the school district; (c) the proportion of students identified with LEP in the school district; (d) the proportion of students identified as economically disadvantaged in the school district; (e) the proportion of students receiving special education services in the school district; and (f) the statewide geographic region in which the school district resides?

Research Question Three

Research question three utilized the same TEA indicator explored in research question one. In this case, the statewide relationships from research question one were reexamined for the seven geographic regions of the state. It asks:

3. Were bivariate relationships elaborated in research question one different for each of the seven geographic regions of the state?

Research Question Four

Research question four utilized the same TEA indicator explored in research question two. In this case, the statewide relationships from research question two were reexamined for the seven geographic regions of the state. It asks:

4. Were bivariate relationships elaborated in research question two different for each of the seven geographic regions of the state?

CHAPTER III

METHOD

The research design used to address the specific research questions elaborated in the previous section dealing with the purpose of the study is presented here in four parts dealing with (a) the population of interest, (b) criterion variables, (c) predictor variables, and (d) data analysis procedures.

Population of Interest

The population for this study was all public school districts of the state of Texas. The Texas Education Agency (TEA) maintains two separate data systems that provide all relevant information needed to answer the research questions articulated for this study. These systems are (a) the Special Education Data Analysis System (DAS) and (b) the Public Education Information Management System (PEIMS).

The primary unit of analysis for the study was the individual school district. This unit of analysis will be used to generate all statewide and regional correlations specified in the four research questions.

Criterion Variables

The Special Education Data Analysis System (DAS) is the process used by the Texas Education Agency (TEA) to analyze data elements in school districts' special education programs. There are 12 DAS data elements. This study examined only the following two DAS data elements as criterion variables in correlation analyses:

1. DAS data element no. 3: District-level analysis of potential disproportion of students identified with limited English proficiency (LEP) served in special education

2. DAS data element no. 4: District-level analysis of potential disproportion of students identified as economically disadvantaged served in special education

The DAS process requires school districts to provide information on the special educational services they provide. For instance, the DAS process collects information on the absolute number of students and the percentage of students in special education programs. Based on the information collected, school districts are assigned a "Risk" level from 0 (lowest risk) to 4 (highest risk). Thus, both criterion variables are ordinal level categorical variables. In addition, a Not Rated (NR) level is assigned to school districts that have less than 10 cases in a data element. School districts that were assigned a Not Rated will be excluded from the analysis.

Predictor Variables

This section provides the description of the eight school district demographic characteristics that were used as predictor variables in correlation analyses. The initial predictor variable is the total student enrollment in the school district. Nine ordinal categories were constructed for this predictor variable as defined by the state of Texas based on the total number of students in membership of the school district.

The next six predictor variables were: (a) proportion of Hispanic students, (b) proportion of Hispanic students in special education, (c) proportion of students identified with LEP, (d) proportion of students identified with LEP receiving special

education services, (e) proportion of students identified as economically disadvantaged, and (f) proportion of students receiving special education services. Four ordinal categories were constructed for each of these six predictor variables using statewide empirical distributions. The 25th, 50th, and 75th percentiles were used as predictor markers to form these four empirical categories.

The final predictor variable was the statewide geographic region in which the school district resides. These are the different geographic regions used by the state of Texas for public policy planning.

Data Analysis

In the data analysis plan both criterion variables were operationalized as ordinal scale measures and all predictor variables were operationalized as either nominal or ordinal scale measures. Accordingly, all the data analysis procedures used nonparametric statistical models that describe relationships between and among categorical variables.

In more specific terms, data analysis for research questions one and two used contingency tables to describe bivariate distributions and used two-way chi-square test statistic to detect significant relationships. Data analysis for research question three used geographic region as a control variable for comparing bivariate distributions across seven regions of the state. In this case, logistics regression models were used to detect significant differences in the bivariate relationships between and among these seven regions.

CHAPTER IV

METHOD: DATA DEMOGRAPHICS

Modifications conducted to prepare the original dataset for analyses used in this study are presented in two sections: criterion variables and predictor variables. In addition, a description is provided of the process used for the formation of the seven geographic regions in the study.

Criterion Variables

The original data acquired from the TEA Special Education Data Analysis System (DAS) that was used as criterion variables – DAS element no. 3 and no. 4 – in the study had categories with missing data and categories with districts that did not have enough students in a particular cell that resulted in a category described as "Not Rated". Since using the original dataset would potentially lead to inaccurate results, modifications were necessary. To ensure accuracy, both missing and Not Rated data were excluded from the analyses.

Predictor Variables

The original data obtained from the TEA provided enrollment figures for each of the following variables in each public school district: (a) total number of students; (b) Hispanic student enrollment; (c) Hispanic student receiving special education services; (d) students identified with LEP; (e) students identified with LEP receiving special education services; (f) students identified as economically disadvantaged; and (g) total number of students receiving special education services.

The original data obtained from the TEA were inappropriate for the statistical analyses used in the study; consequently, modifications to the data were necessary to create meaningful predictor variables. Five out of six predictor variables required a two-step modification process before the data was ready for the analyses. The first modification involved the conversion of enrollment figures into percentages. More specifically, the following variables were used to obtain the required percentages: (a) the Hispanic student enrollment variable was divided by total number of students variable; (b) the Hispanic student receiving special education services variable was divided by Hispanic student enrollment variable; (c) the students identified with LEP variable was divided by total number of students variable; (d) the students identified as economically disadvantaged variable was divided by total number of students variable; and (e) the total number of students receiving special education services variable was divided by total number of students variable.

The second modification process involved percentages obtained from the first modification to be recoded into four quartile categories. Using the converted statewide percentage distributions, quartile categories were created. Specifically, the quartile categories are as followed: (a) from 0 to the 25th percentile, (b) from the 26th to the 50th percentile, (c) from the 51st to the 75th, and (d) from the 76th to the 100 percentile.

The final modification involved the total number of students variable, which was the only predictor variable that required a one-step modification process. The process involved the total student enrollment figures to be recoded into the nine enrollment categories used by the state of Texas to categorize size of school districts.

Statewide Geographic Regions

The creation of a category that represents the statewide geographic regions was important to address research questions three and four. The creation of the statewide geographic regions were informed by the divisions of the state into ten economic regions as specified by both the Texas Comptroller of Public Accounts and the need for policy purposes to preserve the 20 Educational Service Centers (ESC), which are also used by the TEA.

The result was a system of seven geographic regions for Texas that allows a researcher to more effectively utilize the obtained dataset used in this study. The seven regions produced by this process are: (a) South TX (ESC 1, 2, 20), (b) West TX (ESC 15, 18, 19), (c) Panhandle (ESC 9, 14, 16, 17), (d) Metroplex (ESC 10, 11), (e) East TX (ESC 5, 6, 7, 8), (f) Gulf Coast ((ESC 3, 4), and (g) Central TX (ESC 12, 13). Figure 4.1 illustrates the Texas Education Agency's 20 Educational Service Centers regions and the seven statewide geographic regions used in this study.

Figure 4.1.
Statewide Geographic Regions
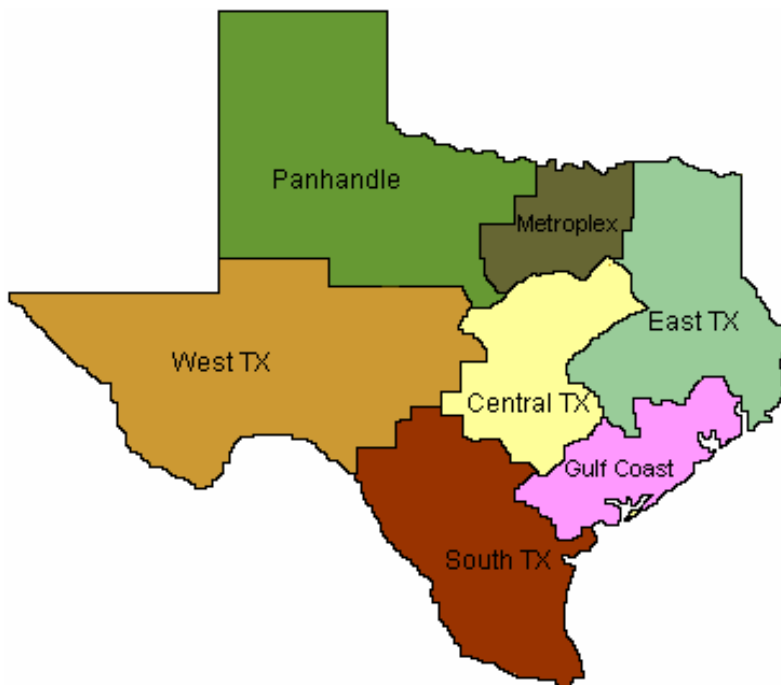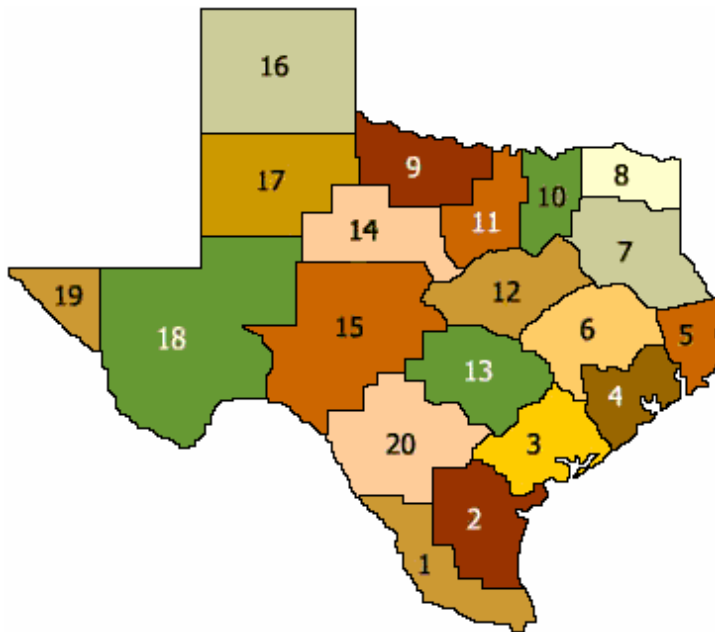
CHAPTER V

RESULTS: RESEARCH QUESTION ONE

This chapter addresses the findings revealed from research question one. There are seven different findings revealed in this question. Accordingly, this chapter is organized into seven sections that address the findings uncovered from research question one.

Research Question One (a): For the 2000 – 2001 school year, is there a bivariate relationship between a school district's DAS data element no. 3 rating level (district-level analysis of potential disproportion of students identified with limited English proficiency served in special education) and total school district enrollment?

A two-way contingency table analysis was conducted to evaluate whether there was a relationship between a district's DAS data element no. 3 rating level and total school district enrollment. The DAS data element no. 3 variable consists of five risk levels (0, 1, 2, 3, and 4) and the enrollment variable consists of nine population categories created by the Texas Education Agency (0 – 499; 500 – 999; 1000 – 1599; 1600 – 2999; 3000 – 4999; 5000 – 9999; 7000 – 24999; 25000 – 49999; and above 50000). A district's DAS data element no. 3 rating level and total school enrollment were found to be significantly related, Pearson χ^2 (32, N = 724) = 75.85, p < .01, Cramer's V < .16.

Further analyses identified a trend in the relationship between a district's DAS data element no. 3 rating level and total school enrollment. In general, school districts

with lower school enrollment have a greater potential to have an overrepresentation of students identified with limited English proficiency in special education programs.

Research Question One (b): For the 2000 – 2001 school year, is there a bivariate relationship between a school district's DAS data element no. 3 rating level (district-level analysis of potential disproportion of students identified with limited English proficiency served in special education) and the proportion of Hispanic students in the school district?

A two-way contingency table analysis was conducted to evaluate whether there was a relationship between a district's DAS data element no. 3 rating level and the proportion of Hispanic students in the school district. The DAS data element no. 3 variable consists of five risk levels (0, 1, 2, 3, and 4) and the proportion of Hispanic students variable consists of four levels (First Quartile, Second Quartile, Third Quartile, and Fourth Quartile). A district's DAS data element no. 3 rating level and the proportion of Hispanic students in the school district were found to be significantly related, Pearson χ^2 (12, N = 724) = 190.58, $\underline{p}$ < .01, Cramer's $\underline{V}$ < .29.

Further analyses identified a trend in the relationship between a district's DAS data element no. 3 rating level and the proportion of Hispanic students. In general, school districts with a larger proportion of Hispanic students have a greater potential to have an overrepresentation of students identified with limited English proficiency in special education programs.

Research Question One (c): For the 2000 – 2001 school year, is there a bivariate relationship between a school district's DAS data element no. 3 rating level

(district-level analysis of potential disproportion of students identified with limited English proficiency served in special education) and the proportion of Hispanic students in special education in the school district?

A two-way contingency table analysis was conducted to evaluate whether there was a relationship between a district's DAS data element no. 3 rating level and the proportion of Hispanic students in special education in the school district. The DAS data element no. 3 variable consists of five risk levels (0, 1, 2, 3, and 4) and the proportion of Hispanic students in special education variable consists of four levels (First Quartile, Second Quartile, Third Quartile, and Fourth Quartile). A district's DAS data element no. 3 rating level and the proportion of Hispanic students in special education in the school district were found to be significantly related, Pearson χ^2 (12, N = 724) = 84.69, $\underline{p}$ < .01, Cramer's $\underline{V}$ < .19.

Further analyses identified a trend in the relationship between a district's DAS data element no. 3 rating level and the proportion of Hispanic students in special education. In general, school districts with a larger proportion of Hispanic students in special education have a greater potential to have an overrepresentation of students identified with limited English proficiency in special education programs.

Research Question One (d): For the 2000 – 2001 school year, is there a bivariate relationship between a school district's DAS data element no. 3 rating level (district-level analysis of potential disproportion of students identified with limited English proficiency served in special education) and the proportion of students identified with limited English proficiency (LEP) in the school district?

A two-way contingency table analysis was conducted to evaluate whether there was a relationship between a district's DAS data element no. 3 rating level and the proportion of students identified with LEP in the school district. The DAS data element no. 3 variable consists of five risk levels (0, 1, 2, 3, and 4) and the proportion of students identified with LEP variable consists of four levels (First Quartile, Second Quartile, Third Quartile, and Fourth Quartile). A district's DAS data element no. 3 rating level and the proportion of students identified with LEP in the school district were found to be significantly related, Pearson χ^2 (12, N = 724) = 129.86, $\underline{p}$ < .01, Cramer's $\underline{V}$ < .24.

Further analyses identified a trend in the relationship between a district's DAS data element no. 3 rating level and the proportion of students identified with LEP. In general, school districts with a larger proportion of students identified with LEP have a greater potential to have an overrepresentation of students identified with limited English proficiency in special education programs.

Research Question One (e): For the 2000 – 2001 school year, is there a bivariate relationship between a school district's DAS data element no. 3 rating level (district-level analysis of potential disproportion of students identified with limited English proficiency served in special education) and the proportion of students identified as economically disadvantaged in the school district?

A two-way contingency table analysis was conducted to evaluate whether there was a relationship between a district's DAS data element no. 3 rating level and the proportion of students from Economically Disadvantaged backgrounds in the school

district. The DAS data element no. 3 variable consists of five risk levels (0, 1, 2, 3, and 4) and the proportion of students from Economically Disadvantaged backgrounds variable consists of four levels (First Quartile, Second Quartile, Third Quartile, and Fourth Quartile). A district's DAS data element no. 3 rating level and the proportion of students identified as economically disadvantaged in the school district were found to be significantly related, Pearson χ^2 (12, N = 724) = 127.63, $\underline{p}$ < .01, Cramer's $\underline{V}$ < .24.

Further analyses identified a trend in the relationship between a district's DAS data element no. 3 rating level and the proportion of students identified as economically disadvantaged. In general, school districts with larger proportion of students identified as economically disadvantaged have a greater potential to have overrepresentation of students identified with limited English proficiency in special education programs.

Research Question One (f): For the 2000 – 2001 school year, is there a bivariate relationship between a school district's DAS data element no. 3 rating level (district-level analysis of potential disproportion of students identified with limited English proficiency served in special education) and the proportion of students receiving special education services in the school district?

A two-way contingency table analysis was conducted to evaluate whether there was a relationship between a district's DAS data element no. 3 rating level and proportion of students receiving special education services in the school district. The DAS data element no. 3 variable consists of five risk levels (0, 1, 2, 3, and 4) and the proportion of students receiving special education services variable consists of four levels (First Quartile, Second Quartile, Third Quartile, and Fourth Quartile). A district's

DAS data element no. 3 rating level and the proportion of students receiving special education services in the district were found to be significantly related, Pearson χ^2 (12, N = 724) = 53.98, $\underline{p}$ < .01, Cramer's $\underline{V}$ < .15.

Further analyses identified a trend in the relationship between a district's DAS data element no. 3 rating level and the proportion of students receiving special education services. In general, school districts with a lower proportion of students receiving special education services have a greater potential to have an overrepresentation of students identified with limited English proficiency in special education programs.

Research Question One (g): For the 2000 – 2001 school year, is there a bivariate relationship between a school district's DAS data element no. 3 rating level (district-level analysis of potential disproportion of students identified with limited English proficiency served in special education) and statewide geographic region in which school district resides?

A two-way contingency table analysis was conducted to evaluate whether there was a relationship between a district's DAS data element no. 3 rating level and statewide geographic region. The DAS data element no. 3 variable consists of five risk levels (0, 1, 2, 3, and 4) and the statewide geographic region variable consists of seven Texas regions (South, West, Pan Handle, Metroplex, East, Gulf Coast, and Central). A district's DAS data element no. 3 rating level and statewide geographic region were found to be significantly related, Pearson χ^2 (24, N = 724) = 270.62, $\underline{p}$ < .01, Cramer's $\underline{V}$ < .30.

Further analyses identified a trend in the relationship between a district's DAS data element no. 3 rating level and the statewide geographic region. In general, school districts in the Southern, Western, and Pan Handle part of Texas have a greater potential to have an overrepresentation of students identified with limited English proficiency in special education programs.

CHAPTER VI

RESULTS: RESEARCH QUESTION TWO

This chapter addresses the findings uncovered from research question two. There are six different findings revealed in this question. Accordingly, this chapter is organized into six sections that address the findings uncovered from research question two.

Research Question Two (a): For the 2000 – 2001 school year, is there a bivariate relationship between a school district's DAS data element no. 4 rating level (district-level analysis of potential disproportion of students identified as economically disadvantaged served in special education) and total school district enrollment?

A two-way contingency table analysis was conducted to evaluate whether there was a relationship between a district's DAS data element no. 4 rating level and total school district enrollment. The DAS data element no. 4 variable consists of five risk levels (0, 1, 2, 3, and 4) and the enrollment variable consists of nine population categories created by the Texas Education Agency (0 – 499; 500 – 999; 1000 – 1599; 1600 – 2999; 3000 – 4999; 5000 – 9999; 7000 – 24999; 25000 – 49999; and above 50000). A district's DAS data element no. 4 rating level and total school enrollment were found to be significantly related, Pearson χ^2 (32, N = 1033) = 141.46, p < .01, Cramer's V < .18.

Further analyses identified a trend in the relationship between a district's DAS data element no. 4 rating level and total school enrollment. In general, school districts

with lower school enrollment have a greater potential to have an overrepresentation of students identified as economically disadvantaged in special education programs.

Research Question Two (b): For the 2000 – 2001 school year, is there a bivariate relationship between a school district's DAS data element no. 4 rating level (district-level analysis of potential disproportion of students identified as economically disadvantaged served in special education) and the proportion of Hispanic students in the school district?

A two-way contingency table analysis was conducted to evaluate whether there was a relationship between a district's DAS data element no. 4 rating level and the proportion of Hispanic students in the school district. The DAS data element no. 4 variable consists of five risk levels (0, 1, 2, 3, and 4) and the proportion of Hispanic students variable consists of four levels (First Quartile, Second Quartile, Third Quartile, and Fourth Quartile). A district's DAS data element no. 4 rating level and the proportion of Hispanic students in the school district were found to be significantly related, Pearson χ^2 (12, N = 1033) = 46.08, $\underline{p}$ < .01, Cramer's $\underline{V}$ < .12.

Further analyses identified a trend in the relationship between a district's DAS data element no. 4 rating level and the proportion of Hispanic students. In general, school districts with a lower proportion of Hispanic students have a greater potential to have an overrepresentation of students identified as economically disadvantaged in special education programs.

Research Question Two (c): For the 2000 – 2001 school year, is there a bivariate relationship between a school district's DAS data element no. 4 rating level

(district-level analysis of potential disproportion of students identified as economically disadvantaged served in special education) and the proportion of students identified with limited English proficiency (LEP) in the school district?

A two-way contingency table analysis was conducted to evaluate whether there was a relationship between a district's DAS data element no. 4 rating level and the proportion of students identified with LEP in the school district. The DAS data element no. 4 variable consists of five risk levels (0, 1, 2, 3, and 4) and the proportion of students identified with LEP variable consists of four levels (First Quartile, Second Quartile, Third Quartile, and Fourth Quartile). A district's DAS data element no. 4 rating level and the proportion of students identified with LEP in the school district were found to be significantly related, Pearson χ^2 (12, N = 1033) = 89.59, $\underline{p} < .01$, Cramer's $\underline{V} < .17$.

Further analyses identified a trend in the relationship between a district's DAS data element no. 4 rating level and the proportion of students identified with LEP. In general, school districts with a lower proportion of students identified with LEP have a greater potential to have an overrepresentation of students identified as economically disadvantaged in special education programs.

Research Question Two (d): For the 2000 – 2001 school year, is there a bivariate relationship between a school district's DAS data element no. 4 rating level (district-level analysis of potential disproportion of students identified as economically disadvantaged served in special education) and the proportion of students identified as economically disadvantaged in the school district?

A two-way contingency table analysis was conducted to evaluate whether there was a relationship between a district's DAS data element no. 4 rating level and the proportion of students identified as economically disadvantaged in the school district. The DAS data element no. 4 variable consists of five risk levels (0, 1, 2, 3, and 4) and the proportion of students identified as economically disadvantaged variable consists of four levels (First Quartile, Second Quartile, Third Quartile, and Fourth Quartile). A district's DAS data element no. 4 rating level and the proportion of students identified as economically disadvantaged in the school district were found to be significantly related, Pearson χ^2 (12, N = 1033) = 82.69, $\underline{p}$ < .01, Cramer's $\underline{V}$ < .16.

Further analyses identified a trend in the relationship between a district's DAS data element no. 4 rating level and the proportion of students identified as economically disadvantaged. In general, school districts with lower proportion of students identified as economically disadvantaged have a greater potential to have overrepresentation of students identified as economically disadvantaged proficiency in special education programs.

Research Question Two (e): For the 2000 – 2001 school year, is there a bivariate relationship between a school district's DAS data element no. 4 rating level (district-level analysis of potential disproportion of students identified as economically disadvantaged served in special education) and the proportion of students receiving special education services in the school district?

A two-way contingency table analysis was conducted to evaluate whether there was a relationship between a district's DAS data element no. 4 rating level and

proportion of students receiving special education services in the school district. The DAS data element no. 4 variable consists of five risk levels (0, 1, 2, 3, and 4) and the proportion of students receiving special education services variable consists of four levels (First Quartile, Second Quartile, Third Quartile, and Fourth Quartile). A district's DAS data element no. 4 rating level and the proportion of students receiving special education services in the district were found to be significantly related, Pearson χ^2 (12, N = 1033) = 47.60, p < .01, Cramer's V < .12.

Further analyses identified a trend in the relationship between a district's DAS data element no. 4 rating level and the proportion of students receiving special education services. In general, school districts with a larger proportion of students receiving special education services have a greater potential to have an overrepresentation of students identified as economically disadvantaged in special education programs.

Research Question Two (f): For the 2000 – 2001 school year, is there a bivariate relationship between a school district's DAS data element no. 4 rating level (district-level analysis of potential disproportion of students identified as economically disadvantaged served in special education) and statewide geographic region in which school district resides?

A two-way contingency table analysis was conducted to evaluate whether there was a relationship between a district's DAS data element no. 4 rating level and statewide geographic region. The DAS data element no. 4 variable consists of five risk levels (0, 1, 2, 3, and 4) and the statewide geographic region variable consists of seven

Texas regions (South, West, Pan Handle, Metroplex, East, Gulf Coast, and Central). A district's DAS data element no. 4 rating level and statewide geographic region were found to be significantly related, Pearson χ^2 (24, N = 1033) = 93.93, $\underline{p}$ < .01, Cramer's $\underline{V}$ < .15.

Further analyses identified a trend in the relationship between a district's DAS data element no. 4 rating level and the statewide geographic region. In general, school districts in the Western, Eastern, and Pan Handle part of Texas have a greater potential to have an overrepresentation of students identified as economically disadvantaged in special education programs.

CHAPTER VII

RESULTS: RESEARCH QUESTIONS THREE AND FOUR

This chapter provides the findings uncovered from research questions three and four. Specifically, the chapter provides information that helps determine if the relationships revealed in research question one and research question two for the state of Texas remain the same when the same sociodemographic variables are examined for seven different geographic regions of the state.

Research Question Three

A logistic regression model was attempted for research question three to determine if the statewide relationships uncover for research question one (i.e., for students identified with LEP) remained the same when the data is reexamined for seven different geographic regions of the state. Unfortunately, the Texas Education Agency's dataset required to analyze research question three had significant amounts of missing data to appropriately examine relationships at the geographic region level. As a result, this study was unable to conduct analyses for research question three.

Research Question Four

A logistic regression analysis was conducted to assess if the bivariate relationships uncovered in research question two remain the same when the data is reexamined for the seven geographic regions of Texas. The Texas Education Agency's indicator used to determine the presence or absence of disproportionality for students identified as economically disadvantaged in special education programs was used as the categorical outcome (see Table 1.2). The following six school districts'

sociodemographic variables were used as predictors: (a) total school district enrollment; (b) the proportion of Hispanic students in the school district; (c) the proportion of students identified with LEP in the school district; (d) the proportion of students identified as economically disadvantaged in the school district; (e) the proportion of students receiving special education services in the school district; and (f) the statewide geographic region in which the school district resides. Analyses were performed using the SPSS Logistic Regression procedures.

After eliminating seven cases with missing data, 1,033 school districts were available for analysis. A test of the full model with all six predictors against a constant-only model was statistically significant, χ^2 (26, N = 1033) = 136.851, $\underline{p}$ < .001, suggesting that the six school districts' sociodemographic predictors, as a set, reliably distinguish disproportionate representation in special education classes for economically disadvantaged students.

Further analyses revealed that a model that examined only the first five sociodemographic enrollment variables was significant, χ^2 (20, N = 1033) = 124.246, $\underline{p}$ < .001. However, the full model that included the geographic region variable was statistically significantly better than the model with only the five sociodemographic enrollment predictors, χ^2 (6, N = 1033) = 12.605, $\underline{p}$ < .05, with a Cox & Snell R Square of .113. These findings suggest that both school district sociodemographic enrollment characteristics and the geographic location of the school district are important in determining the likelihood of special education identification for economically disadvantaged students. However, the latter analysis reveals that the geographic region

variable impacts the relationships uncovered on research question two. More specifically, findings indicate that the geographic region where the school district resides has a significant influence on the likelihood of identifying economically disadvantaged youth in special education.

CHAPTER VIII

SUMMARY AND DISCUSSION

Despite considerable efforts, the disproportionate representation of students from culturally and linguistically diverse backgrounds in special education programs remains an unresolved issue. For nearly four decades, numerous investigators have conducted scientific inquiries employing a variety of operational definitions, population samples, research designs, and statistical analyses. Collectively, empirical investigations have consistently found substantial evidence of widespread patterns of disproportionality in special education programs throughout the nation.

Researchers, educators, policymakers, and other interested stakeholders are working on developing and establishing appropriate policies and practices to help improve the educational experience for all students. Researchers (Artiles, 1998; Coutinho & Oswald, 2000; Oswald, Coutinho, Best, & Nguyen, 2001) suggest that we need more conceptually based, empirically driven research. This proposed research will help in the identification and understanding of key variables that influence the emergence of disproportionate patterns. Empirical research will help in developing and implementing effective policies and practices that can improve the educational outcomes for all students as well as enhance educational equity.

Over the last two decades, two fundamental shifts in research emphasis have advanced our understanding of variables that influence special education identification rates. The first research shift addressed data collection efforts. In the 1980's, empirical investigations moved from simply collecting data that could only be used to monitor

and document disproportionate patterns and started collecting data that could be used to examine relationships between school districts' sociodemographic characteristics and special education identification rates for children from culturally and linguistically diverse backgrounds (Chinn and Hughes, 1987; Finn, 1982). The second research shift dealt with increasing the population samples of interest. In the 1990's, researchers began expanding empirical investigations from only focusing on ethnic representation rates to include the placement patterns of other subgroups (Artiles & Trent 1994; Harry, 1994; Oswald, Coutinho, Best, & Nguyen, 2001). The present study expands on these two research shifts by examining the influence that school districts' sociodemographic characteristics have on the representation patterns of two non-ethnic subgroups served in special education programs—students identified as limited English proficient and students identified as economically disadvantaged.

Discussion

Improving the educational experience of students identified with LEP and students identified as economically disadvantaged depends on numerous factors. Research question one examined the relationships between seven school district sociodemographic variables and the special education identification patterns of students identified with LEP. Research question two examined the relationships between six school district sociodemographic and the special education identification patterns for students identified as economically disadvantaged. The data analyzed in this study support the position that school districts' sociodemographic characteristics are associated with the special education placement rates for both students identified as

limited English proficient and students identified as economically disadvantaged. Moreover, the findings uncovered in research question four suggest that the influence of each sociodemographic variable examined is different in each of Texas' geographic region. That is, different special education representation patterns emerged when state-level data was disaggregated by different geographic regions of the state.

Research Question One

Research question one revealed significant relationships between the Texas Education Agency's indicator of disproportionate representation for students identified with limited English proficiency (LEP) and each of the school districts' sociodemographic characteristic examined. The seven findings uncovered in research question one are described below.

Total School District Enrollment. The examination of research question one suggests a link between student enrollment figures and special education representation patterns for students identified with LEP. School districts with lower student enrollments had an overrepresentation of students identified as LEP in special education programs. Previous investigations have examined the influence of student enrollment figures on the special education representation rate with LEP students (Artiles, Rueda, Salazar, & Higareda, 2002), Hispanic students (Finn, 1982), and African American students (Oswald, Coutinho, Best, & Singh, 1999; Serwatka, Deering, & Grant, 1995). Similar to the current study, previous research suggests that student enrollment figures are related to the representation patterns in special education programs for students from culturally and linguistically diverse backgrounds.

One possible explanation for the finding in the present study is that smaller school districts often have fewer general education programs readily available to appropriately address the linguistic needs of LEP students. In their attempt to provide educational supports for LEP students who experience academic struggles, well-meaning educators may increase referrals for special education evaluations in the hope that special education programs provide the individualized instruction needed for educational success. Although this creativity of finding additional educational supports in special education programs for LEP students may be well-intended, referring students for special education due to linguistic and not educational factors is against federal mandates (IDEA, 1997).

Proportion of Hispanic Students. The examination of research question one supports the connection between school districts with large proportion of Hispanic students and the overrepresentation of students identified with LEP in special education programs. This finding supports the work of Artiles, Rueda, Salazar, and Higareda (2002). These researchers found an overrepresentation patterns for LEP students in school districts with large proportion of Hispanic students. Moreover, these researchers detected intriguing patterns for LEP students. They found that data examined at the district level suggests limited to no overrepresentation patterns of LEP students in special education programs. However, when data are disaggregated by grade level a distinct pattern emerged revealing overrepresentation of LEP students in the secondary grades (i.e., grades 6-12). Future investigations should consider examining data by grade levels to help identify the different types of patterns that could be associated

between school district sociodemographic characteristics and special education identification rate for LEP students.

In addition, the finding that school districts with large proportion of Hispanic students have an overrepresentation of LEP students in special education programs is supported in part by the research efforts conducted by Chinn and Hughes (1987), Finn (1982), and Harry (1994). These researchers found that school districts and states with large Hispanic student populations have overrepresentation of Hispanic students in special education programs. These findings suggest the possibility that students whose first language might not be English may be over identified as needing special education services.

Once again, a possible explanation for this trend is that well-meaning educators may be referring LEP or Hispanic students who are struggling academically to special education evaluations in the hope of finding additional educational supports to help them succeed academically. As previously mentioned, referring students for special education due to linguistic and not educational factors is against federal mandates.

Proportion of Hispanic Students in Special Education. The examination of research question one indicates that school districts with large proportion of Hispanic students in special education programs have overrepresentation patterns of students identified with LEP in such programs. Although no previous empirical investigation has directly examined the relationship between Hispanic students in special education and the overrepresentation of LEP students in special education, previous investigations provide useful information that assist in identifying plausible explanations for this

particular association. Based on the analysis of Kindler (2002), Spanish is the most widely spoken language by students identified with LEP in the state of Texas. More specifically, the analysis indicates that almost 96% of LEP students are Spanish-speaking with only 4% of LEP students speaking any other language. This information suggests the possibility that a large number of the Hispanic students that receive special education services may in fact be the same identical students identified with LEP. If a large percentage of these two categories of students—Hispanics students receiving special education services and students identified with LEP—are the same students, then this overlap would affect the formula used by the Texas Education Agency to determine overrepresentation patterns in special education. Future empirical investigations examining the relationship between these two variables should carefully determine if the number of students that can be identified in both of these two categories affect the disproportionate representation rates in special education.

Proportion of Student Identified with LEP. The examination of research question one suggests that school districts with large proportion of students identified with LEP have an overrepresentation of LEP students in special education. No previous research has explored this specific relationship. However, investigations have examined the relationship between a particular subgroup's student population proportion (e.g., African American students) and the special education identification rate of that particular subgroup. These investigations have revealed contrasting relationships depending on the subgroup examined. For instance, Finn (1982) examined the relationships between the proportion of Hispanic students in a school district and the

representation of Hispanic students in special education programs. He found that school districts with large proportion of Hispanic students have overrepresentation of Hispanic students in special education programs. Serwatka, Deering, and Grant (1995) on the other hand, found the opposite relationship with African American students. That is, school districts with large proportion of African American students had a lesser likelihood of having African American students overrepresented in special education classes.

The results in the current study align with the research conducted by Finn (1982). A probable reason for such alignment is because a large portion of the LEP students in Texas school districts are Hispanic students (Kindler, 2002). Once again, the finding uncovered in this research question suggests the possibility that school districts in Texas are not adequately prepared to provide the necessary educational services for students with limited English proficiencies and use special education services to provide educational supports.

Proportion of Students Identified as Economically Disadvantaged. The examination of research question one reveals that school districts with large proportion of students identified as economically disadvantaged had overrepresentation of LEP students in special education programs. While the literature on the effects of poverty on student achievement is large, no study has directly examined the relationship between poverty and the overrepresentation of LEP students in special education. However, several studies (Oswald, Coutinho, & Best, 2002; Oswald, Coutinho, Best, & Nguyen, 2001; and Oswald, Coutinho, Best, & Singh, 1999) have noted several relationships

between a school district's poverty level and the representation of African American, Native American, and Hispanic students in special education classes. Findings imply that African American and Native American students are overrepresented in mental retardation classes in more affluent school districts. While Hispanic and African American students are overrepresented in classes for emotional disturbance and learning disabilities in school districts with high poverty rates.

One possible explanation for the overrepresentation of LEP students in school districts with large proportion of students identified as economically disadvantaged is that such school district may not have enough resource to provide adequate support for LEP students. The district may not have financial resources to have bilingual classes or enough money to provide financial incentives to attract qualified teachers that can provide the necessary educational support for LEP students.

Proportion of Students Receiving Special Education Services. The examination of research question one reveals that school district with lower proportion of students receiving special education services had a greater likelihood to have students identified with LEP overrepresented in special education programs. No previous research has examined this specific relationship. A possible explanation for this finding could be that school districts with lower proportion of the students in special education programs have resources available to provide additional educational support for LEP students who are struggling academically.

Geographic Region in Which the School District Resides. Finally, the examination of research question one examines the relationship between the Texas

Education Agency's indicator of disproportionality for students identified with LEP and the geographic region of the state in which the school district resides. School districts located in the Southern, Western, and Pan Handle part of Texas had a greater likelihood to have overrepresentation of students identified with LEP in special education programs. Figure 4.1 provides a map of the seven geographic regions used in this study. The figure illustrates that the disproportionality for LEP students in special education programs is not evenly distributed across the state. Therefore, in order to develop effective responses to address disproportionality, policies, procedures, and practices should probably be individualized by region. Policy makers should develop a greater understanding of the sociodemographic characteristics of school districts that influence the overrepresentation of LEP students in special education programs before implementing statewide mandates.

Summary of Research Question One. Collectively, the seven findings uncovered in research question one support the position that school districts' sociodemographic variables have distinct relationships with the special education identification rates for students identified with LEP. Although only a handful of previous investigations have examined the relationships between school districts' sociodemographic variables and the disproportionality of LEP students in special education, similar studies that analyzed data with other culturally and linguistically diverse student populations (e.g., Hispanic and African American students) offer insightful information of why such trends might occur. Further research is needed to

acquire a more comprehensive understanding of the impact of the relationships uncovered in this study.

Research Question Two

The second research question in the present study explored the relationships between the Texas Education Agency's indicator of disproportionate representation in special education for students identified as economically disadvantaged and six distinct school districts' sociodemographic characteristics. Although numerous studies have documented the influence of poverty on special education identification rates at the individual student level (Chinn & Hughes, 1987; Coutinho Oswald, Best, & Forness, 2002; Fuijura & Yamaki, 2000; NRC, 1982; NRC, 2002), limited studies have directly addressed the relationships between poverty and special education identification rates at the school district level. The six findings uncovered in research question two are described below.

Total School District Enrollment. The examination of research question two suggests that school districts with lower student enrollments had a greater likelihood to have students identified as economically disadvantaged overrepresented in special education programs. One possible explanation for this trend is that public school districts with lower student enrollments generally have fewer resources (e.g., funds, programs, personnel) readily available than school districts with larger student enrollments to implement and sustain an array of educational supports. Limited resources may result in smaller districts utilizing special education programs to address nonacademic concerns that impact the academics of students identified as economically

disadvantaged. Another possible explanation is that school districts with smaller student enrollments have a smaller teacher-to-student ratio than school district with larger student enrollments. A smaller teacher-to-student ratio provides school staff with a greater probability of interacting with students and families that helps with identifying students' academic and social needs. This may result once again in educators resorting to special education services to address nonacademic needs.

Proportion of Hispanic Students. The examination of research question two reveals that school districts with lower proportion of Hispanic students had a greater likelihood to have students identified as economically disadvantaged overrepresented in special education programs. At this time, it is unclear why this relationship emerged. Further research is necessary to develop a better understanding for this particular relationship.

Proportion of Students Identified with LEP. The examination of research question two found that school districts with lower proportion of students identified with limited English proficiency had a greater likelihood to have students identified as economically disadvantaged overrepresented in special education programs. Similarly to the previous relationship examined above with Hispanic students, it is unclear why school districts with lower proportion of LEP students had an overrepresentation of economically disadvantaged students in special education programs. Further research is necessary to develop a better understanding for this particular relationship.

Proportion of Students Identified as Economically Disadvantaged. The examination of research question two reveals that school districts with lower proportion

of students identified as economically disadvantaged had a greater likelihood to have students identified as economically disadvantaged overrepresented in special education programs. Various researchers (Coutinho, Oswald, Best, & Forness, 2002; Oswald, Coutinho, Best, & Nguyen, 2001; Zhang & Katsiyannis, 2002) have found similar patterns. These researchers have found that school systems with more wealth identified more economically disadvantaged students in special education programs. Moreover, Oswald, Coutinho, Best, and Singh (1999) suggest that wealthier communities may be more intolerant of learning behavior from students of different cultural and linguistic backgrounds. A possible explanation is that affluent school districts are more likely to have overrepresentation of economically disadvantaged students in special education programs because there is less tolerance of cultural and linguistic differences in behavior and learning patterns. Future studies should continue exploring how the expectations of teachers on the learning and behavior patterns of students from economically disadvantaged backgrounds impact their special education identification rate.

Proportion of Students Receiving Special Education Services. The examination of research question two indicates that school districts with larger proportion of students receiving special education services had a greater likelihood of having students identified as economically disadvantaged overrepresented in special education programs. Although no previous research reviewed has examined this specific relationship, numerous investigations suggest that educators assume that poverty has negative consequence on the academic readiness of students that results in

educational deficits (Artiles, Trent, & Palmer, 2004; Skiba, Poloni-Staudinger, Simmons, Feggins-Azziz, & Chung, 2005). In addition, Chinn and Hughes (1987) note that students of lower socioeconomic status are often expected by school personnel to be academically inferior and to exhibit disruptive behavior. Based on the findings from previous research, a possible explanation for the relationship uncovered in this question is that educators are over identifying economically disadvantaged students in special education programs due to assumptions about the negative affects of poverty and/or low expectations of what these students can accomplish.

Statewide Geographic Region in Which the School District Resides. Finally, the examination of research question two suggests that school districts located in the Western, Eastern, and Pan Handle part of the state had a greater likelihood of having students identified as economically disadvantaged overrepresented in special education programs. Previous research indicates that disproportionate representation patterns in special education are not equally distributed through the nation or even within large geographic regions (NRC, 2002). One possible explanation is that these three geographic regions have many school districts in rural communities (please see Figure 4.1). These rural communities may not have the necessary social services agencies within the communities or school districts to address the needs of economically disadvantaged students and students my be over identified in special education programs to address some of those needs. Further research is needed to develop a better understanding as to why certain geographic regions of Texas have a greater overrepresentation of economically disadvantaged students in special education.

Research Question Three

The third research question developed for this study attempted to determine if the statewide relationships uncover for research question one (i.e., for students identified with LEP) remained the same when the data is reexamined for the seven geographic regions of the state. Unfortunately, the Texas Education Agency's dataset required to analyze research question three had significant amounts of missing data to appropriately examine relationships at the geographic region level. As a result, this study was unable to address research question three.

Federal mandates by the IDEA require that all state education agencies collect and analyze information regarding disproportionality issues in special education. The discovery that the Texas Education Agency's dataset has significant amounts of missing data concerning the representation LEP students in special education programs by geographic region highlights the need to improve the data collection efforts to comply with federal mandates. The Texas Education Agency needs to improve the monitoring systems that assist in tracking the educational experience of students identified with LEP. An improved dataset will allow future researchers to conduct analyses that should help in developing more effective policies, procedures, and practices to address disproportionality issues in the state of Texas.

Research Question Four

Examination of research question four revealed that the relationships uncovered at the state-level in research question two were impacted when the data was reexamined for the seven geographic regions of state. More specifically, the logistic regression

analysis suggests that although individual sociodemographic variables at the state-level were associated with disproportionate representation in special education classes for economically disadvantaged students, the statewide geographic region where the school district resides affected the probability of identifying economically disadvantaged students as needing special education services. This finding suggests that the relationships uncovered at the state-level do not represent actual conditions in individual regions of the state. If educational policies and practices are based only on statewide relationship, they are far less likely to be effective in addressing the disproportionality of economically disadvantaged students in special education.

Limitations

The following limitations of the current investigation should be noted. First, this investigation was conducted with data and the operational definition of disproportionality used by the Texas Education Agency for the 2000 – 2001 academic school year. Data from other state education agencies that utilized different operational definitions may produce different results. In addition, the data analyzed was only from a single academic year. Data from multiple years or even simply from another year may reveal different relationships.

Second, this study examined the overall disproportionate representation of students in all special education categories. The literature review suggests that certain special education categories (MR, LD, and ED) appear to be more prone to disproportionate representation. Therefore, it is important to examine the representation of students identified with limited English proficiency and students identified as

economically disadvantaged by specific disability categories. Grouping all disability categories makes it impossible to determine specific trends for each distinct disability category.

Third, this study only examined a particular set of school districts' sociodemographic variables. Other school districts' sociodemographic variables such as student-teacher ratio, average teacher salary, and expenditure per student should be explored. The examination of these other sociodemographic variables will add considerable value to the current knowledge base.

Finally, this study only used descriptive and regression analysis that do not provide evidence of which, if any, sociodemographic variable caused the observed disproportionate representation of students from culturally and linguistically diverse backgrounds in special education.

Recommendations

Based on the findings the following recommendations are provided in an effort to improve educational policy, practice, and research aimed at reducing disproportionate representation of LEP and economically disadvantaged students in special education programs.

First, the Texas Education Agency and other state education agencies need to carefully monitor and scrutinized data submitted by school districts to determine if current data collection procedures are adequate for creating datasets that can be analyzed to inform educational policies and practices. The datasets examined in this study revealed that there were a significant number of school districts that did not report

information on students identified with LEP. Due to the large number of missing data, this study was unable to conduct the necessary analyses to determine if the relationships uncovered for LEP student at the state level remained the same when the data is reexamined by geographic region. The Texas Education Agency should consider investigating the reason(s) for such missing data and developed procedures for correcting future datasets. Developing adequate datasets will allow future researchers to conduct more thorough and complex analyses on the special education representation of students from culturally and linguistically disadvantaged backgrounds in Texas public schools that should inform the development and implementation of future policy and practices.

Second, data at the state level should be disaggregated to a region or district level to uncover any data patterns that may be masked or that provide an incomplete picture of actual conditions. Disaggregated information is important in creating effective policies and practices to address disproportionality. This study revealed that relationships uncovered at the state level were an inaccurate representation of trends uncovered at a region level. Disaggregating data is especially important in a large state such as Texas where geographic regions are extremely different. Creating educational policies based on data trends uncovered at the state level may lead to ineffective practices in certain geographic regions of the state.

Third, the findings reported here suggest that additional research is necessary to obtain a better understanding of school districts' sociodemographic variables that may influence the likelihood that LEP and economically disadvantaged students will be

overrepresented in special education programs. Future investigations should examine datasets from multiple years from the Texas Education Agency as well as examine data from other state education agencies to help determine the relationships between sociodemographic variables and disproportionality patterns. Future investigations should also examine disproportionality patterns by specific special education categories, in particular the high incident disability such as LD, ED, and MR, instead of examining the overall special education demographics. In addition, future studies should attempt to disaggregating data at different level (i.e., state, region, district, school, etc) to provide more complete picture of actual conditions and avoid masking potential patterns. Furthermore, future studies should continue examining other sociodemographic variables such as student-teacher ratio, average teacher salary, and expenditure per student, demographic information of school personnel, teachers' years of experience, etc, as well as individual student characteristics such as gender, ethnicity, and IQ that may influence the likelihood that a student will be identified as having a special education disability. The disproportionate representation of students from CLD backgrounds is a complex problem in need of more and better research. To better understand and effectively address the disproportionate representation in special education, researchers need to continue to identify and examine both the individual and the systemic characteristics that create and maintain educational inequity.

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