ENGLISH LANGUAGE LEARNER (ELL) ACCOUNTABILITY AND

RESOURCE ALLOCATION: A CRITICAL ANALYSIS OF

ELL EDUCATIONAL OUTCOMES

by

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DEDICATION PAGE

This dissertation is dedicated to my husband, Alvino Valadez Regalado. He is a gift from my Lord Jesus Christ, whose support, enduring patience and love allowed me to express our core beliefs in this academic journey—*through Christ, all things are possible*.

ACKNOWLEDGEMENTS

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ABSTRACT

The allocation of local resources is one indicator of a communities' educational

responsibility and reflective of communities' attitude—although challenged by

overarching statewide accountability priorities. Using an epistemological frame of critical

realism, this quantitative study measured the degree and type of relationship between

resource allocation and ELL achievement, specifically how accountability ratings

mediate the relationship between resource allocations and ELL achievement in Texas

schools.

The social and political contexts and generative mechanisms were explored

through a historical review of Texas ELL educational policy, educational attainment,

financial resources, accountability policy, and assessment requirements. Through a

purposive sample of archival campus-level data reported by the state of Texas Academic

Excellence Indicator System (AEIS), three measures of ELL student outcomes were

selected for this study: Texas Assessment of Academic Skills (TAKS) percent Met

Standard in reading, TAKS percent Met Standard in mathematics, and ELL Graduation

Rates.

Separate analytic models were designed for each of the ELL outcome variables to

measure the direct and indirect relationships between four observed variables serving as

measures of resource allocation: (a) Campus Total Operating Expenditures, (b) Campus

Operating Expenditures for Bilingual Education (BE) or English as a Second Language

(ESL) Instructional Programs, (c) Campus Teacher full-time equivalents (FTEs) that serve students in the BE/ESL Instructional Programs, and (d) District Operating Expenditures for BE/ESL Instructional Programs. Each of the outcome measures were analyzed using path analysis with maximum likelihood estimation of parameter estimates while bootstrapping was employed to estimate the confidence intervals around the indirect effects.

The study results found small effect sizes suggesting that the accountability rating had very little practical effect on the relationship between ELL resource allocation measures and ELL outcomes measured by ELL Met Standard on TAKS Reading and Mathematics, and three of the four relationships between among ELL Graduation Rates. The relationship between Campus Operating Expenditures and ELL Graduation Rate was the only relationship mediated by the accountability rating pattern as indicated by a moderate effect size.

The study was intended to fill the void of much needed future research of ELL resources in relationship to student achievement, and establish the groundwork for future studies. Future quantitative and qualitative studies may explore the quality of ELL educational programs and student achievement measured by long-term quality of life.

CHAPTER I

Introduction

The education of immigrant children in the United States has a long, complex political history compounded by the unique history of English Language Learner (ELL) educational policy in Texas. Based on the procurement of lands from the neighboring nation of Mexico, the origin of the state of Texas outlined in the 1848 Treaty of Guadalupe Hidalgo positioned the state to design the educational policies and control the spoken language (Valencia, 2008). The decades following Texas' statehood illustrate the diminutive view of minority language education that perpetuated throughout the state until the Civil Rights movement of the 1960s. Texas school finance lawsuits in the 1970s were the first in the country to address the issue of educational equity, adequacy, and appropriate local control (Hanushek & Lindseth, 2009). Legal issues concerning school finance and minority language instruction dovetailed in the 1971 case of *United States v. Texas* in which the court found that English language and cultural barriers made the successful integration of Latino students impossible and subsequently ordered forced school district consolidation (United States v. Texas, 1971). The ruling of *United States v. Texas* eventually led to the most extensive desegregation orders in legal history. Unprecedented litigation regarding the Texas school finance system became a model for similar court cases throughout the country that challenged other state systems of school finance. The national standards movement, No Child Left Behind Act (2001), and state legislative accountability requirements offered the impetus for student performance while affecting local resource allocation decisions (Roza, Hill, Sclafani, & Speakman, 2004; Rubenstein, Schwartz, Stiefel, & Amor, 2007). Yet state and national performance

measures indicate an ongoing achievement gap between ELLs and their English-speaking peers (National Assessment of Educational Progress [NEAP], 2009; Texas Education Agency [TEA], 2011e). So pronounced was the disparity of academic achievement that the recent ruling of the Fifth Circuit Court of Appeals in United States vs. State of Texas conceded the dismal performance of ELLs in Texas, yet the Court could not determine whether the State of Texas or individual school districts were potentially liable (United States v. Texas, 2010).

The discrepancy between public educational policy and measured performance outcomes of student achievement is the focus of this study. In particular, the persistently low performance of ELL students indicates a formidable chasm between statewide policy and measured outcomes. For example, education policies in early 1950 allowed the segregation of students with language deficiencies and in some cases required grade retention for students with language barriers (Hernandez v. Texas, 1954). Although these practices were eventually ruled unconstitutional, the educational policies had a profound negative effect on individual student achievement. Such policies contradicted ELL educational success measured by grade promotion and other mechanisms of student achievement. More recently, educational policies and practices in the El Paso Independent School District were found to improve the district's high-stakes tests scores by removing low-performing students from classrooms practices that led to individual student decisions to drop out of high school (Fernandez, 2012). Existing testing and instructional policies are not sufficient to deal with the intense pressure on school district administrators to have student's perform under the federal No Child Left Behind Act. Current Texas ELL educational policies shaped by state and national accountability

requirements are considered by researchers as promoting reductionist curriculum to the detriment of students' cultural and linguistic abilities. Policies that negatively affect measured performance outcomes of ELL student achievement are disparate from the educational goals of these children. The focus of this study is on the extent of the discrepancy formed by Texas ELL educational policies through resources allocated and measures designed specifically for ELL student success (Texas State Historical Association [TSHA], 2013; Valencia, 2008).

Statement of the Problem

National immigration trends indicate the number of ELL students in the United States is increasing; therefore, there is a need to study the impact of educational practices on student outcomes for ELL students (Center for Research on Education, Diversity & Excellence [CREDE], 2003). State and local revenue reductions in the mid-2000s led school districts to file legal challenges against the Texas school finance system. Within the context of limited educational resources and a growing number of Texas ELLs, educational program funds devoted to ELL achievement in Texas are a specific challenge, resulting in a need for educational research on the effectiveness of Texas public school educational delivery. Under the current school finance system in Texas, school districts receive funding, in part, based on the number of ELLs the district serves. The growing fiscal crisis experienced in Texas and nationally after 2008 led to state and local revenue reductions (Barrera, 2012; Verstegen, 2011). Local school districts were left to decide whether to use funds for ELLs that have already entered into the accountability system, as opposed to students that would not be included for a number of

3

years (TEA, 2011c; Texas Education Code [TEC], 2011). Because ELL students were exempt from TAKS statewide testing in their earliest years in US Schools, students were transitioned into the accountability system after their third year of TAKS exemption (Section §101.1003 English Language Proficiency Assessments, Texas Administrative Code, 2011). The purpose of this study is to determine the degree and type of relationship between local resource allocations and ELL achievement, specifically how state accountability ratings mediate the relationship between resource allocations and ELL achievement.

For the remainder of this study, recent immigrant students identified by the educational systems as "limited English proficient" students are referred to as English language learners. "Limited English proficient" (LEP) is used in most all of Texas legislative references and state policy documents, specifically in the collection of school district student data. The term "LEP" is no longer widely used by education practitioners. "English language learner" has replaced LEP in most state administrative assessment and accountability documents.

Theoretical Framework

The epistemological frame for this study is critical realism. Critical realism is commonly associated with the work of Roy Bhaskar, although other academicians also help fully explain the epistemology. The origins of critical realism can be found in the Marxist and Kantian views that the social world can be understood by laws of human behavior (Collier, 1994, 1998). The basic tenet of critical realism theory is the assumption that reality exists independently of human observers; that is, all events,

experiences, and understandings arise out of some conditions and influences (Bhaskar, 2008). The epistemology is critical because any attempts to explain the social world are considered fallible and open to critique (Scott, 2005). Furthermore, each alternative description is also subject to internal critique since it is formed from context-bound descriptions that are made about the world. These descriptions may also be redundant since they have the capacity to influence and change the same social world they describe (Scott, 2005). For this reason, critical realism acknowledges that the descriptions that are made about the world are fallible and always one step behind the evolving and emergent nature of the social world (Ayers, 2011; Scott, 2005).

Bhaskar distinguished three distinct levels of being within our social world: the empirical, the actual, and the real (Bhaskar, 2008; Collier, 1998; Engelskirchen, 1997). He asserts that neither the empirical nor the actual succeed in clearly expressing the underlying natural mechanism at work. Scott (2005), on the other hand, posits that an appropriate description, or model, of a social construct can be created that includes current or past descriptions which are known to be flawed and that lead to alternative descriptions, each of which is also subject to internal critique.

As a description of this concept, consider a straight straw in glass of water viewed through the glass by an observer. The empirical observation is that the straw is bent; but in actuality, the straw is straight. The real cause or "generative mechanism" is the scientific explanation of wave propagation through different media (the glass). In this simple example, neither the experience of viewing the bent straw nor the actuality of the straight straws clearly expresses the underlying natural mechanism at work: the wave

propagation (Bhaskar 2008; Engelskirchen, 1997). The observation of the bent straw and reality of the straight straw are the both fallible (Scott, 2005). Taken further, a model or structural representation of the glass and straw may be created that describes the phenomenon. The model must be subject to internal critique since the description may influence the way the glass and straw are structured (such as the use of a different glass in future observations). The model must consider each alternative representation as a way to account for the redundant descriptions of the event. Scott's (2005) view as a critical realist considers any method of structural representation of the social world as a function of the political, social and ethical arrangements that create the social condition that surround it.

The education of English language learners in this study is viewed through the theoretical lens of critical realism. The social context is the current environment of ELL students in the Texas education system. The political mechanism in this context is explained by the historical development of the current ELL educational policy and resulting allocation of financial resources dedicated to ELL success. The state of Texas accountability requirements form the generative social and political mechanisms measured within this context. Specifically, the focus on annual statewide assessment results and other quantitative measures illustrate the generative mechanisms that have evolved—mechanisms that are far from the real measure of ELL educational success.

For example, the 2011 state accountability indicators include TAKS reading, mathematics, science, and social studies performance; an ELL progress indicator based on TELPAS and TAKS performance; TAKS commended performance on all subjects

combined; longitudinal graduation/completion rates; and annual dropout rates (TEA, 2011c). The ratings evaluations produced the following outcomes: *Exemplary, Recognized, Academically Acceptable, Academically Unacceptable,* and *Not Rated*. The accountability ratings provide the public with information on the performance of schools, therefore schools that attain an exemplary or recognized accountability rating are assumed to have successful levels of student achievement for all students (TEA, 2011c). This study deconstructs the accountability rating measures by using specific indicators of student success. Two of the four academic subjects tested, TAKS reading and TAKS mathematics for ELL students is used in this study. The graduate component of the longitudinal completion rates is used as a measure of ELL student success. This deconstruction of the accountability rating indicators provides a view of the actual measures of ELL student success.

The premise of the study design also includes the assumption that there is a relationship between school resources and student achievement. Research on the appropriate funding levels for desired student academic outcomes have been met by criticism and are considered by some scholars as misleading. Critics point out numerous confounding elements that influence student achievement along with available resources (Cardenas, 1997; Hanushek & Lindseth, 2009; Imazeki & Reschovsky, 2006). Despite the criticisms, there are a growing number of studies focused on measuring adequate resources for student achievement, although not many focused the cost of educating English language learners (Jiménez-Castellanos & Rodríguez, 2009; Jiménez-Castellanos & Topper, 2012; Rubenstein, Schwartz, Stiefel, & Amor, 2007; Schwartz & Stiefel, 2004). The assumption of a relationship between school resources and student

achievement may the greatest limitation of this study. However, the findings of this study will inform scholars of the potential to measure resource allocation decisions and student academic performance outcomes quantitatively with specific focus on ELLs.

The study draws its central theoretical aim from an example of three distinct levels of being: the empirical, the actual, and the real.

- The empirical: *measurable relationship between resources allocation and measured educational achievement*;
- The actual: *deconstruction of ELL educational achievement*;
- The real: *impact of actual operating expenditures on ELL educational outcomes*.

The epistemological frame of critical realism provides the basis for identifying measurable relationships between resources allocation and ELL academic achievement. With the critical realist lens, this research will construct a model of the relationships between the accountability outcomes of school campuses in order to reveal the underlying mechanism that affect educational resources for ELL students. Critical realism is the preferred epistemological approach because it allows the construction of alternative models that include the social and political relationships. Through the critical realist lens, the researcher may view a broad perspective of available community, economic, and state distributed resources as descriptors of the social condition of ELL students. The model presented in this study focuses on local resource allocation decisions measured through actual expenditures and ELL student performance, as mitigated by the state assigned accountability outcomes.

Purpose and Significance of the Study

The purpose of this study is to investigate district level and school level resource allocation for the academic support of ELLs. Specifically, the aim of this study is to determine the extent to which the Texas public accountability measures influence resource allocation decisions of local school districts based on district-wide and school level expenditures and the performance outcomes of ELL students. The study will focus on representative sample of the statewide number and characteristics of districts and campuses serving ELL students for the school year 2010-11. Data reported by the Texas Education Agency (TEA) through the Academic Excellence Indicator System (AEIS) for the school years 2010-11 and 2011-12 are used for this study. The findings of this study will inform researchers of possibilities for informed policy decisions that lead to educational success for ELL students.

The results of this project will contribute to the study of ELL academic outcomes in relation to local resource allocation. The findings of this study will inform policy makers of the effect of accountability requirements on local resource allocation decisions and clarify true performance measures of ELL academic success. The examination of the generative social and political mechanisms and subsequent policy discrepancies may offer a framework for critical analysis of existing educational systems that contribute to educational scholarship. Finally, this study may offer additional empirical evidence of Texas school district resources and performance outcomes of ELLs. In addition, the study offers a quantitative document of the inner-relationships between school resources and accountability outcomes.

Research Questions

The research questions for this study are based on the critical realism view of the issue. For example: what is the *real* measurement of ELL student success, or, are ELL students achieving successful educational outcomes measured by state tests and graduation rates, regardless of resource allocation decisions?

The following general research questions provide the basis of this study:

1.   *Does the Money Matter?* To what degree does resource allocation explain and/or predict the outcome of ELL educational achievement, specifically of:

     i. ELL Met Standard on TAKS reading,

     ii. ELL Met Standard on TAKS mathematics,

     iii. ELL Graduation Rate?

2.   *Does accountability rating matter?* Does the accountability rating mediate the effects of resource allocation on ELL educational outcomes, specifically on:

     i. ELL Met Standard on TAKS reading,

     ii. ELL Met Standard on TAKS mathematics,

     iii. ELL Graduation Rate?

The associated general hypotheses for each of the research questions are:

1. *Money Matters*: There is a statistically significant total effect of resource allocations measures on ELL educational outcomes, specifically on:

    i. ELL Met Standard on TAKS reading,

    ii. ELL Met Standard on TAKS mathematics,

    iii. ELL Graduation Rate.

2. *Accountability Ratings Matter*: Accountability rating significantly mediates the effects of resource allocations on ELL educational outcomes, specifically on:

    i. ELL Met Standard on TAKS reading,

    ii. ELL Met Standard on TAKS mathematics,

    iii. ELL Graduation Rate.

Study Design

The goal of this study was to determine the degree and type of relationship between local resource allocation and ELL achievement, specifically how state accountability ratings mediate the relationship between resource allocation and ELL achievement. Relationships among educational outcomes, accountability measures, and resource allocation will be explored at the school (or campus) level, with additional analysis among school districts. In addition, the mediating influence of accountability measures on district actual operating expenditures were be investigated.

Through the lens of critical realism, this study attempts to clarify the view of the generative social and political mechanisms that explain the relationship between

resources allocation and educational achievement. The political mechanisms surrounding ELL education are drawn from the competing forces between state academic and accountability requirements versus shrinking financial resources from state and local resources. The actual social and political contexts form the generative, or *real*, mechanism that surround the research questions.

A critical realist perspective explains the variables chosen for this study. The generative social and political mechanisms measured in the current environment of ELL students is described through an explanation of the Texas Accountability requirements focused on annual statewide assessment results and other quantitative measures. A policy and literature review is essential for understanding ELL academic instruction and the information or data available for this study. A review of the current state of ELL students in Texas provides a comprehensive overview of Texas data used to measure ELL student educational outcomes. Through the attempt to deconstruct the accountability ratings and use specific indicators of ELL achievement, the real measures of success are revealed, despite their exclusion from accountability evaluations.

Figure 1 below provides an illustration of the conceptual model design of this study.
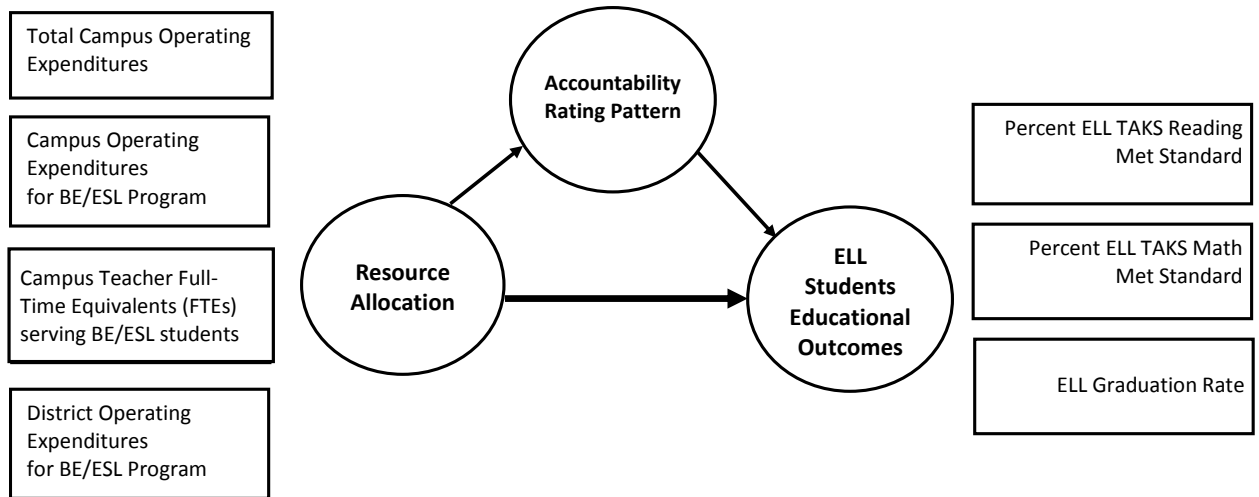
Figure 1

Conceptual Model for English Language Learner (ELL) Accountability and Resource Allocation

Conceptual research design model for the proposed dissertation study.

The study will evaluate schools throughout the state of Texas and the relationship between school resource allocations and school level ELL educational outcomes. The measures of resource allocations, independent variables, may explain or predict the dependent variable, ELL educational outcomes. The direct relationship between the two is illustrated by the thick arrow in the center of the diagram connecting the circle representing resource allocation on the left side of the diagram, and the circle representing ELL educational outcomes on the right. Resource allocations include observed measures of (a) Campus Total Operating Expenditures, (b) Campus Operating Expenditures for Bilingual Education (BE) or English as a Second Language (ESL)

Instructional Programs, (c) Campus Teachers full-time equivalents (FTEs) serving

students in the BE/ESL Instructional Programs, and (d) District Operating Expenditures

for BE/ESL Instructional Programs. ELL educational outcomes are the observed

measures of campus level: (a) Percent of ELLs taking TAKS Reading tests that Met

Standard, (b) Percent of ELL Met Standard TAKS Mathematics, and (c) Class of 2011

Four Year Graduation Rate for ELLs.

The state accountability rating results were rescaled and categorized as one of

three values based on the school's rating pattern over the three year period: *high*

performing, *adequate* performance, or *low* performing. A "high performing" rating

pattern is assigned if a school's rating of *Exemplary* or *Recognized* is maintained for the

most recent two years of the three year period of 2009, 2010, and 2011. The category of

"low performance" was assigned if a school's rating in any year of the three-year period

is *Academically Unacceptable*. When a school's state rating is *Academically Acceptable*

during any one of the three years there is no pattern assigned for "high" or "low"

performance, the category "adequate performance" was assigned. All possible rating

patterns are described in Appendix A.

The first research question investigates the degree and type of direct relationship

between resource allocations and school level ELL student achievement. The second

question measures whether state accountability ratings mediate the relationship between

resource allocations and ELL educational outcomes. This is illustrated on Figure 1 by the

thin arrow pointing away from resource allocation toward the circle representing the

accountability rating pattern, and a second thin arrow pointed from the accountability

rating pattern circle in the direction of ELL educational outcomes. Three models are used to organize the research questions, each associated with one of the dependent variables of ELL educational outcomes. All three models are illustrated below.
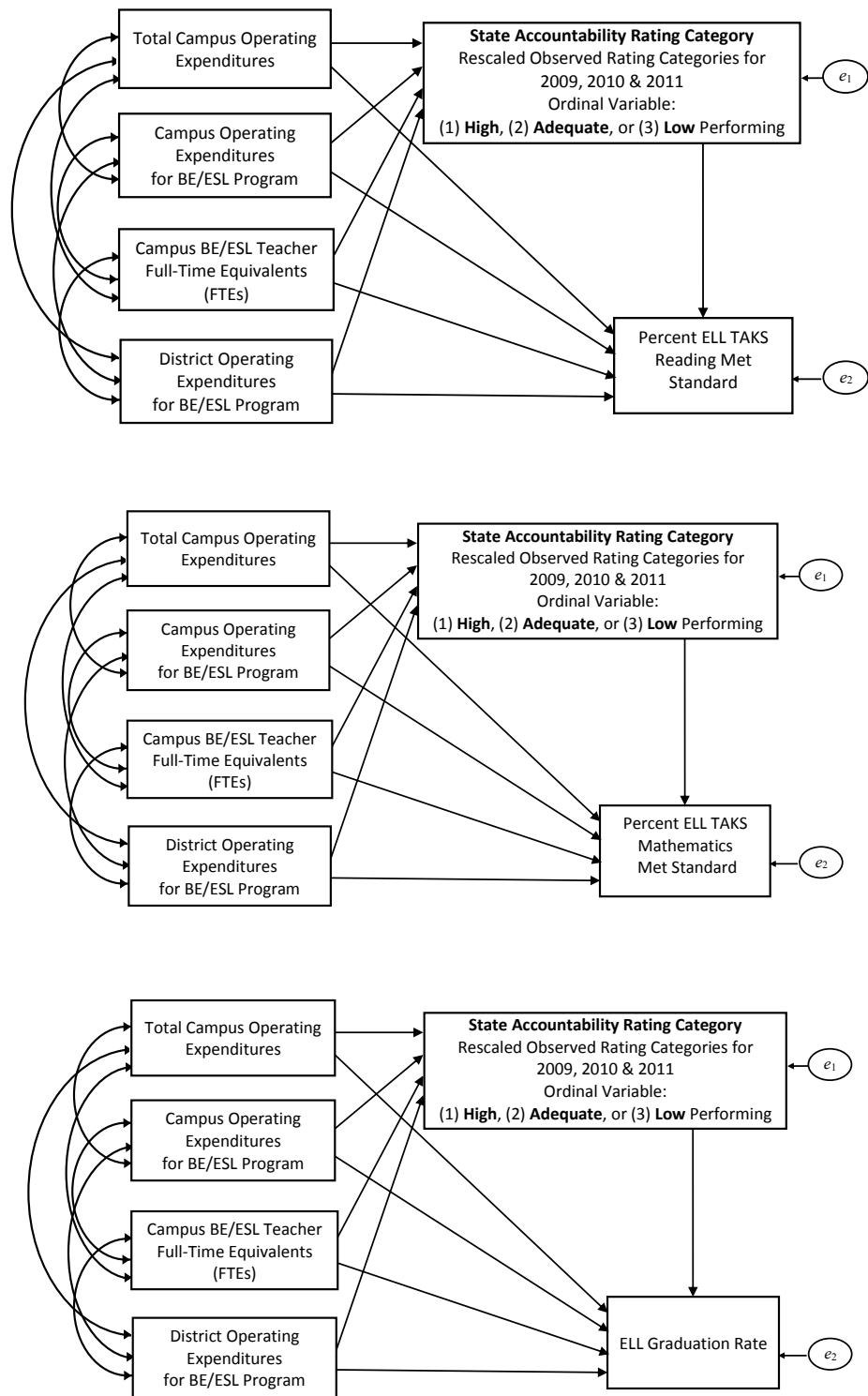
Figure 2

Three Research Models of English Language Learners (ELL)Educational Outcomes

Research design models for each dependent variable of ELL educational outcome.

Sample. The data for this study consisted of a representative sample of the statewide number and characteristics school district and campuses serving ELL students for the school year 2010-11. AEIS provided a wide range of information on the performance of students in each school and district in Texas every year. The major categories of data collected were: organization data; budgeted financial data; actual financial data; staff data; student demographic and program participation data; student attendance and course completion data; retention and "school leaver" information (graduates, dropouts, etc.) The extensive amount of school data collected through the Texas Public Education Information Management System (PEIMS) make up the data reported on AEIS. PEIMS is the annual state collection of a broad range of information on Texas schools, districts, and students. Additionally, the state testing contractor provides the agency with scores on standardized tests administered statewide. Other state agencies provide information such as tax rates and property values.

Instrumentation and Measures. This study used Texas public school data available from AEIS, Texas Assessment of Knowledge and Skills (TAKS) results and PEIMS data reported by school districts. TAKS was a comprehensive testing program for public school students in grades 3–11. Developed and scored by Pearson Educational Measurement with close supervision by TEA, the TAKS tests battery measures the extent to which a student has learned and is able to apply the defined knowledge and skills at each grade level tested.

Method. A mediated path analysis within a structural equation modeling framework (SEM) will be used to evaluate the research questions of this study. SEM is a

general statistical frameword that allows the examination of a set of independent variables on one or more dependent variables. The relationships described in the model illustration on Figure 2 were measured by using SEM for the examination of a set of independent variables on one or more dependent variables.

Definition of Terms

1. English Language Learner (ELLs): Public school students identified with limited English proficiency. In Texas, students are identified as ELLs by the Language Proficiency Assessment Committee (LPAC) according to criteria established in the Texas Administrative Code and are offered an opportunity to receive additional bilingual or English as a second language instruction (TEA, 2011a).

2. Graduation Rate: The Four-Year Longitudinal Graduation Rate is the percentage of students from a class of beginning ninth graders who, by the fall following their anticipated graduation date, graduate. The students in this cohort first attended ninth grade in 2007-08. Students are followed through their expected graduation with the class of 2011. The graduation rate is the percent who received their high school diploma on time or earlier — by August 31, 2011. Graduation rate is calculated as the number of students from the cohort who received a high school diploma by August 31, 2011, divided by the number of students in the 2007-08 cohort (TEA, 2011a).

3. Policy: The development of laws and regulations by federal, state, or local governmental bodies from the point of passage of a federal act, legislative statute, or local ordinance to implementation by the governing agency.

4. TAKS (Texas Assessment of Knowledge and Skills): The Texas Assessment of Knowledge and Skills (TAKS) is a comprehensive testing program for public school students in grades 3–11. The TAKS was designed to measure to what extent a student has learned, understood, and is able to apply the concepts and skills expected at each tested grade level. The TAKS Met 2011 Standard reported as the Sum of All Grades Tested is the sum of TAKS results (by subject) across grades. The mathematics subject area TAKS Met 2011 Standard Sum of All Grades Tested was used for this study (TEA, 2011a).

5. Total Operating Expenditures (2010-11): Actual total operating expenditures are reported by school districts through the annual PEIMS data collection. PEIMS collects actual financial data for the prior school year. Districts must report prior fiscal year revenues, expenditures, and account balances as audited by a Certified Public Accountant (CPA) including any audit corrections (TEA, 2011a).

6. Total Operating Expenditures by Program (2010-11): Districts report Program Intent Codes for actual financial information to identify the cost of instruction and other services that are directed toward a particular need of a specific set of students. The intent (the student group toward which the instructional or other service is directed) determines the program category, not the demographic makeup of the students served. Program code categories are determined for total actual operating expenditures and include a category for a significant portion of expenditures that have no program area designated and are reported as "99" meaning "undistributed." The following program code categories are reported on Texas AEIS district and campus level reports:

a) Regular Education,

b) Special Education,

c) Accelerated Education,

d) Career & Technical Education,

e) Bilingual or English as a Second Language (ESL), and

f) Gifted & Talented Education (TEA, 2011a).

7. Total Operating Expenditures for Bilingual (BE) or English as a Second Language (ESL) instructional program area: This is the cost of evaluating, placing and providing educational and/or other services to English language learners, with the goal of making them proficient in the English language, in primary language literacy, and in composition and academic language related to required courses. Actual financial data collected through PEIMS with a reported Program Intent Code of "25" are included in this category (TEA, 2011a).

Organization of the Study

Chapter Two provides the chronological literature and policy reviews of public school finance and school accountability that form the basis for the research questions addressed by this study. Chapter Three provides a description of the methodology used for this study, research questions, and associated hypotheses. Chapter Four summarizes the analysis of data accessed from the Texas AEIS as described in the methodology. Chapter Five provides conclusions based on the data presented in Chapter Four. Chapter Five also describes recommendations for future research.

CHAPTER II

Policy and Literature Review

The education of immigrant children in the United States has a long complex political history. More than any national political issues, prevailing citizen's attitudes toward outsiders have directly shaped immigration policy in the United States. The political relationships of world nations have a direct relation to the influx of immigrants to the United States. World wars also impact United States' citizen attitudes toward immigrant groups, such as attitudes toward German Americans following World War I, and Japanese Americans following World War II. The rise of American patriotism during world conflicts led citizens to turn to the public education system to promote the assimilation of foreign born. Fluctuating attitudes toward immigrants in the U.S. was evident by the first congressional passage of the 1906 Naturalization Act requiring all immigrants entering the U.S. to speak English. One hundred years later, a resolution to the modern day national immigration issues continue to elude our leaders as immigration policy yet to be formulated.

The complexity of national issues of immigration and education is salient in Texas, a state that was once part of Mexico and that continues to have a sizeable Spanish speaking population. The origin of the state of Texas centered on the procurement of property in a neighboring nation and eventual control of the spoken language of the land. Although the Mexican nation explicitly contracted immigrant *empresarios* to establish schools in the Spanish language, immigrant settlers rebelled and established the Republic of Texas through the 1848 Treaty of Guadalupe Hidalgo, which positioned the state to

design the educational policies and control the spoken language (Blanton, 2004;

Valencia, 2008). The decades following Texas' statehood demonstrated this same attitude

toward minority language education, perpetuating through the next one hundred years.

Legal avenues were sought by the early 1900s to address minority and language

segregation continuing through the Civil Rights era. Illustrating the overlay of citizen

attitudes towards immigrants in Texas, school districts that serve large numbers of

minority students found themselves with very few economic resources or property

wealth. Eventually, two roads toward justice for language minority students emerged as

civil rights lawsuits addressed their educational opportunity, while school finance

lawsuits addressed financial resources available for their education. By the early 1970s,

the legal issues concerning school finance and minority language instruction dovetailed

in the case of *United States v. Texas*. The court found that English language and cultural

barriers made the successful integration of Latino students impossible and subsequently

ordered the forced consolidation of the predominantly white students of the affluent Del

Rio district and overwhelmingly Latino students of the property poor San Felipe district

to attend the same schools. Additional school district lawsuits were filed with the *United

States v. Texas* lawsuit, causing the court decision from the case to become the most

extensive desegregation orders in legal history. Despite honorable efforts to address the

disparities in education and resources for minority language students, the political

mainstay of the state remains intact particularly in the Texas school finance system and

evident in the educational attainment of minority students with limited English

proficiency (United States v. State of Texas, 1981; Walsh, Kemerer, & Maniotis, 2005).

Following the decades of legal arguments on minority student and school finance

issues, mainstream citizen groups and school districts began to issue complaints against

the educational resources provided by the State of Texas. By 2009, six simultaneous

lawsuits were filed against the state. These legal arguments explained the evolution of

educational issues focused on school resources and the priority of resources allocated for

language minority students. In parallel to the legal developments in Texas, the national

standards and accountability movement propelled Texas to the forefront in the late 1990s.

By 2001, the No Child Left Behind Act (NCLB) required all states to produce similar

accountability measures. Ironically, the Texas system and federal requirements differ

greatly in the inclusion of annual assessments of ELLs, despite the predominant role of

Texas in the shaping the national accountability requirements. Even with the decades of

educational challenges, the current dismal performance results of Texas ELLs remains

evident in statewide academic reports and is documented in the 2010 court ruling of the

Fifth Circuit Court of Appeals' decision in *United States vs. State of Texas* (1971).

Coupled with a complex historical backdrop, current national trends on the

number of ELL students in the U.S. support the need for educational research to inform

educators about the impact that educational processes have on student outcomes,

particularly ELLs (CREDE, 2003). Research on the efficiencies of public school

educational delivery are of paramount interest given constricting public and private

financial resources for education over the last decade. For these reasons, the focus of this

study is school level resource allocation for the academic support of the successful

educational achievements of ELLs. The need to measure school resource and resource

allocation calls for a quantitative study that challenges previous notions of efficiencies

and student performance. This study uses a methodological frame based on critical realism in order to consider the structural representations of problem of ELL performance within the social context. Critical realisms allows for alternative models of the social context constructed from the historical view of Texas education as a function of the political colonialist view, the progressive social remedies, and the overarching ethical arrangements that create the condition of educational attainment of ELLs.

History of Texas Public Education Language Policy and School Finance

The origins of education in Texas date back to period of the state under Spanish rule in the late 1600s. Spanish missionaries taught Christianity and the Spanish language to the native Americans, mainly intended to educate and control the inhabitants of the new land (Holleman, 1973; TSHA, 2013; Thomas & Walker, 1982). By 1824, Texas was under Mexican rule when the Constitution of the Republic of Mexico outlined provision of public education, yet delegated to individual states. Although the state Constitution of Coahuila and Texas outlined the establishment of public elementary schools, there was no plan to provide free instruction for pupils whose parents were unable to pay tuition. The constitution also outlined the official language in schools taught as the Castilian (Spanish) language, as did early Mexican contractual agreements with immigrant *empresarios* from the U.S., so school instruction was conducted in the Castilian (Spanish) language (Blanton, 2004). A public free Primary School was established for a brief period from 1828 through 1834 in the predominately Mexican community of Bexar, currently San Antonio, Texas. The school was supported by private payments and municipal subsidies from lands given to the town when under Mexican rule (Holleman,

1973). By 1836, the Constitution of the Republic of Texas called for a system of public education from primary grades to the university level that was delegated to the counties for implementation. Land was granted to each county for schools or to sell and generate revenue for support of schools, and bilingualism was introduced since instruction was to be taught in the English and Castilian languages (Blanton, 2004). The public school plan failed for two reasons: land prices were so low the land had little monetary value, and citizens were not concerned with providing publicly-funded education (TSHA, 2013). Public indifference to the creation of free, public schools was evidenced by the fact that by 1855 thirty-eight counties made no effort to use the school land grants. By the mid-1800s, a national population shift from the northern states to Texas generated increased public concern for providing a free public education. In addition, the state established English as the new official language of public school instruction (Blanton, 2004).

The 1845 annexation of Texas to the United States also prompted two important events that frame the perspective of governing policies in the state. The Republic of Texas was annexed by the United States prior to any boundary agreement with Mexico (Holleman, 1973; TSHA, 2013). After the uprising of Texans in Mexico, U.S. troops were ordered to occupy the disputed boundary areas. Mexico responded by severing relations with the United States, leading to the war of the United States and Mexico. On February 2, 1848, the Treaty of Guadalupe Hidalgo was signed which officially ended the war. The treaty included Articles VIII and XI that guaranteed the protection of property and civil rights of Mexican nationals living within the boundaries the conquered lands. Although language rights of Mexicans were not explicitly mentioned in the treaty, scholars believe that the framers of the treaty implied them and therefore marked the

beginning of persistent discrimination and oppression of Mexican-origin people (Valencia, 2008).

Following annexation in 1846, the U.S. Congress agreed to pay the state of Texas millions of dollars in exchange for western lands belonging to the former Republic in what is known as the Compromise of 1850 (Thomas & Walker, 1982). After settling some outstanding debts, Texas leaders earmarked the remaining two million dollars to establish a permanent endowment fund for public education in the landmark School Law of 1854. The Permanent School Fund provided revenue to be distributed annually on a per capita basis in what state leader deemed a simple, efficient method. This is a significant benchmark in the history of Texas school finance because it established the tone for school finance policy for decades. For example, the 1875 Texas state constitution established the Available School Fund, a perpetual school fund based on property and poll taxes. Public conflict erupted immediately following the imposition of the local property tax, due mainly to the generally negative attitude of Texans toward free public schools (Holleman, 1973; Thomas & Walker, 1982). Despite the outcry, the Texas Constitution of 1876 called for support and maintenance of an efficient system of public free schools. Seeing no inconsistency in their policy, Texas framers established a funding method of one flat per capita grant apportioned from the available school fund.

1850 - 1950 National origins of minority language instruction. During the period of 1850s, a segment of the Texas public recognized the value of having children learn the language of other immigrant groups. Schools were established for both Spanish-speaking and English-speaking children, with small schools developed by new German

and Czech immigrants (Blanton, 2004). However by the 1890s, the focus of instruction in schools was the practice of the English language. English-only instruction allowed for the segregation of white, Spanish-speaking children so that they could be thoroughly Americanized. This general perspective of education was fueled by the large influx of immigration from Mexico in the early 1900s motivated by the turbulent environment surrounding the Mexican Revolution (Blanton, 2004; Esparza, 2008). Subsequently, as the United States entered World War I, a wave of anti-German sentiment prompted many schools to end German-English instruction. National attitudes towards immigrants were reflected in the congressional passage of the 1906 legislation requiring recent immigrants to speak English in order to be naturalized. In 1918, a Texas statute was passed that made it a misdemeanor for any teacher to use a language other than English in public schools (TEA, 1998). The first challenge to these types of laws occurred in 1923 with the U.S. Supreme Court case of Meyer v. Nebraska (1923). The court found that arbitrary restrictions on the teaching of languages other than English violated the due process clause of the Fourteenth Amendment and were therefore unlawful. Despite this ruling, the 1918 Texas law remained in statue well into the 1980s.

During the period of the early 1900s, public concern in Texas for small, rural areas motivated state leaders to consider creative methods for funding education. Up to this time, national research on public school finance was conducted by early educational leaders such as Horace Mann and Henry Barnard who advocated for state supported, free, public schools (Verstegen, 2011). Seminal education finance research in the early 1900s by Ellwood Cubberley, George Strayer, and Robert Haig generated a national dialogue for equalized educational funding, including recognition of the need to direct state

assistance to poor counties through state education finance systems (Hanushek &
Lindseth, 2009; Verstegen, 2011). By the early 1920s, the state education offices in New
York created the first Foundation School Program (FSP) that was attributed to the
research of Strayer and Haig. Despite these nationally progressive attitudes, general
public indifference in Texas reflected a reliance on existing school funding, including the
habit of the Texas legislature to increase appropriations in order to ensure adequacy of
per capita payments to all school (Cardenas, 1997; Thomas & Walker, 1982). As late as
1920, local complacency throughout Texas led most districts to simply wait for the
biennial state "bail-out" in order to meet educational demands.

The general attitude of indifference toward the educational needs of Texans
continued through the 1900s. Stemming from that attitude, state leaders' indifference
towards racial or ethnic minorities continued, in particular students with language other
than English. Differing educational opportunities continued to perpetuate throughout
Texas which led certain small minority language communities to seek out educational
resources through local means (Esparza, 2008; Salinas, 2005). The twentieth century
experience of a historically significant school district provided a perspective of ELL
public education policy development. Located along the Texas-Mexican border, Del Rio,
Texas, became the site of major educational events. The first event in 1890, the Del Rio
community voted to create an independent school district. The original boundaries drawn
for the free public school meandered through the community to exclude the
predominately Spanish-speaking Hispanic community known as San Felipe (Braudaway,
2002; Esparza, 2008). Local taxes were levied on property value and livestock which
justified school district boundaries drawn for the newly formed Del Rio Independent

School District. As a result, the San Felipe community developed their own schools and operated as Common School District #2 under county supervision. By 1929, efforts were made by the affluent Del Rio district to annex a large portion of the common school district, which led San Felipe school leaders to seek legal grounds to stop the annexation. The victory led to the formation of the San Felipe Independent School District, the first independent school district created by a Hispanic-Texans community for a Hispanic-Texan community (Braudaway, 2002; Esparza, 2008). The formation of an independent school for Hispanics in the neighboring area led to a greater sense of autonomy and control for the entire minority community in Del Rio (Esparza, 2008). The following year, the League of United Latin American Citizens (LULAC) led the suit on behalf of the Jesús Salvatierra family to request the first judicial review of the affluent Del Rio school district actions regarding the deliberate segregation of Mexican-American students. The court ruling of *Del Rio Independent School District v. Salvatierra* found that Mexican children were members of the Caucasian race and therefore segregation of Mexican children could not occur on the basis of national origin, but could be justified on educational grounds. The ruling allowed Texas schools to continue the practice of separating children because of their late enrollment in school, irregular attendance, and a language deficiency (Independent School District v. Salvatierra, 1931). The deliberate segregation of minority students would continue in Del Rio and throughout Texas through the 1940 (Esparza, 2008; Salinas, 2005). The development of small independent school districts through the 1900s reflects state leaders' views that local communities control public education policy.

By the mid 1940s, World War II was coming to end and the national labor force

and post-war baby boom shifted public attitudes. In Texas, public concern for the

inadequacies of the diverse Texas educational system began to grow. In 1947, state

legislative leaders convened a committee led by State Representative Gilmer and Senator

Aiken to devise a plan for the future of the Texas education (Cardenas, 1997; Thomas &

Walker, 1982). Nationally, increased public attention toward education led to a growing

number of local communities to correct inadequacies and outright inequities of public

schools. For example, the California case of *Mendez v. Westminster* (1946) led to the

Supreme Court ruling that segregating Mexican American children in the public schools

violated the equal protection clause of the Fourteenth Amendment to the U.S.

Constitution. The ruling prompted Mexican American civil rights activists in Texas to

lead the lawsuit of Minerva Delgado and twenty other Mexican-American parents in

Bastrop Independent School District who charged that the segregation of Mexican

children from other white races was in violation of state law (Delgado v. Bastrop

Independent School District, 1948). The suit focused on the distribution of educational

resources, specifically the deprivation of equal facilities, services, and education

instruction. By 1948, the Supreme Court ruling of *Delgado vs. Bastrop ISD* found that

the segregation of segregation of Mexican American students violated the Fourteenth

Amendment and ordered the cessation of the policy of separation by September of that

year.

The Texas ruling offered some hope to minority students in Texas, although the

issue of local control continued to resist any advancement fair educational practices. For

example, the Hispanics community served by the affluent Del Rio school district saw the

ruling as an opportunity for justice, beginning the second historical event for the district.

Interpreted by local district and state officials, the Delgado court decision *allowed*

separate classes on the same campus for language-deficient or non-English-speaking

students identified by standardized tests administered to all students. In order to address

the misinterpretation, the Del Rio community requested an administrative review of the

continued segregation of minority children. Almost immediately following the review the

Del Rio school district policy, the state education office revoked its accreditation status.

However, the administrative action was interrupted by the sweeping educational reforms

of the 1948 Gilmer-Aiken legislative act (Thomas & Walker, 1982). Among the many

changes, the bill established a State Board of Education that appointed a Commissioner

of Education, and reorganized the administration of state public school policy through the

Texas Education Agency. A commissioner was appointed immediately and issued an

interpretation of the ruling of *Delgado vs. Bastrop ISD* to school districts, deferring all

complaints of student segregation to local school boards. This allowed districts in Texas

to continue to segregate language minority students on the basis of language deficiency

and the need for specialized school resources (Cardenas, 1997). Nonetheless, civil rights

leaders such as the American G.I. Forum and LULAC continued for the next ten years to

argue for the end of discriminatory practices.

1950 - 1960 Movements toward financial and educational equity. With the

passage of the Gilmer-Akin Laws, state leaders were satisfied with their efforts to raise

the general level of school standards and to eliminate inequalities. The 1948 law changed

the public school funding system to collect tax revenue from both state and local sources

for the first time. Informed by decades of national school finance research, the Act

created Section 42.001(b) of the Texas Education Code foundation school program to ensure that all school districts, regardless of property wealth, received "substantially equal access to similar revenue per student at similar tax effort," (Hanushek & Lindseth, 2009; TEA, 2011g; TEC, 2011; Verstegen, 2011). The Texas Foundation School Program (FSP) established the amount of state and local funding due to school districts under Texas school finance law, and specified the state share or portion of funding due to districts. Up to this time, most of the Texas state funds distributed to local districts were based on a per capita basis, except for textbooks, transportation aid, and rural equalization aid.

Although the FSP was intended to address equalization of funds across counties, one aspect of the design allowed school districts to match or exceed the foundation school program fund amount through their own local tax rate increases. This aspect of the FSP design allows school district to attain an amount of funds that exceeded the basic minimum FSP allotment (Hanushek & Lindseth, 2009). The 1949 Gilmer-Akin Laws also established a minimum Foundation Program funding level generated by the local school district, referred to as the Local Fund Assignment (LFA). School districts were also allowed to generate local enrichment funds from local tax rates that were able to generate revenue above the amount needed for the minimum LFA. The FSP funding design created a challenge to "horizontal equity," a measure of equity across a state's school districts regardless of property wealth levels (Hanushek & Lindseth, 2009). Not long after the implementation of the Gilmer-Akin Laws, disproportionate revenues were evident across school districts in Texas. The disparities occurred because similar tax rates were applied to property poor school districts the could not generate enough revenue as

property rich school districts. Civil rights advocates considered the adoption of the FSP design an effort to maintain the prevailing status quo (Cardenas, 1997). In effect, the design served to maintain the educational resources of high wealth school districts that were enhanced by local funds. Wealthy school districts resources effectively provided for superior education, while minimum resource levels were deemed appropriate for other districts and communities (Cardenas, 1997; Verstegen, 2011).

The 1950s brought about major changes in education in Texas. Civil rights activists such as the National Association for the Advancement of Colored People (NAACP) continued to challenge the doctrine of "separate but equal" established by the 1896 court decision of *Plessy v. Ferguson* (1896). Texas offered a second stage for the civil rights movement with the 1950 court decision of *Sweatt v. Painter* (1950) which ordered the integration of the University of Texas Law School. Soon after, the implementation of the 1954 Supreme Court decision of *Brown v. Board of Education* (1954) began to affect state public education. The Brown decision required desegregation of all public schools, an effort that would take decades for most schools in Texas. The Brown decision would not be fully extended to Mexican Americans until twenty years later following the court case of *Cisneros v. Corpus Christi ISD* in 1975. Nonetheless, the 1954 court decision invigorated civil rights advocates to continue the challenge of disparate educational opportunities (Valencia, 2008). Texas civil rights advocates brought forth a lawsuit filed by the American G.I. Forum and LULAC on behalf of Herminca Hernandez. The landmark court ruling of *Hernandez et al. v. Driscoll Consolidated ISD* (Hernandez v. Texas, 1954) ended the policy of segregation of Mexican American

children for educational reasons in the Texas public school system (TEA 1998; TSHA, 2013; Valencia, 2008).

By the early 1970s, the civil rights movement was in full force. Recognition of unequal resources for language minorities was remedied at the national level by the federal requirements of Title VII of the Elementary and Secondary Education Act of 1968, known as the Bilingual Education Act of 1968 (Elementary and Secondary Education Act [ESEA], 1968). Following the adoption of the Act, the Texas legislature passed the 1969 state law permitting school districts to provide bilingual instruction to Spanish language minority students. The legislation required that Texas repeal the "English Only" statute of 1918. The new state law allowed, but did not require, school districts to provide bilingual instruction through Grade 6 (TEA, 1998). The law created an incentive for Texas school districts to recruit bilingual education teachers, although the state law provided no appropriation of state funds in 1969. School district instructional changes brought about from the state bilingual education laws spurned future attention to the funding system (TEA, 1998).

1970 - 1990 Civil Rights Movement: Finance and Language. The legal issues concerning school finance and minority language instruction dovetailed in the early 1970s. The third historical event involving the San Felipe and Del Rio school districts began with a small number of small Texas public school districts alleging discriminatory practices. In 1971, the San Felipe district, serving 98 percent Hispanic students in the property poor area of the city of Del Rio, sought intervention by the Department of Justice based on financial resources (Esparza, 2008; United States v. Texas, 1971). The

case originated as an issue related to school funding and led to a major decision regarding the education of language minority students. For many years children of parents stationed at the local federal air force base, Laughlin Air Force Base, were transferred to the affluent Del Rio school district despite the fact that the air force based was located within the boundaries of the property poor San Felipe school district. Following the tide of the civil rights movement and focus on educational equity, school leaders of the San Felipe district sought to have the students attend their local district, along with the federal funds to support their instruction. The U.S. Department of Health, Education, and Welfare initiated an investigation which was subsequently turned over to the Department of Justice (TEA, 1998; Valencia, 2008), culminating in the court case of United States v. Texas, (1971). The case of San Felipe and Del Rio school districts was one of the many court rulings resulting from the United States v. Texas decision, and became the most extensive desegregation orders in legal history.

On August 6, 1971, the court found that English language and cultural barriers made the successful integration of Latino students impossible (Cardenas, 1997) and subsequently ordered the consolidation of the San Felipe and Del Rio school districts in spite of the overwhelming community support to maintain separate autonomous school districts (Esparza, 2008). The ruling led to Civil Action 5281, which eliminated discrimination on grounds of race, color, or national origin in Texas public and charter schools and became one of the seminal federal cases in the development of desegregation and minority language education in Texas (TEA, 1998). The order forced the consolidation of the two school districts and ordered predominantly white students of the

affluent Del Rio district and overwhelmingly Latino students of the property poor San Felipe district to attend the same schools.

The 1971 court ruling ordering the consolidation of the San Felipe and Del Rio school districts was watched closely by civil rights groups because of the legal implications for property poor school districts (Cardenas, 1997; Esparza, 2008). Even before the 1969 passage of state bilingual education laws, civil rights advocates argued that resources available for minority language students were unjust. Property poor school districts that served language minority students were experiencing severe resource constraints, due in part to the need for bilingual teachers. In the summer of 1968, civil rights attorneys organizing parents in the Edgewood Independent School Districts questioned the legality of the consolidation order of the Del Rio and San Felipe school systems and were concerned that similar legal remedy could lead to the abolishment of the Edgewood district (Cardenas, 1997). Nonetheless, advocates filed the case of *Rodriguez v. San Antonio Independent School District* (1971) which became known as *Edgewood I* because of the long string of court cases that followed (Imazeki & Reschovsky, 2004). In December of 1971, the 5th Circuit Court ruled that the Texas system of school finance violated the equal protection clause of the Fourteenth Amendment and was ruled unconstitutional. Although the case was overturned by the U.S. Supreme Court two years later, publicity surrounding the case elevated the public's awareness of the severe deficiencies of the Texas school finance system (Cardenas, 1997). The case was the first of a number of lawsuits filed nationwide that focused on inequitable educational opportunities, beginning an era of national school finance reform (Verstegen, 2011).

Since the initial court ruling of *United States v. Texas*, several legal cases were argued based on inequitable resources for language minority students in Texas. The federal court ruling specifically addressed the fact that English language and cultural barriers made the successful integration of Hispanic students impossible. Immediately following the initial ruling in 1971, the Mexican American Legal Defense and Educational Fund (MALDEF) along with LULAC and the American GI Forum filed a suit in an attempt to hold the State responsible for providing equal educational opportunities to Hispanics and ELLs (Cardenas, 1997). A court ruling on the intervening case would not come forth for another decade. Meanwhile, the initial court rulings of the *United States v. Texas* and *Rodriguez v. San Antonio Independent School District* motivated state leaders to pass extensive education legislation. Known as the Texas Bilingual Education and Training Act of 1973, the state law amended the Texas Education Code (TEC) and required that each school district with 20 or more ELLs in the same grade (that shared the same native language) create a program of bilingual instruction beginning with the 1974-75 school year (TEA, 1998). Although most school district personnel felt that the law failed to address the large number of minority language students, the legislation marked the first real effort of state leaders to acknowledge the educational needs of ELL students. Two years later, the Texas legislature enacted substantial changes in the method of funding public schools and appropriated millions in state funds for education (Cardenas, 1997; TEA, 1998). The 1975 law implemented a school district accreditation system, created an equalization formula for program enrichment, and established requirements for the admission of students. Along with the numerous school finance related changes, the law also called for the public education of

all students that register for in public schools. Ironically, the new law excluded students that enter the country without meeting legal requirements from eligibility for a free public education. The law did not provide state funds for their education. This loophole essentially authorized local school districts to deny the enrollment of illegal aliens in public schools (Cardenas, 1997; TEA, 1998).

Also during 1970s, the national civil rights movement focused public attention towards the equal educational opportunity for language-minority students. Within the year following the passage of the 1973 Texas bilingual education laws, the Supreme Court ruling in a civil rights suit brought by a group of Chinese students against the San Francisco School District, *Lau vs. Nichols* (1974), addressed the needs of disparate educational opportunities based on language status. The court found that identical education does not constitute equal education (Lau v. Nichols, 1974). In August of that year, Congress enacted the Equal Educational Opportunity (EEO) Act of 1974, which allowed an individual to initiate civil action if denied an equal educational opportunity. The law specifically allowed an individual to take appropriate action to overcome language barriers that impede equal participation in educational opportunities (TEA, 1998). Influenced by the *Lau v. Nichols* case and the EEO Act, Congress amended the Bilingual Education Act to clarify the intent and design of bilingual education programs. The law defined a bilingual education programs for states and specifically noted that English as a second language (ESL) programs alone were insufficient (TEA, 1998).

Texas was once again propelled to the national stage following the passage of the education reform laws in 1975. As allowed by recently adopted state law, the Tyler

Independent School District required children of undocumented immigrants to pay a tuition fee in order to enroll in district schools. The case of *Plyler v. Doe* was filed in the U.S. District Court for the Eastern District of Texas on behalf of recent immigrant children living within the county who could not prove they had legally entered the United States. In 1982, the Supreme Court found that under the Fourteenth Amendment of the U.S. Constitution, the state does not have the right to deny a free public education to undocumented immigrant children (Plyler v. Doe, 1982). The case included the participation of the Intercultural Development Research Association (IDRA) who testified that financial constraints in providing educational opportunities should be attributed to the inadequacies of the state system of school finance (Cardenas, 1997). The court found that denying an education opportunity was a constitutionally protected right. However, Chief Justice Warren Burger made it clear that the importance of education "does not elevate it to the status of a 'fundamental right'" (Plyler v. Doe, 1982), a legal point that would be referenced in future school finance cases for years to come.

The influence of the national civil rights movement was also reflected in the 1981 ruling in the ongoing court case of *United States v. Texas* filed by MALDEF, LULAC and the American GI Forum. After six years of deliberation, the U.S. District Court Judge William Justice issued a 67-page memorandum opinion, declaring that the Texas educational program for ELLs was wholly inadequate (United States v. State of Texas, 1981). The judge found that Texas had violated the equal protection clause of the Fourteenth Amendment to the U.S. Constitution through a history of pervasive discrimination against Mexican Americans. In addition, the court found that the failure of Texas to take appropriate remedial measures constituted a violation of the Equal

Educational Opportunity Act of 1974. The court required TEA to phase-in mandatory

bilingual education instruction for students in kindergarten through grade 12; a ruling that

profoundly affected the education of Texas minority language students (TEA, 1998). The

court outlined specific state and school district requirements including identification of

ELLs based on entering students' home language survey, three-year monitoring cycles,

and established exit criteria from the program. Following the 1974 *Lau v. Nichols*

decision, the federal Office for Civil Rights organized a task force to develop guidelines

to help school districts comply with the ruling (TEA, 1998; Valencia, 2008). Federal

"Lau remedies" issued to each state required all school districts to provide some form of

special language assistance for ELL students or otherwise risk the loss of federal funding

under the Elementary and Secondary Education Act (ESEA, 1968). Once again, state

leaders chose to address the court's challenge by passing legislation formulated in the

months immediately following the ruling. On June 12, 1981, Texas leaders pass a bill that

required school districts to provide bilingual education, English as a second language,

and other special language programs in the public schools. Because of the legislative

changes, the U.S. Court of Appeals reversed the previous judgment of *United States v.*

Texas. Also as a result of the passage of bilingual education state laws, the Department of

Education concluded their review of Texas' compliance with Title VI of the Civil Rights

Act of 1964 (Cardenas, 1997; TEA, 1998; Valencia, 2008).

By the mid-1980's, despite eleven years following the highly publicized

deficiencies of the Texas school finance system, advocates of minority student education

witnessed the failure of the Texas Legislature to change any measure in the school

finance system. In 1984, state leaders chose businessman Ross Perot to chair the highly

visible Select Committee on Public Education (SCOPE) (Cardenas, 1997). The committee developed HB 72, the well known "No Pass No Play" law, that also addressed Competency Testing for Teachers and Administrators (TABS) and initiated the first version of school accountability in Texas known as School District Annual Performance Reports (APR). The legislative changes of HB 72 also required an adjustment to the mechanism of school funding to provide equalization aid through a two-tier funding system. Tier I of the school finance system called for a distribution of funding based on a "basic entitlement" mechanism. The first tier of the funding system determined the amount of "local share" each school district must provide to fund education. The local school district fund assignment, or LFA, must be paid through a state basic allotment to each district. The allotment of state funds to school districts must be based on the count of pupils calculated by the average of daily attendance (ADA) and weighted by program participation. House Bill 72 also implemented adjustments to the basic allotment through price-differential formulas (Cardenas, 1997, TEA 2011g).

Despite overwhelming statewide support of HB 72, the courts were again called upon to address the school finance equity issue in 1984. The continued litigation of *Edgewood ISD v. Kirby* (1989), also known as Edgewood I, was finally decided by the 250th Judicial District Court in April, 1987. Judge Harley Clark ruled the Texas system of school finance unconstitutional. By 1988, the appellate court overturned the ruling, citing constitutional requirements that do not consider education as a fundamental right. The court ruling outlined 1) the legitimate purpose of the school finance system to uphold local control of education, 2) the state finance system was not an efficient system, and 3) efficiency was essentially a political question not suitable for judicial review (Cardenas,

1997; Walsh, Kemerer, & Maniotis, 2005). By 1989, the Texas Supreme Court upheld the original ruling of unconstitutionality. Once again, the state legislature responded to the court's ruling by forming the 1990 Governor Bill Clements' Blue Ribbon Task Force on Public Education. The task force developed Senate Bill 1 that formalized the state equalization funding mechanism with promises for additional state funds into the system in future years. Designed to supplement the basic funding provided by Tier I, the second Tier of the funding system provided a "guaranteed yield," or guaranteed level of funding to school districts above the funds generated by Tier I. The guaranteed yield ensured that school districts will generate a specified amount of state and local funds per student for each cent of tax effort above the tax effort required to meet the local fund assignment (TEA 2011g). The law established four components of the Texas school finance system: (a) the Available School Fund, or per capita distribution, (b) Tier I of the FSP distributed through the basic allotment, (c) Guaranteed Yield (GY), and (d) funding generated locally above the GY, known as unequalized enrichment. Senate Bill 1 also set a goal of having 95% of Texas students in an equalized system, therefore specifically outlined Enrichment Equalization Aid, calculated based on weighted average daily attendance (WADA) (Cardenas, 1997; Hanushek & Lindseth, 2009; TEA 2011g).

Three weeks following the passage of Senate Bill 1 in 1990, MALDEF and plaintiff districts involved in *Edgewood ISD v. Kirby* were once again in court to argue that even with additional revenue, the state school funding system remained unconstitutional. By late September, 1990, Judge Scott McCown ruled in the *Edgewood ISD v. Kirby* (1991), known as Edgewood II. McCown's ruling considered SB 1 an overall failure in restructuring the school finance system and recommended consolidation

of school districts or consolidation of tax bases as avenue toward greater efficiency (Cardenas, 1997). Once again, the state legislature responded with the passage of Senate Bill 351 in 1991 that imposed a statewide property tax through "county education districts" (CEDs). The implementation of CEDs brought about the 1992 lawsuit *Carrollton-Farmers Brand I.S.D. vs. Edgewood I.S.D* (1992), also known as Edgewood III, in which school districts asserted that CEDs created by SB 351 levied a state ad valorem tax in violation of the Texas Constitution. The Supreme Court of Texas considered the tax a state property tax to be unconstitutional and prohibited by the Texas Constitution. By 1993, the state legislature responded with Senate Bill 7, known as the Robin Hood Plan, which prohibited school districts from having more than $280,000 of property wealth per student. This was again followed by the 1995 court case of *Edgewood I.S.D. vs. Meno* (1995) also known as Edgewood IV (Cardenas, 1997; Hanushek & Lindseth, 2009; Kauffman, 2009; TEA, 2011g).

From 1971 through 1995, equity was the basis for school finance lawsuits in Texas (Cardenas, 1997; Walsh, Kemerer, & Maniotis, 2005). Although equity was the focus of Edgewood IV, wealthy districts joined the case with the claims that the system created would not allow for sufficient resources for an adequate education system (Cardenas, 1997; Kauffman, 2009). The 1995 Texas Supreme Court ruling of Edgewood IV upheld the school finance system created by Senate Bill 7 noting that an efficient system does not necessarily require equality of access to revenue (Edgewood Independent School District v. Meno, 1995; Kaufman, 2009). The court specifically rejected the wealthy districts' claims; a noteworthy shift in the arguments brought forth regarding the Texas school finance systems (Hanushek & Lindseth, 2009).

The ruling of Edgewood IV effectively justified the Texas school finance system, resulting in a silence among school finance litigants until 2001. In that year, the Committee to Study Public School Finance was charged with conducting a comprehensive review of the structure of the Texas public school finance system. The impetus for the committee came from continual requests from wealthy districts for legislative relief through increased school funding. By 2005, wealthy districts filed their own suit alleging that school districts had lost all "meaningful discretion" over their property tax rates because their tax rates would soon reach the $1.50 required rate limit. Districts argued that they no longer had meaningful discretion to set their local property tax rates plus reduction in state aid and rising costs prevented them from meeting state accountability standards (Neeley v. West Orange-Cove Consolidated Independent School District, 2005; West Orange-Cove Consolidated Independent School District v. Alanis, 2003). On November 2005, the Texas Supreme Court ruled in their favor, referring to the funding system as an unconstitutional state property tax. The state legislature was required to respond by June 1, 2006 with an acceptable state funding system (Barrera, 2012; Imazeki & Reschovsky, 2004; Kaufman, 2009; Walsh, Kemerer, & Maniotis, 2005). In response, the state legislature modified the technically allowable tax rates of the school finance system. Specifically, the maintenance and operating (M&O) tax rates were "compressed" to allow tax rate capacity above the compressed rate at a district's discretion. The legislation allowed the creation of a district's compressed tax rate as the M&O tax rate multiplied by a state compression percentage, which is 0.6667. The effect of the change reduced a school district's tax rates by a portion to allow addition taxation up to the $1.50 limit (TEA, 2011g). This "tweak" was considered acceptable by the

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courts because it created a system that met the legal standards for constitutionality in

Texas—a school finance system that must be efficient, adequate, and suitable (Barrera,

2012; Hanushek & Lindseth, 2009).

Frustrated by the court rulings, advocates for educational equity turn their

attention to the ruling of *United States v. Texas*, issued over twenty years earlier in 1982

(Cardenas, 1997). By February 2006, MALDEF once again filed a suit specifically

related to the effective monitoring of the Texas bilingual and ESL programs. The court

ruling found that the state failed in providing successful language programs in secondary

schools, and ordered a revised monitoring plan and a modified secondary language

program by January 2009. The state of Texas appealed the ruling and the court reversed

the injunction on March 22, 2010. The Fifth Circuit Court of Appeals justified the

reversal by citing the need for additional findings in order to determine whether the State

of Texas or individual school districts should be held liable for the dismal performance of

secondary ELL students (United States v. Texas, 2010). The court ruling specified that

future lawsuits brought about against school districts would be needed to determine the

liability in the case.

With the court exoneration of the Texas bilingual education program and the

ruling of the court of the constitutional school finance system in 2006, the state

legislature did not attempt to modify any aspect of school finance or minority language

programs. Due to the growing fiscal crisis experienced in Texas and nationally after 2008

(Barrera, 2012; Verstegen, 2011), state and local revenue reductions led to growing

discontent from school districts large and small, wealthy and poor (Edgewood

Independent School District v. Scott, 2011). By 2011, six separate lawsuits filed by

school districts challenged the constitutionality of the school finance system. Of the suits,

only one raised the issue of resources available for ELL students: *Edgewood Independent*

School District v. Scott (2011). The suit continued with the original argument of the

Edgewood lawsuits on behalf of districts with large percentages of low-income and ELL

students. The 2011 Edgewood lawsuit challenged the state system on the basis of

financial efficiency, equity, adequacy, and suitability; the lawsuit also asserted that

equalization measures such as recapture and maximum tax rates caps are essential for an

efficient public school system. The Edgewood suit also raised the issue of student

academic college-readiness standards of the 2009 legislation, House Bill 3, arguing that

the bill created "a system that is not affording a general diffusion of knowledge to all

students, especially more challenging students such as low income and ELL students"

(Edgewood Independent School District v. Scott, 2011, p.16). A summary of the

historical issues related to school finance lawsuits follow. (Table 1)

Although the evolution of court rulings appear to discount arguments based on

equity, it is important to consider the varying methods of measuring equity within the

context of fair educational opportunities for ELL students. Advocates of the first school

finance lawsuits have conceded that equity is no longer the overarching issue, and may be

resigned to accept that educational quality in Texas will forever be linked to local district

wealth (Cardenas, 1997; Kaufman, 2009; Valencia, 2008). However, the final opinion

issued by Judge William Wayne Justice in the case of *United States v. Texas* on March

2010, provided sufficient guidance for future litigation and possibly future research. The

ruling specifically encouraged the plaintiffs to add individual school districts to future

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litigation referring to this as "invaluable evidence for determining the cause of LEP

student failure and how best to remedy it" (United States v. Texas, 2010, p. 13). Justice's

ruling implies that comprehensive research on financial resources for ELL must also

include a review of state and federal accountability requirements as a measure of the

state's standards for educational outcomes.

Table 1

Summary of Texas School Finance Lawsuits, From Equity to Efficiency, to Meaningful Discretion/Tax Limits, to Adequacy

Year	Lawsuit / Issue	Focus of Ruling	Equity	Efficiency	Discretion	Adequacy
1984–1989	**Edgewood I** / Edgewood ISD v. Kirby (1989) The school finance system denies equal protection clause of the U.S. Constitution.	The court identified disparities between the richest and poorest districts and declared the finance system unenforceable in law because it is not an efficient system of free public schools as required by and guaranteed by Article 7 Section I of the Texas Constitution.	√	√		
1990–1991	**Edgewood II** / Edgewood ISD v. Kirby (1991) The system makes an unconstitutionally inefficient use of its resources based on the overall failure of Senate Bill 1 to restructure funding.	The court ruled that the system did not guarantee that the same tax effort would produce essentially the same amount of revenue, and recommended several remedies, including consolidation of school districts and consolidation of tax bases as avenue toward greater efficiency.	√	√	√	
1991–1992	**Edgewood III** / Carrollton-Farmers Branch ISD v. Edgewood ISD (1992) The state's passage of Senate Bill 351 (CED) required a local ad valorem tax without the required local election	The educational system in Texas is not constitutionally required to have equal funding per student; school districts do not have meaningful discretion to tax below maximum rates.	√		√	
1993–1995	**Edgewood IV** / Edgewood ISD v. Meno (1995) For the first and only time—possibly because of the range of challenges and the fatigue of the court—the Texas Supreme Court upheld the constitutionality of a Texas school finance system	The ruling of constitutionality included a warning about increasing costs of a general diffusion of knowledge and how that could lead, under Senate Bill 7, to a situation in which some districts would be deprived of meaningful discretion.	√		√	

Table 1-Continued

Summary of Texas School Finance Lawsuits, From Equity to Efficiency, to Meaningful Discretion/Tax Limits, to Adequacy

Year	Lawsuit / Issue	Focus of Ruling	Equity	Efficiency	Discretion	Adequacy
2001–2003	**Edgewood V** (also known as West Orange-Cove I) / West Orange-Cove CISD v. Alanis (2003) The system forced school districts to tax at maximum rates and required districts to meet accreditation standards or to provide a general diffusion of knowledge.	The court allowed wealthy school district plaintiffs to prove that the districts are forced to tax at maximum rates either to meet accreditation standards or to provide a general diffusion of knowledge.			√	
2003–2006	**Edgewood VI** (also known as West Orange-Cove II) / Neeley v. West Orange-Cove CISD (2005) The system created a statewide ad valorem tax rate; the wealthy district plaintiffs were joined by a coalition of other wealthy and mid-wealth districts alleging a real adequacy claim; low-wealth intervenors asserted their claims on the financial inefficiency of the system.	The court held the school finance system inadequate, inefficient and unsuitable; outlined that the state constitution does not allow the legislature to structure a public school system that is inadequate, inefficient, or unsuitable, regardless of whether it has a rational basis or even a compelling reason for doing so.		√	√	√

Table 1-Continued

Summary of Texas School Finance Lawsuits, From Equity to Efficiency, to Meaningful Discretion/Tax Limits, to Adequacy

Year	Lawsuit / Issue	Focus of Ruling	Equity	Efficiency	Discretion	Adequacy
2011 6 Lawsuits	**Texas School Coalition** (60 property-wealth school districts)	Rulings Pending			√	√
	The system forces a de facto statewide property tax; state failed to adequately fund public schools.					
	Taxpayer & Student Fairness Coalition (organized by the Equity Center; represents more than 400 low-wealth school districts)		√	√	√	√
	The system is inequitable and inefficient; also argues that the system is inadequate and limits property tax discretion.					
	Fort Bend ISD (81 school districts, including state's eight largest districts)				√	√
	The system forces statewide property tax; it arbitrarily and unfairly allocates funding without connection to actual cost of educating students.					
	Edgewood ISD v. Scott (filed by MALDEF)		√		√	√
	The system has failed to adequately provide for ELL and economically disadvantaged student education; property poor districts do not have discretion to raise taxes; system is inefficient.					
	Texans for Real Efficiency & Equity in Education (Six parents, coalition of TX Association of Business, school choice advocates, former legislators)			√	√	
	The system is inefficient; request a study on true cost of education; argues lack of property tax discretion.					
	Texas Charter School Association (TX Charter School Association, parents of five urban charter schools)			√		
	The system denies charter facilities funding; limiting growth of charters creates inefficiencies.					

Standards Movement and ELL Students

As arguments for equitable educational opportunity of state funding continued through the 1970s, the national dialogue began regarding the adequacy of educational opportunity (Hanushek & Lindseth, 2009). The issue of adequate education quickly led to a focus on educational standards in curriculum and accountability in the classroom. During this time, Texas once again led the effort to implement student testing and accountability long before other states. By 1979, the Texas legislature enacted a law requiring basic skills competencies in mathematics, reading, and writing, including the requirement for minimum skills testing of mathematics, reading, and writing with the Texas Assessment of Basic Skills, TABS (TEA, 2010). The next generation of state assessments were legislated in 1986 with the Texas Educational Assessment of Minimum Skills (TEAMS), the first mandatory statewide assessment for students in order to receive a high school diploma (TEA, 2010).

The sweeping Texas educational reforms brought about through House Bill 72 in 1984 included legislation focused on the curriculum standards and assessment for ELLs. The law established a Spanish-language version of the TEAMS statewide assessment, along with state administrative rules to allow school districts under certain circumstances to exempt students from the statewide test (Cardenas, 1997; TEA, 2002). By 1990, the reforms established from the Blue Ribbon Task Force on Public Education and Senate Bill 1 required the implementation of the Texas Assessment of Academic Skills (TAAS) that shifted the focus of testing from minimum skills to academic skills (TEA, 2010). Also in response to the court rulings of Edgewood I and Edgewood II, the legislature

required new curriculum essential elements for bilingual education and English as a second language (ESL) instruction, along with alternative teacher certification programs for bilingual teacher shortages (Cardenas, 1997; TEA, 1998). By 1993, the TAAS testing schedule was shifted to a spring administration for certain grades and subjects, in advance of the first Texas accountability system implemented in 1994. The practice of exemptions of certain ELL students extended through the statewide testing requirements for accountability. A test for the evaluation of ELL English language attainment was developed in 1995, the Reading Proficiency Test in English (RPTE) and was required for certain ELLs who were previously entirely exempt from statewide assessments. Four years later the RPTE was required for all ELLs (TEA, 1998).

The No Child Left Behind Act of 2001 (Act, 2001) established accountability and testing provisions that expanded the assessments of English language proficiency. Along with the national accountability requirements, the NCLB Act instituted radically different requirements for ELL students (Baker, 2006; Crawford, 2004). The changes were separate from the previous Bilingual Education Act, Title VII of the Elementary and Secondary Education Act of 1968. The new Title III section of the NCLB Law entitled "Language Instruction for Limited English Proficient and Immigrant Students" (No Child Left Behind, 2002) focused on the improvement of student academic achievement of ELLs. Scholars saw this national policy shift as the end of bilingual education toward a single dominate language (Crawford, 2004).

Following the state legislative transition in 2003 to the Texas Assessment of Knowledge and Skills (TAKS) as the primary statewide assessment program, additional

ELL assessments were implemented to fulfill the new federal requirements of the NCLB

Act. Federal requirements to test the language domains of ELLs (such as listening,

speaking, and writing) expanded the existing RPTE to form the Texas English Language

Proficiency Assessment System (TELPAS) in 2004 (TEA, 2011h). In addition, students

eligible for exemptions from statewide academic testing through state laws established

since 1984 were required to be tested in reading and mathematics by federal requirements

(TEA, 2011d). In response to this requirement, TEA implemented a linguistically

accommodated testing (LAT) process for eligible recent immigrant ELLs in 2007 (TEA,

2011h). The most recent state legislative requirements of House Bill 3 passed in 2009

required the development of a new state testing program, the State of Texas Assessments

of Academic Readiness (STAAR) program (TEA, 2010). The new state law required

students to pass end of course (EOC) tests in order to graduate beginning with the 2011–

2012 school year. The increase in rigor of academic requirements for all students,

including ELLs, was expected to be especially difficult for school districts with higher

enrollments of disadvantaged, at-risk and ELL students (Barrera, 2012; TEA, 2010).

The continued legislative evolution of the statewide testing program since1994

also called for the rigorous development of the state accountability system that measured

campus and district performance. Following each of the changes in the state testing

program, the state accountability system expanded to include all subject areas and grades

tested under TAAS and TAKS. Since the passage of the NCLB Act in 2003, the Texas

federal accountability evaluation of adequate yearly progress (AYP) was also required

(TEA, 2011d). For this reason, the state accountability system continued to exempt

certain ELLs from testing and accountability despite the federal requirements for their

inclusion (TEA, 2011c: TEA, 2011d). Specifically, ELLs in their first two years in U.S. schools were exempt from statewide testing; however, these same students were required to be tested and included in federal accountability evaluations (TEA, 2011d). The 2003 federal evaluation also required a separate measure of ELL performance. A separate accountability measure of ELL student achievement in Reading was not included in the state accountability system until 2006 (TEA, 2011c). Currently, the new state accountability system based on HB 3 requirements includes rigorous STAAR testing performance results (TEA, 2010). The future of the federal accountability requirements are not known at this time. In 2012, the state of Texas requested a waiver of all federal accountability requirements for school year 2012-13. The U.S. Department of Education has approved a conditional waiver for Texas as of Fall 2013. In order to fully understand current educational opportunities for ELLs in Texas, a review of statewide information on ELL students is in order.

Current state of English Language Learners

According to the National Clearinghouse for English Language Acquisition and Language Instruction Educational Programs (NCELA), the number of ELL students enrolled in public school in the United States during the 2010-11 school year was estimated at about 5.3 million (National Clearinghouse for English Language Acquisition and Language Instruction Educational Programs [NCELA], 2011). Publicly enrolled ELLs comprise nearly 11 percent of the national total public school enrollment, and approximately 79 percent of ELLs nationally were from Spanish-language backgrounds. NCELA also reported that the national ELL student population grew 63 percent since

1995. Approximately 53 percent of ELLs were enrolled in elementary grade levels (prekindergarten to grade five), and 47 percent enrolled in secondary grades (grades six to grade twelve). Although English-language learners reside throughout the United States, they have been heavily concentrated in the six states of Arizona, California, Texas, New York, Florida, and Illinois, which contain 61percent of the nation's ELL population. However, NCELA further reports that ELL student enrollment increased in nontraditional Latino and immigrant states, noting that between 1995 and 2005 the largest growth rates in ELLs included South Carolina, Kentucky, Indiana, North Carolina, and Tennessee. The greatest numbers of ELL students reside in California and the second-largest number in the country enrolled in the Texas public school system (Cortez & Villarreal, 2009; NCELA, 2011).

Demographic Indicators. According to the state of Texas Academic Excellence Indicator System (AEIS), 837,536 ELLs were enrolled in Texas public schools during the 2011-12 school year, nearly 17 percent of the total number of student enrolled (TEA, 2011a). Approximately 91 percent of ELLs in Texas were identified as Hispanic, and 92 percent spoke Spanish as their first language (TEA, 2011e). The majority of ELL students enrolled during the 2011-12 school year were elementary students, as 85 percent of ELLs were enrolled in prekindergarten to grade 5, and 59 percent enrolled in grades 6 to grade 12. Over 420,000 students were tested on TELPAS in grades 3 through 12 during the 2010-11 school year on the Texas English Language Proficiency Assessment System (TELPAS) testing program (Texas Student Assessment Results, 2011).

The 2000 U.S. Census of Population and Housing gathered information on national ELL student birthplace that informs research on ELL trends. The Urban Institute and Research Institute for the Study of Language in an Urban Society reported that a majority of ELL students in public schools were born in the U.S. to immigrant parents (Capps, Fix, Murray, Ost, Passel & Herwantoro, 2005). The Urban Institute also report that although there is a larger share of foreign-born Hispanic ELLs in the upper elementary and secondary grades levels, the majority of ELLs are native-born students (Menken, Kleyn, Ascenzi-Moreno, Chae, Flores & Funk, 2010). Texas' annual fall enrollment data also followed the same trend. Texas reported immigrant student status, identifying students that were not born in any state in the United States or its territories regardless of U.S. citizenship. Only about two percent of students enrolled in Texas during the 2010-11 school are identified as immigrant students (TEA, 2011f). Enrollment data report the same estimate over the last ten years, as 96,600 (2.4 percent) students were reported as immigrants in 2000-01 to a high of 121,064 (2.8 percent) in 2002-03, then steadily decreased to 79,536 (or 1.6 percent) in 2010-11 (TEA, 2011f). Information on ELLs tested on TELPAS support these estimates as over 60,000 Texas ELL students tested on TELPAS in grades 7 through 12 were reported as entering U.S. schools five years prior (Texas Student Assessment Results, 2011).

Performance Indicators. There were disparate academic performance results for ELLs compared to all students. According to the 2011 National Assessment for Educational Progress, over 80 percent of fourth graders in their sample scored at or above the basic achievement level for mathematics since 2005 (NAEP, 2011). In stark contrast, only 59 percent of fourth graders identified as ELLs in their sample scored at or above

the basic achievement level for mathematics in 2011, compared to 85 percent of non-ELL fourth graders. The mathematics performance results of ELL fourth grade students on the NAEP tests increased slightly from 54 percent in 2005 to 59 percent in 2011. Interestingly, ELL students in Texas out perform their peers tested on NAEP from other states. Based on national results of the 2011 NAEP tests, Texas is among the states with the highest average scale score in mathematics of fourth grade and eighth grade ELL students. Texas' average scale score in mathematics for fourth grade and eighth grade ELL students has exceeded the national average since 2003. Despite this acclaim, Texas statewide results also indicate disparate mathematics performance results. Eighty-four percent of students in grade three through twelve during school year 2010-11 tested on the statewide mathematics Texas Assessment of Knowledge and Skills (TAKS) met the proficiency standard compared to 76 percent of ELL students (NAEP, 2011).

The differences in ELL student performance compared to other students was also noted by grade level where the performance of ELLs declined as grade levels increase. For example, during the 2010-11 school year, the percent of ELL students that met the performance standard on all tests taken declined from 75 percent in grades 3 and 4 to 50 percent by grade 5. The trend continued as 30 percent met the standard in grades 8 and 9 while slightly over 20 percent met standard in grade 10 (TEA, 2011a). Grade level performance declined for ELLs at a greater rate than that of all students. The highest performance rate for all students occurred in grade 3 at 83 percent, then declined over each grade to the lowest performance in grade 10 at 65 percent.

In addition to poor academic achievement, ELL students in Texas had a higher percentage of grade retention, specifically in high school grades (TEA, 2013). The average retention rate during the 2010-11 school year for all students over all grade levels (kindergarten through grade 12) was 3.3 percent or 152,426 students. In comparison, ELLs had higher rates of retention than non-ELLs in all grades except kindergarten. The rate of retention in 2010-11 for ELLs in elementary grades (kindergarten through grade 6) receiving bilingual or language education services was 3.2 percent, higher than rate for non-ELL students of 2.0 percent. The difference of 1.2 percentage points is relatively small; however in secondary grade levels, the difference in the rates is striking. The ELL student retention rate for secondary grades 7 through grade 12 (10.5 percent) was 6.2 percentage points higher than that of non-ELL students (4.3 percent) (TEA, 2013).

Dropout Indicators. Texas reports annual dropout and longitudinal rates for all students and ELL students for several grade levels. The annual dropout rate is calculated by dividing the number students who drop out of school during a single school year by the total number of students who enrolled the same year. During the 2010–2011 school year there were 32,833 students who dropped out of grades 9-12 representing a rate of 2.4 percent which is unchanged from the previous year. The statewide annual dropout rate for ELL students in grades 9–12 for the same school year was 4.6 percent, which was a 0.1 percentage point decrease from the previous year (TEA, 2012).

The longitudinal dropout rate is the percentage of students from the same class of beginning ninth-graders who drop out before completing their high school education. Three longitudinal dropout rates are reported for ELL students: 1) *ELL students in K-12*

are students who were identified as LEP at any time while attending Texas public school; 2) *ELL in 9-12* are students who were identified as LEP at any time while attending Grades 9-12 in Texas public school; and 3) *ELL in last year* are students who were identified as LEP in their last year in Texas public school, the rate typically reported for all program areas and student characteristics (TEA, 2011b). Based on each of these methods, the ELL longitudinal dropout rate far exceed that of all students. Out of 319,588 students in the grade 9 longitudinal cohort for the class of 2011, the number of all dropouts was 21,813 which produced a dropout rate of 6.8 percent. Based on the most common method, the corresponding longitudinal dropout rate for ELL students was 23.7 percent, a rate higher than the dropout rate for students identified as At-Risk of 9.6 percent. The longitudinal dropout rate for ELLs based on the other methods was 1) 8.6 percent for ELLS identified during grades K-12; and 2) 14.6 percent for ELLs identified in grades 9-12 (TEA, 2012).

For the first time, Texas annual and longitudinal dropout rates were reported by ELL instructional program for ELL students reported in the current year and those who have exited language programs (former ELL students). The number of ELL annual dropouts during the 2010-11 school year was 4,216; of that 3,967 are current ELL students. The grade 9 through 12 annual dropout rate for ELL students show that the highest dropout rates occur among ELL students that do not receive any language services (6.8 percent) followed by those that receive English as a Second Language (ESL) content based services at 4.1 percent. The annual dropout rates of former ELL students differ slightly due to the small numbers of students in that category: former ELLs that did not receive any language services had a 2.0 percent annual dropout rate

compared to former ELLs that receive English as Second Language (ESL) content based services at 2.2 percent (TEA, 2011b).

Accountability Indicators. Despite the readily available information on the extremely below average academic performance data of Texas ELL students, school districts continue to fare well among the critical accountability and monitoring systems. The Texas Accountability system in place from 2004 to 2011 issued four types of ratings for nearly 1,300 school districts: *exemplary, recognized, academically acceptable*, and *academically unacceptable* (TEA, 2011c). Over those seven years, an average of 35 percent of all school districts received the highest two ratings of exemplary and recognized. Of the 488 school districts in these highest categories based on 2011 results, the range of academic performance of ELL students is quite disparate (TEA, 2011a). Among the nearly 500 school districts, two-third of the districts (322) have data on which to measure ELL results. The remaining 166 districts either had no ELLs served or the numbers of ELLs were too few to report. Test performance results of ELL students in the highest ranking districts ranged from an expected high performance of 100 percent of all ELLs met the required performance standard, to school districts reporting only 10 percent ELLs met standard. Average test performance over the 488 districts for all students and all tests is 83 percent, while ELL student test average is 60 percent. The range of the annual dropout rate of ELLs among school districts receiving the highest accountability ratings was as low as zero percent to 36 percent. The average annual dropout rate among the 488 districts is 0.7 percent, while the dropout rate for ELL students in these districts is 2.2 percent (TEA, 2011a).

Cost. The cost of educating ELL students in Texas is reported each year through the Academic Excellence Indicator System (AEIS) statewide report. Over 55 billion dollars in total actual expenditures were reported for the 2010-11 fiscal year by all school districts in the state. The amount of total actual operating expenditures by program area is less than this reported total, due to school district financial reporting methods. Of the over 32 billion dollars reported in total operating expenditures by program area, about four percent of statewide total expenditures (nearly 1.2 billion dollars) were associated with the cost of providing educational services to ELLs. Despite rising costs plus annual fluctuations in the number of ELL students, the percent of total expenditures by program has remained at or about four percent since first reported in 1997. The statewide per student amount based on the total actual operating expenditures by program is $6,559 compared to the reported $234 dollars per student in the Bilingual/ESL education program area. The per student operating expenditure reported on the 2010-11 AEIS report was per-student average of the total which explains the slight change in this per student amount since first reported in 2005 (TEA, 2011a). The amount of expenditures for each student served in the Bilingual/ESL program area was $1,422 for the 2010-11 school year, nearly double the per student amount calculated for school year 1996-97. By comparison, the per student cost for Bilingual/ESL instruction is about 20 percent of the total per student cost for the 2009-10 school year (TEA, 2011a). The table below summarizes the performance and cost indicators of the current ELL student population. Understanding the current state of Texas ELL performance and cost of instruction is a critical backdrop for the focus of this study. A review of research on school resources and their relationship to student achievement follows.

Table 2

Indicators of English Language Learners (ELL) Performance; School Year 2010-11

Indicator	All Students	ELLs
Demographic Indicators		
Number of Students	4,978,120	837,536
Percent of Total	100%	17%
PK to Grade 5	50%	85%
Grades 6 to Grade 12	49%	59%
Performance Indicators		
NAEP - 4th graders at or above the basic achievement level	85%	59%
Texas Assessment of Knowledge & Skills (TAKS) Met Standard		
Grades 3 - 12	84%	76%
Grade 3	83%	75%
Grade 10	65%	20%
Retention Rates		
K to Grade 6	2.0%	3.2%
Grades 7 to Grade 12	4.3%	10.5%
Dropout Indicators		
Annual Dropout Rate	2.4%	4.6%
Longitudinal Dropout Rates*	6.8%	23.7%
ELL in 9-12		14.6%
ELL students in K-12		8.6%
Accountability Indicators		
488 school districts in these highest rating categories		
TAKS Performance All students/All tests	83%	60%
Annual Dropout Rate	0.7%	2.2%
Cost		
Total Operating Expenditures	$32 billion	$1.2 billion
Percent of Total	100%	4%
Reported Total Actual Expenditures Per Student **	$6,559	$234
Number of students served	4,978,120	809,074
Per Student Served Actual Expenditures	$6,470	$1,422

 * Status reported in the last year of the longitudinal cohort.
** As reported on 2012 AEIS Report.

School Resources and Student Achievement

Despite numerous school funding lawsuits nationwide, research findings on the association of school resources and student achievement are considered misleading by scholars (Cardenas, 1997; Hanushek & Lindseth, 2009; Imazeki & Reschovsky, 2006). The use of quantitative analysis to determine the cost of education continues to be important because of court arguments over the cost associated for an *adequate* education. Research conducted over the last twenty years on school finance equity based on Texas school data apply varying approaches and cost estimates (Cardenas, 1997; Kaufman, 2009; Imazeki & Reschovsky, 2004; Imazeki & Reschovsky, 2006), yet overlook the most recent issue of adequacy. Hanushek & Lindseth (2009) provide a review of research studies on educational costs that they note involve one of four methodological approaches: the professional judgment approach, the related, evidence-based approach, the successful schools approach, and the cost function (or econometric) approach. Determining what a district needs to provide an *adequate* educational opportunity is an contentious issue confounded by the governing body that analyzes the costs and resource standards (Imazeki & Reschovsky, 2006; Kaufman, 2009). Further compounding the problem of measuring adequacy is the disparity of Texas school district wealth, defined by local property value, which is now a justifiable the cornerstone of the school funding system.

Studies on resource allocation consistently find large resource disparities across schools, particularly those focused on states with unconstitutional funding systems (Roza, Hill, Sclafani, & Speakman, 2004; Rubenstein, Schwartz, Stiefel, & Amor, 2007).

Though an important component for successful litigation, the interest in school level research was also spurred on with the availability of school-level resource data in the early 1990s (Iatarola & Stiefel, 2003; Rubenstein, Schwartz, Stiefel, & Amor, 2007). Studies consistently find less experienced and less educated teachers along with lower average teacher salaries in high poverty, high minority, and low performing schools (Iatarola & Stiefel, 2003; Roza, Hill, Sclafani, & Speakman, 2004). Scholars now express growing concern over the educators' role in allocating greater resources to schools with astute leaders, wealthier parents, fewer poor children, fewer minority children or fewer immigrants. Researchers encourage states that develop funding systems in order to provide equity among school districts to carefully measure resource disparities in resources across individual schools (Roza, Hill, Sclafani, & Speakman, 2004; Rubenstein, Schwartz, Stiefel, & Amor, 2007). Only recently have court rulings offered guidance for measuring either the adequacy (Neeley v. West Orange-Cove Consolidated Independent School District, 2005), or measuring district allocation disparity (United States v. Texas, 2010) . For this reason, little has been documented on the distribution of outputs, or student performance, within school districts, particularly in large urban areas (Iatarola & Stiefel, 2003).

Moreover, studies related to the school-level funding disparity of English language learners are rare. A comprehensive review of cost study literature (Jiménez-Castellanos & Topper, 2012) revealed that there are far too few ELL educational cost studies. They also found that among the few studies that focused ELL costs, they do not reveal whether the allocated funding is appropriate or efficient. Rubenstein, Schwartz, Stiefel, and Amor (2007) studied three large urban areas in New York and Ohio that

revealed correlations in the size of limited English proficient population to general increases in elementary and middle school spending. Schwartz and Stiefel (2004) found little difference in spending due to the number of immigrants on schools in the state of New York. Jiménez-Castellanos and Rodríguez (2009) used quantitative and a comparative multiple case study analysis to reveal inequitable and ineffective resource allocation trends and patterns between schools within a school district in California. Similarly, Rubenstein, Schwartz, Stiefel, and Amor (2007) found that teachers in schools with higher proportions of limited English proficient students are less likely to be licensed or have a master's degree, while schools with more immigrants have higher proportions of teachers with these qualifications.

Despite the long history of Texas school finance cases, studies on school level resource allocation using Texas data are rare. Imazeki and Reschovsky (2006) applied a cost function analysis to determine adequate funding levels for desired student outcomes based on Texas data, but their research on the cost of educating ELLs was limited. The limited studies mentioned above indicates the far too few studies focus on school-level funding disparity of resources for English language learners. Although scholars agree that it is important to determine educational cost effectiveness, there is limited research on the effectiveness of resources and policies of educating ELLs.

Summary

The historical context of public policy development played a critical role relative to the current social context of the education of immigrant children. National public policy inform the most recent advancements in standards and accountability of ELLs, but

the unique history of Texas' origins, the state's view of public education, and minority language policy history form the critical basis for this study. The formation of Texas with origins in a foreign land, the historic challenges to unjust educational practices, and the progressive efforts to address issues through the courts uniquely situates Texas' ELL education policies. It is within this challenging context that the Texas local school resources are studied. Reflective of the attitudes of Texas communities toward their own educational responsibility, the allocation of local resources is one indicator of a communities' educational responsibility. Challenging local educational decisions are the overarching statewide educational and accountability priorities. A critical lens of this social context is necessary for appropriate evaluation of the findings of this study.

CHAPTER III

Methodology

The goal of this quantitative study was to determine the degree and type of relationship between resource allocation and ELL achievement, specifically how accountability ratings mediate the relationship between resource allocations and ELL achievement. This study specifically examined statewide accountability outcomes and their relationship to actual operating expenditures for ELL students.

Key Terms

The following are key terms essential to the design and interpretation of this study.

1. Campuses. The sample used for this study consists of aggregated information at the school level, otherwise referred to as "campuses." (Note that one variable represents district-wide information.) Each school building identified by a school district and reported to TEA is considered a campus. For the remainder of the study, the term "campus" is used to describe schools within a district, specifically those included in the statewide reported data available for this study.

2. Causal arrow. Designed to represent causal order, a model representation of a hypothesized system displays a straight, single-headed arrow in from an originating variable to indicate that a change in the originating variable might

cause a change in the variable to which the arrow points (Davis, 1985;

Schumacker & Lomax, 2010).

3. Correlation. A widely accepted measure of correlation is Pearson's *r*, a measure

of the strength of the relationship between standardized variables. The strength

of correlation over covariance is that the measurement is based on standard

deviation units, making interpretation of the statistic more meaningful, and

facilitating an estimation of effect size (Lewis-Beck, Bryman & Liao, 2004;

Schumacker & Lomax, 2010).

4. Data types for statistical research. Four major types of data used to identify the

most appropriate analysis: nominal, ordinal, interval, and ratio data. In general,

the following two categories determined the analysis for this study.

a. Continuous quantitative data is associated with points on a number line,

where any observation can take on any real-number value within a certain

range or interval. Data types with interval and ratio scale are also

considered continuous data.

b. Categorical data is result from placing individuals into groups or

categories, the values of which are labels for the categories. Nominal and

ordinal data types are also known as categorical data (Kerlinger & Lee,

2000).

5. Endogenous variable. The dependent variable in a causal or structural equation

model whose value is defined by observed empirical variables measured within

the system; a model representation of a hypothesized system displays

endogenous variables with straight, single-arrows pointing to them, indicating

they are influenced by independent variables (Lewis-Beck, Bryman & Liao, 2004; Schumacker & Lomax, 2010).

6. Exogenous variable. Independent observed empirical variables considered sources in a causal or structural equation model that refer to an action or object coming from outside the system; a model representation of the system displays exogenous variables with straight arrows leading away from them but never to them indicating they represent external influences (Lewis-Beck, Bryman & Liao, 2004; Schumacker & Lomax, 2010).

7. Mediator variable. A variable that helps clarify the nature of the relationship between the two variables. Mediating relationships occur when a third variable plays an important role in governing the relationship between the other two variables; the understanding of such relationships are revealed through mediation analyses (Jose, 2013).

8. Unit of analysis. The major entity of study and analysis; for example: comparing students in two classrooms by comparing individual student achievement test scores in which the student is the unit of analysis, or comparing performance of the classrooms even though achievement data were collected at the individual student level thus the classroom as the unit of analysis (Lewis-Beck, Bryman & Liao, 2004).

The path analysis model for this study will use continuous variables and only one categorical variable.

Procedure

The data for this study consisted of a representative sample of the statewide

number of school campuses serving ELL students for the school year 2010-11 as reported

through the Academic Excellence Indicator System (AEIS). AEIS provides a wide range

of information on the performance of students in each school campus and district in

Texas every year. First reported in the 1990-91 school year, the AEIS currently provides

summaries of data including: student achievement data; organization data; financial data;

staff data; student demographic and educational program participation data; student

attendance and course completion data; retention and "school leaver" information that

includes graduates, dropouts, and so on. Student achievement data includes the results of

the Texas Assessment of Knowledge and Skills (TAKS).

The unit of analysis for this study is the campus. Each campus reported

aggregated results of individual student measures. Table 3 provides a comparison of

campus level aggregated results with their corresponding student-level results.

Table 3

Campus Level Study Variables and their Analogous Student-Level Variables

Variable	Campus Level Unit of Analysis	Analogous Student Level Unit of Analysis
Exogenous Variables		
Campus Operating Expenditures	Amount of campus expenditures for all students during the school year.	Amount of school funds expended for one student during the school year.
Campus BE/ESL Expenditures	Amount of campus expenditures for all students receiving BE/ESL instruction during the school year.	Amount of school funds expended for one student receiving BE/ESL instruction during the school year.

Table 3-Continued

Campus Level Study Variables and their Analogous Student-Level Variables

Variable	Campus Level Unit of Analysis	Analogous Student Level Unit of Analysis
Percent BE/ESL Teachers	Percent of teachers on a campus serving students that receive BE/ESL instruction during the school year.	Teachers available to a student receiving BE/ESL instruction during the school year.
District Operating Expenditures	Amount of campus expenditures for all students during the school year.	Amount of school funds the entire school district expended for one student during the school year.

Mediator Variable

State Accountability Rating	Campus accountability rating assigned at the end of a school year.	The school accountability rating of the school the student attends.

Endogenous Variables

% ELL Reading TAKS Met Standard	Percent of ELL students on a campus that met the performance standard on all TAKS Reading grades tested during the school year.	Whether the student is an ELL student and met the performance standard on the TAKS Reading test during the school year.
% ELL Math TAKS Met Standard	Percent of ELL students on a campus that met the performance standard on all TAKS Mathematics grades tested during the school year.	Whether the student is an ELL student and met the performance standard on the TAKS Mathematics test during the school year.
ELL Graduation Rate	Percent of ELL students on a campus from the graduating class who graduated on time or earlier.	Whether the student is an ELL student and graduated on time or earlier.

Aggregate information on the AEIS are reported from the extensive amount of school data collected through the PEIMS annually on over 1,200 public school districts (including charters), more than 8,000 schools, over 320,000 educators, and nearly 5 million students. Additionally, testing contractors provide the agency with scores on standardized tests which are administered statewide. Other state agencies provide information such as tax rates and property values.

Three years following the initial release of AEIS by the Texas Education Agency, data became available to researchers and other public consumers.   Since 1993-94, the AEIS data download feature on the TEA webpage provides all of the elements included in the printed report. The research conducted for this study began by accessing the TEA AEIS archive web page at http://ritter.tea.state.tx.us/perfreport/aeis/index.html for the 2010-11 school year. The data download option at the TEA website provides separate data files for test data (which includes TAKS), completion data (which includes graduation rates), and financial data. Each of the separate data files for the relevant school years were accessed through the TEA web page. Microsoft Access was used to combine the data files by campus and district, for the combination of four school years of data. A data plan for the process was necessary to organize the procedures for quality control:

1. Begin with 2011-12 campus-level financial and completion data file,

2. Combine with 2011-12 district-level financial data file,

3. Combine with 2010-11 campus-level test, staff, and accountability rating data files,

4. Combine with 2009-10 campus-level accountability rating data file,

5. Combine with 2008-09 campus-level accountability rating data file.

AEIS reports employ masking of performance data in order to comply with the federal Family Educational Rights and Privacy Act (FERPA) when is possible that the result for an individual student could be known (which violates that student's right to privacy). The term "masking" refers to the use of special symbols to conceal the

performance results when five or fewer students tested on TAKS or graduating are included in the indicator. This study includes variables from the 2008-09, 2009-10, 2010-11 and 2011-12 AEIS Reports for campuses with no masked indicators. The number of campuses in Texas varies from year to year due to the addition of new school campuses, school closures, charter operator approvals, or the rare school district consolidation. For this reason, the sample of campuses used for this study included those for which data was available in each of the 2008-09, 2009-10, 2010-11 and 2011-12 school years, thus fewer campuses were analyzed than are available in either single year. Campuses were excluded for a variety of reasons. See the section on Sample for details.

This study was designed in an attempt to avoid non-uniform collections or data that are prone to bias. Data reported on AEIS are collected through PEIMS that provided uniform data collection methods and extensive data quality controls. Therefore, data collection mistakes should be random.

Sample

This study employed a purposive sample using archival data. The sample consisted of all existing Texas campuses with AEIS information for three years. Strict state requirements for submission of PEIMS data ensure that the baseline sample is representative of all campuses in Texas. The methods used to streamline the baseline sample of campuses, explained below, were select to ensure valid campus-level results of all variables used for this study. As a result, the sample is sufficient for generalizability to the population of all campuses in Texas.

A total of 8,529 campuses reported having students enrolled in the fall semester of the 2011-12 school year, the final year of the study. This number served as the baseline for the study. Campuses that were issued accountability ratings for each of the three years 2009, 2010, and 2011 rating cycles were included in the sample. Using these campuses as a baseline, additional campuses were excluded for the following reasons:

- 629 campuses were not in operation for each of the three years.

- 399 campuses were evaluated using the Alternative Education Accountability rating system, applied to campuses providing alternative educational setting and evaluated using a different set of indicators and standards; therefore not comparable to all other campuses.

- 351 campuses received a rating outcome of "Not Rated."

- 297 campuses had no students tested on TAKS and were paired with feeder campuses in their district, which allowed both campuses to receive the same accountability rating.

After these campuses were excluded the final sample for this analysis consisted of 6,853 campuses, slightly over 80% of the total number of campuses in the state. The analysis conducted included all 6,853 campus-level records. Because the number of ELL students differs from campus to campus, there are fewer campuses with ELL student performance on TAKS reading, ELL performance on TAKS mathematics, or graduation rates for ELLs with enough students to avoid masking for confidentiality as described earlier. The campuses with sufficient information resulted in slightly different sample sizes for each model:

	Sample Size
Model # 1: ELL TAKS Met Standard - Reading	4,963
Model # 2: ELL TAKS Met Standard - Mathematics	4,861
Model # 3: ELL Graduation Rate	401

The following tables provide descriptive statistics for the sample of 6,853 campuses used for this study. Table 4 provides a frequency count of each of the study variables and the percent of total records included for each.

Table 4

Study Variables Descriptive Summary

Sample Variable	Frequency	Percent
Number of Campuses	6,853	100.0%
Non-Charter School	6,659	97.2%
Charter School	194	2.8%
By Campus Type: Elementary	3,934	57.4%
Middle	1,513	22.1%
Secondary	1,175	17.1%
Grades K - 12	231	3.4%
Campus Operating Expenditures	6,849	99.9%
Campus BE/ESL Expenditures	6,842	99.8%
Campus BE/ESL Teacher Full-Time Equivalents (FTEs)	6,847	99.9%
District BE/ESL Expenditures	6,853	100.0%
% ELL Reading TAKS Met Standard	4,963	72.4%
% ELL Math TAKS Met Standard	4,861	70.9%
ELL Graduation Rate	401	5.9%
Accountability Rating Pattern	6,853	100.0%
Low	42	0.6%
Adequate	3,305	48.3%
High	3,502	51.1%

Campuses in the sample were distributed statewide similarly to the distribution of all campuses in the state. Table 5 illustrates the count of campuses by Educational Service Center (ESC) Region. The highest counts of campuses are concentrated around the urban areas of the state in regions surrounding Houston, Dallas, Fort Worth, San Antonio, and the Austin area. Each of the 20 ESC Regions are represented in the sample used for analysis.

Table 5

Descriptive Summary of Campus Regional Distribution

Region	Study Sample		Statewide	
	Count	Percent	Count	Percent
Region 1: Edinburg	478	7.0%	608	7.1%
Region 2: Corpus Christi	186	2.7%	219	2.6%
Region 3: Victoria	124	1.8%	159	1.9%
Region 4: Houston	1,118	16.3%	1,418	16.6%
Region 5: Beaumont	125	1.8%	165	1.9%
Region 6: Huntsville	260	3.8%	305	3.6%
Region 7: Kilgore	319	4.7%	404	4.7%
Region 8: Mount Pleasant	132	1.9%	159	1.9%
Region 9: Wichita Falls	105	1.5%	122	1.4%
Region 10: Richardson (Dallas)	1,017	14.8%	1,198	14.0%
Region 11: Fort Worth	734	10.7%	900	10.6%
Region 12: Waco	282	4.1%	373	4.4%
Region 13: Austin	485	7.1%	594	7.0%
Region 14: Abilene	127	1.9%	161	1.9%
Region 15: San Angelo	123	1.8%	172	2.0%
Region 16: Amarillo	200	2.9%	223	2.6%
Region 17: Lubbock	188	2.7%	231	2.7%
Region 18: Midland	143	2.1%	165	1.9%
Region 19: El Paso	217	3.2%	256	3.0%
Region 20: San Antonio	490	7.2%	697	8.2%
Total	6,853	100%	8,529	100%

Variables Used in the Study

The variables used in this study accrue or "take on meaning" according to the historical context of ELL student education in Texas plus the social and political mechanisms from which they were derived. The social context of educating students in the state of Texas offers the long discriminatory journey of ELL students from children of foreign defeated enemies to children of immigrants to the US (Blanton, 2004; Cardenas, 1997; Valencia, 2008). Further complicating the social context is the often-incorrect perception that ELLs enter the country without appropriate legal documentation. The context of ELL students as children other than citizens of the U.S. offers the actual generative social nature of ELL education. The political mechanisms surrounding ELL education are drawn from the competing forces between state academic and accountability requirements versus shrinking financial resources from state and local resources. The social and political contexts form the generative, or *real*, mechanism that surrounds the research questions.

Accountability requirements imposed from federal and state mandates remain focused on annual statewide assessment results and other quantitative measures. For ELL students, this measure of academic success perpetuates the confounding social view of our nations' provision of educational opportunities for ELL students. First, students new to the nation who are not proficient in the language of the land are considered unprepared for academic success as measured by the conventional methods. Nonetheless, the outcome of standardized tests is incorporated into the state accountability measures. Secondly, student achievement is measured by meeting graduation requirements and

successfully graduating. Ironically, standardized tests are a critical component of students' high school graduation requirement. Prior to 2013, each student was required to meet the performance standard on the grade 11 assessment exam in order to graduate (i.e. the required exam was commonly referred to as the grade 11 TAKS exit exam). Along with passing the required exam, students must attain the required course credit by successfully completing high school courses. For ELLs, educational achievement is difficult to attain because of the current measures developed from political driven accountability systems. Chapter 2 describes the history and practice of addressing these issues by the exclusion of ELL students from assessment requirements or accountability measures. This study attempts to deconstruct the accountability ratings by the use of specific indicators of ELL achievement despite their exclusion from accountability measures.

Three separate path models were used for this research design. Each model linked campus and district level resources with aggregated student level data. One mediator variable and four exogenous variables (possible causal sources) were used in each model. The three models contain one unique endogenous variable representing ELL Educational Outcomes:

- ELL Met Standard on TAKS reading,

- ELL Met Standard on TAKS mathematics, and

- ELL Graduation Rate.

ELL student TAKS results in reading and mathematics include all ELL student tests that met the academic performance standard and the graduation rate of ELL

students. The ELL graduation rate provides the longitudinal rate of ELL student graduates. The set of four exogenous or independent variables "Resource Allocation" were observed continuous variables of resources expended during the 2010-11 school year:

- Total Operating Expenditures based on actual program expenditure for all funds,

- Campus level Operating Expenditures for Bilingual Education (BE) or English as a Second Language (ESL) Instructional Programs,

- Campus Percent of Teachers that serve students in the BE/ESL Instructional Programs,

- Campus level Operating Expenditures for BE/ESL Instructional Programs.

The variables chosen for this study required re-scaling in order to provide concise model estimation results. Due to the wide range of campus sizes and resources, all three expenditure variables (Campus Operating Expenditures, Campus BE/ESL Expenditures and District BE/ESL Expenditures) were rescaled from reported dollar amounts to represent the value one for every ten million dollars (original expenditures/10,000,000). Variable definitions for the observed variables that comprise "Resource Allocation" are shown in the table below.

Table 6

Resource Allocation Observed Variables

AEIS Campus Variable Names	AEIS Report Year	Definition
Campus Operating Expenditures	2011-12	Campus reported 2010-11 Total Operating Expenditures by Program* are actual operating expenditures reported for the general** fund.
Campus BE/ESL Expenditures	2011-12	Campus reported 2010-11 Actual Operating Expenditures for Bilingual/ESL Education include the reported cost of evaluating, placing and providing educational and/or other services to English language learners, with the goal of making them proficient in the English language, in primary language literacy, and in composition and academic language related to required courses (program code 25).
Campus BE/ESL Teacher Full-Time Equivalents (FTEs)	2010-11	Campus reported Full-Time Equivalent (FTE) count of teachers serving bilingual/ESL students for the 2010-11 school year.
District BE/ESL Expenditures	2011-12	District reported 2010-11 Actual Operating Expenditures for Bilingual/ESL Education include the reported cost of evaluating, placing and providing educational and/or other services to English language learners, with the goal of making them proficient in the English language, in primary language literacy, and in composition and academic language related to required courses (program code 25).

*   Total Operating Expenditures by Program include a significant portion of expenditures that have no program area designated and are reported as "99" meaning "undistributed."

**   General funds may closely relate to instructional resources available in any school year since they do not include Special Revenue Funds, Debt Service Funds, and Capital Projects Funds.

The mediating variable is "Accountability Rating Pattern," rescaled ordinal variable that represents the three-year pattern of state accountability outcomes. The values of "Accountability Rating Pattern," were constructed for each campus (school) based on accountability ratings evaluated for school year 2008-09, 2009-10 and 2010-11. The accountability rating categories include: *Exemplary*; *Recognized*; *Academically Acceptable*; *Academically Unacceptable*; *Not Rated*: *Other*; and *Not Rated: Data Integrity Issues*. Additional ratings are issued for alternative education accountability (AEA) ratings issued to campuses and charters registered to be evaluated under AEA

procedures. For the purpose of this study, schools rated under the Alternative Education

Accountability evaluation procedures were not included in the analyses. The

Accountability Rating Pattern was rescaled as an ordinal variable from the value "low" to

a value of 1, "adequate" = 2, and "high" = 3. The AEIS observed variable values that

comprise "Accountability Rating" are shown below.

Table 7

Accountability Rating Category Variables

AEIS Campus Original Variable Names	Original Rating Values included in this study	Rescaled Rating Categories*
Accountability Rating (2009, 2010, 2011)	E = Exemplary R = Recognized A = Academically Acceptable L = Academically Unacceptable D = Not Rated: Data Quality X = Not Rated: Other	1 = Low Performance 2 = Adequate Performance 3 = High Performance

*   Rescaled rating categories were defined by the three-year rating pattern for school campuses. See *Appendix A: Observed Values that Define the Accountability Rating Pattern Ordinal Variable* for a description of each three-year rating permutation and rescaled value.

There are three endogenous or dependent variables in the model representing

"ELL Educational Outcomes," which represent three continuous campus (school) level

measures of ELL achievement measured for the 2010-11 school year:

- Percent of tests for ELLs that Met the performance Standard on 2010-11

Reading TAKS summed across all grades tested,

- Percent of tests for ELLs that Met the performance Standard on 2010-11

Mathematics TAKS summed across all grades tested,

- Class of 2011 Four Year Graduation Rate (graduates component of the longitudinal rates) for ELLs,

In order to provide concise model estimation results, each of the endogenous variables (Percent ELL meeting the TAKS passing standard in Reading, Percent ELL meeting the TAKS passing standard in Mathematics, and ELL Graduation Rate) were rounded to whole number percentages. Variable definitions for the observed variables that comprise "ELL Educational Outcome" are shown below.

Table 8

English Language Learners (ELL) Educational Outcome Variables

AEIS Campus Variable Names	AEIS Report Year	Definition
% ELL TAKS Met Standard - Reading	2010-11	Percent of 2010-11 TAKS Reading (Sum of All Grades Tested) tests of ELL students that met the performance standard.
% ELL TAKS Met Standard - Mathematics	2010-11	Percent of 2010-11 TAKS Mathematics (Sum of All Grades Tested) tests of ELL students that met the performance standard.
ELL Graduation Rate	2011-12	Percent of ELL students in the class of 2011 who received their high school diploma on time or earlier (number of students who first attended ninth grade in 2007-08 who received a high school diploma by August 31, 2011).

Instrumentation and Measures

This study used Texas public school data available from AEIS and the Texas Assessment of Knowledge and Skills (TAKS) calculated through PEIMS data reported by school districts. TAKS is a comprehensive testing program for public school students

in grades 3–11. Developed and scored by Pearson Educational Measurement with close supervision by the Texas Education Agency (TEA), the TAKS tests were designed to measure the extent to which a student has learned and is able to apply the defined knowledge and skills at each grade level tested. Every TAKS test was directly aligned to the state content standards, the Texas Essential Knowledge and Skills (TEKS). The descriptive title for the instrument provides sufficient explanation of its purpose. The author of TAKS is a reputable national test publisher. TAKS is designed for public school students in grades 3–11, and provides additional test forms for students served by special education programs who meet the eligibility requirements: TAKS (Accommodated), TAKS–Modified (TAKS–M), and TAKS–Alternate (TAKS–Alt). In addition, a TAKS administration may include linguistic accommodated testing (LAT) for eligible immigrant English language learners (ELLs). The TAKS is designed as a criterion-referenced test for achievement evaluation in specific contents areas. A separate version of the TAKS is available for each content area: reading, math, science and social studies tests; certain subjects and grades offer a Spanish language version of the test (TEA, 2011h). TAKS was created in 2003 and has an annual statewide administration in Texas. All Texas public schools are provided test booklets and answer document for all students enrolled in the tested grades. The TAKS tests are untimed; each student is allowed to have as much time as necessary to respond to every test item (TEA, 2011h). Numerous test administration manuals and supplements are provided to school districts for training on the details of the state testing requirements. Information includes a description of the test items and scoring for each content area test. As a nation-wide testing company, Pearson is experienced in developing content area tests.

The annual technical digest provides detailed information on TAKS test validity and reliability (TEA, 2010). Reliability measures estimate the degree to which a test produces consistent results and would therefore generate similar results upon multiple administrations to the same student population. The validity of a text is the extent test scores measure what it was intended to measure in order for any inferences about test results, for example TAKS test results should help educators make appropriate judgments about student performance.

Data Analysis

The data in this study were analyzed using IBM SPSS 22.0 (IBM Corporation, 2014), MPlus 7.2 (Muthén & Muthén, 2014), and Microsoft Office 365 Excel 2013 and Access 2013. Each of the outcome measures were analyzed using path analysis with maximum likelihood estimation of parameter estimates. Bootstrapping was employed to estimate the confidence intervals around the indirect effects. Bootstrapping is a nonparametric resampling procedure applied to the mediation effects in the model, using 5,000 bootstrap resamples. This procedure does not rely on the assumption of normally distributed data and is considered more powerful compared to the conventional mediation analysis (Kullik, & Petermann, 2013; Preacher & Hayes, 2008). Path analysis, a restricted type of SEM using only observed variables, served as the analytic technique in this study. Specifically, path analysis provided a way to move from a conceptual model that describes the research problem and associated questions to a multivariate regression model of the relationships between the direct and indirect effects of the study variables. Path analysis, a form of applied multiple regression, uses correlations (or covariances) to

calculate the direct and indirect effects of a theoretical relationship among variables (Everson & Millsap, 2004; Kerlinger & Lee, 2000).

Prior to conducting any data analyses, data screening procedures were conducted to ensure that study variables met the requisite assumptions of the general linear model. For example, the parameter estimation technique, maximum likelihood used in this study assumes multivariate normality of the residuals (i.e. the discrepancy between the model-implied variance-covariance matrix and the empirical variance-covariance matrix). Univariate and multivariate outlier analysis were performed to ensure normal distribution and constant variance, or homoscedasticity SEM also requires an inspection of the covariance matrix to ensure an absence of multicolinearity. The composition of the variables were inspected to avoid a covariance matrix that is singular, or that the variables in use are too highly correlated (see chapter 4 for results of the data screening).

Path analysis, a type of multivariate regression, was selected for use in this study due to the complex relationship of resource allocation to educational outcomes requiring evaluation of a number of independent and dependent variables. For this study, all variables used in the general linear model are observed variables, with no use of latent or unobserved variables. Three path models were designed to address the set of research questions associated with each ELL student outcome and the direct relationship to the four independent variables of ELL resource allocation. The models also posit an indirect relationship of the ELL student outcomes and of ELL resource allocations mediated by the accountability rating of a campus. Each of the models are detailed in the section below.

This study also employed bootstrapping as a technique to calculate the confidence intervals around the indirect effects (i.e. the amount of mediation, measured by the amount of the reduction of the effect of the independent variable on the dependent outcome variable). Preacher and Hayes (2008, 2004) describe bootstrapping as a nonparametric approach to work-around the problem of normality and sufficient sample size. Bootstrapping repeatedly samples from a study dataset and estimates the indirect effects in each resampled dataset. This process produces an empirical approximation of the sampling distribution of the indirect relationship. This is accomplished by taking a large number of samples of the same size as the original sample size, sampling with replacement, and computing the indirect effect, *ab*, in each sample. The results provide an estimate of the indirect effect, or product of the coefficients *ab*, an estimated standard error, and both 95% and 99% confidence intervals for population value of *ab*. The use of bootstrapping addresses the possibility that the product *ab* of two normally distributed random variables will not result in normally distributed results. The assumption of normally distributed variables and their product is difficult to justify because research confirms that such a product tends to be skewed and not normally distributed.

Review of Research Questions and Hypotheses

The critical realists' lens that frames this study called for clarification of the generative social and political mechanisms that explain the relationship between resources allocation and ELL educational achievement. The previous chapters explained the political mechanisms surrounding ELL education, shaped from the competing forces of state academic and accountability requirements versus shrinking financial resources

from state and local resources. The actual social and political contexts form the generative, or *real*, mechanism that surrounds the research questions. The research questions investigated with this study provide a method to reveal the *real* measurement of the ELL student success, addressing the question: are ELL students achieving successful educational outcomes measured by state tests and graduation rates, regardless of local resource allocation decisions? This study attempts to measure the impact of local resource allocation decisions, in the form of actual operating expenditures, on educational outcomes of ELL students. Specifically, this study investigated the following research questions and hypotheses:

1.　　　To what degree does resource allocation explain and/or predict the outcome of ELL educational achievement, specifically of:

    i. ELL Met Standard on TAKS reading,

    ii. ELL Met Standard on TAKS mathematics,

    iii. ELL Graduation Rate?

    Directional Hypothesis: There is a statistically significant total effect of resource allocations measures on ELL educational outcomes, specifically on:

    i. ELL Met Standard on TAKS reading,

    ii. ELL Met Standard on TAKS mathematics,

    iii. ELL Graduation Rate?

2.　　　Does the accountability rating mediate the effects of resource allocation on ELL educational outcomes, specifically on:

    i. ELL Met Standard on TAKS reading,

    ii. ELL Met Standard on TAKS mathematics,

    iii. ELL Graduation Rate?

Directional Hypothesis: Accountability rating significantly mediates the

effects of resource allocations on ELL educational outcomes,

specifically on:

    i. ELL Met Standard on TAKS reading,

    ii. ELL Met Standard on TAKS mathematics,

    iii. ELL Graduation Rate?

Three path models were used to address the set of research questions associated

with each the variables representing ELL educational outcomes. The first research

question examined the direct relationship of the four independent variables representing

resource allocations on the dependent variable, ELL educational outcome. The second

question examined whether the accountability ratings of the campus mediate the

relationship between resource allocations and ELL educational outcomes.

The Total Effect of X on Y (c) will be quantified by $c=ab+c'$.
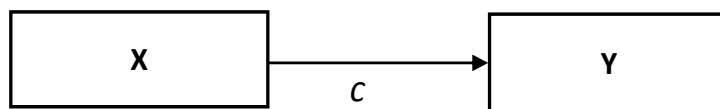
The study design used a single-mediator model to evaluate the research questions.

The mediation variable M on the relationship X and Y is illustrated below.
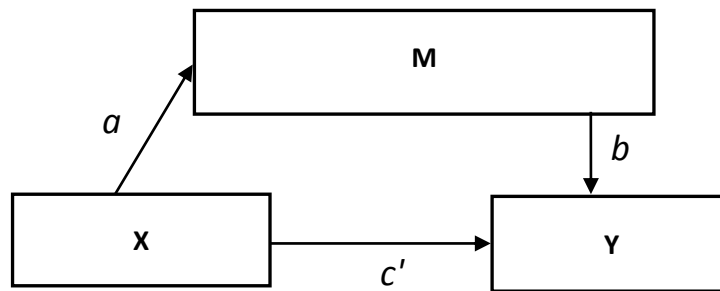
Therefore, the first model illustrated the relationship of Campus Operating Expenditures on the Percent ELL Met TAKS Standard on Reading, mediated by Accountability Rating.
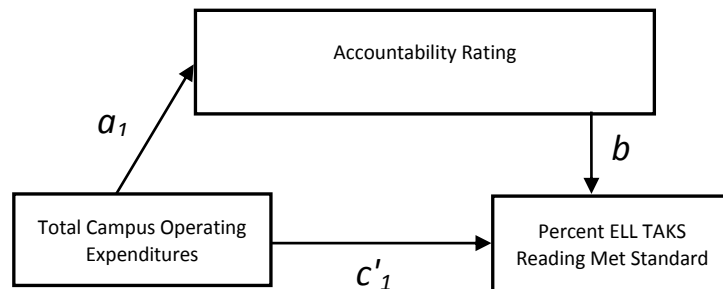
The questions of the study are based on the mediation model, which decomposes the total effect of X on Y (c), into two parts:

(a)   the indirect effect of X on Y, quantified by ab (the product of a and b), and
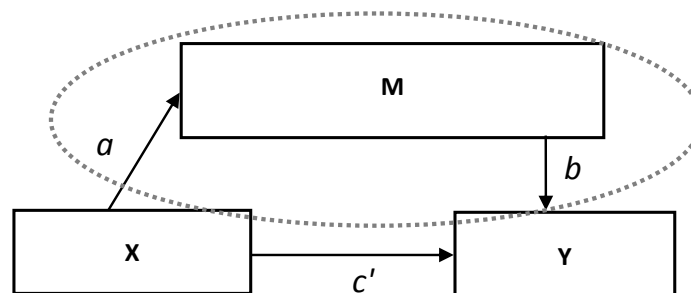
(b)   the direct effect of X on Y with the effect of the mediator removed, quantified by c'; where $c = ab + c'$.
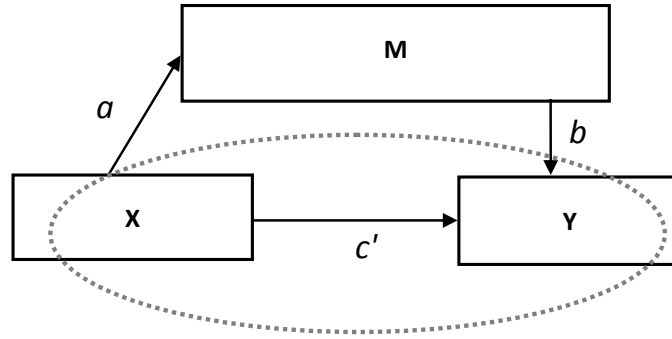
The decomposition of the total effect is quantified by the follow equations:

Mediation variable in general form: $M = aX + e$

Direct Effect in general form: $Y = cX + e$

Indirect Effect in general form: $Y = c'X + bM + e$

Based on these conceptual variables, the path analysis equations may be generated as follows:

Mediation variable

$$(1) \quad M = a_1x_1 + a_2x_2 + a_3x_3 + a_4x_4 + e,$$

Direct Effect

$$(2) \quad Y = c_1x_1 + c_2x_2 + c_3x_3 + c_4x_4 + e,$$

Indirect Effect

$$(3) \quad Y = c'_1x_1 + c'_2x_2 + c'_3x_3 + c'_4x_4 + b\,(a_1x_1 + a_2x_2 + a_3x_3 + a_4x_4) + e$$

or

$$Y = c'_1x_1 + c'_2x_2 + c'_3x_3 + c'_4x_4 + ba_1x_1 + ba_2x_2 + ba_3x_3 + ba_4x_4 + e.$$

The following illustrations explain the three research models and associated definitions for this research study.

Each model provides the total effect of ELL resources on ELL student outcomes, partitioned into direct and indirect components. The indirect effect of ELL resources on ELL student outcomes through the mediating variable Accountability Rating Pattern is

quantified as the product of coefficient a_i and b. For example, the indirect effect of Total

Campus Operating Expenditures on the Percent ELL Met TAKS Standard on Reading,

mediated by Accountability Rating, is the product of $a_1 \times b$.
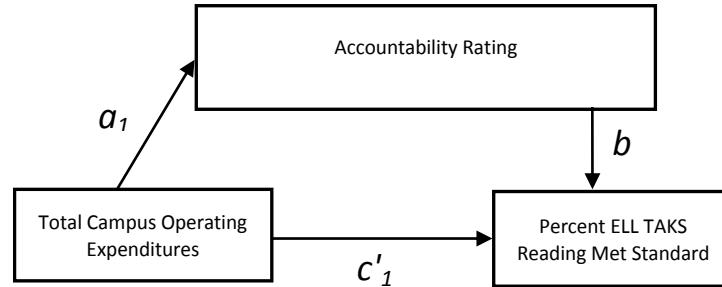
The three analytic models are provided below, followed by a comprehensive list of

variables and how they are used in the study on Table 9.
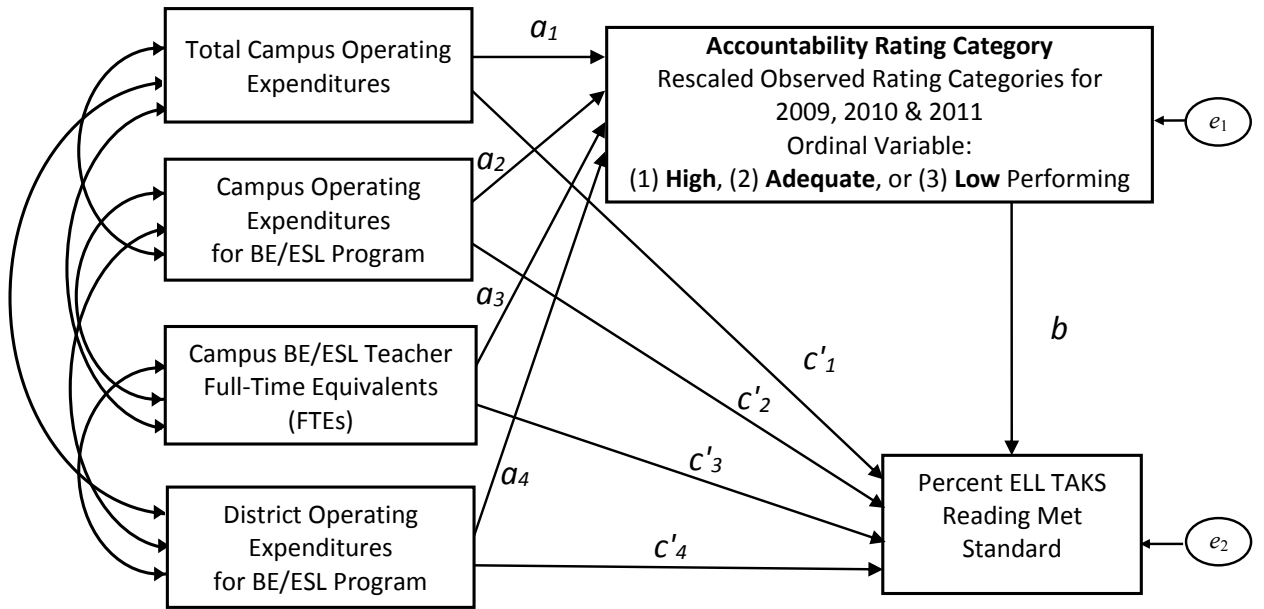
The following definitions apply to Model #1.

X = the independent variables representing Resource Allocation:
  X_1 = Campus Operating Expenditures,
  X_2 = Campus BE/ESL Expenditures,
  X_3 = Campus BE/ESL Teacher Full-Time Equivalents (FTEs),
  X_4 = District Operating BE/ESL Expenditures

Y = the dependent variable *Percent ELL TAKS Reading Met Standard*
AR = the mediation variable *Accountability Rating,* where
$$M = a_1X_1 + a_2X_2 + a_3X_3 + a_4X_4$$

a_1 = the relationship between X_1 and AR, controlling for X_2, X_3, X_4
a_2 = the relationship between X_2 and AR, controlling for X_1, X_3, X_4
a_3 = the relationship between X_3 and AR, controlling for X_1, X_2, X_4
a_4 = the relationship between X_4 and AR, controlling for X_1, X_2, X_3

c'_1 = the relationship between X_1 and Y, controlling for M
c'_2 = the relationship between X_2 and Y, controlling for M
c'_3 = the relationship between X_3 and Y, controlling for M
c'_4 = the relationship between X_4 and Y, controlling for M

b = the relationship between AR and Y, controlling for c'_1, c'_2, c'_3, c'_4

Figure 3
Research Study Model #1

Research model for the dependent variable ELL TAKS Reading Met Standard.

The following definitions apply to Model #2.

> X = the independent variables representing Resource Allocation:
> X_1 = Campus Operating Expenditures,
> X_2 = Campus BE/ESL Expenditures,
> X_3 = Campus BE/ESL Teacher Full-Time Equivalents (FTEs),
> X_4 = District Operating BE/ESL Expenditures
>
> Y = the dependent variable *Percent ELL TAKS Mathematics Met Standard*
> AR = the mediation variable *Accountability Rating,* where
> $M = a_1X_1 + a_2X_2 + a_3X_3 + a_4X_4$
>
> a_1 = the relationship between X_1 and AR, controlling for X_2, X_3, X_4
> a_2 = the relationship between X_2 and AR, controlling for X_1, X_3, X_4
> a_3 = the relationship between X_3 and AR, controlling for X_1, X_2, X_4
> a_4 = the relationship between X_4 and AR, controlling for X_1, X_2, X_3
>
> c'_1 = the relationship between X_1 and Y, controlling for M
> c'_2 = the relationship between X_2 and Y, controlling for M
> c'_3 = the relationship between X_3 and Y, controlling for M
> c'_4 = the relationship between X_4 and Y, controlling for M
>
> b = the relationship between AR and Y, controlling for c'_1, c'_2, c'_3, c'_4

Figure 4
Research Study Model #2

Research model for the dependent variable ELL TAKS Mathematics Met Standard.

Total Campus Operating Expenditures

a_1

Campus Operating Expenditures for BE/ESL Program

a_2

Campus BE/ESL Teacher Full-Time Equivalents (FTEs)

a_3

District Operating Expenditures for BE/ESL Program

a_4

Accountability Rating Category
Rescaled Observed Rating Categories for 2009, 2010 & 2011
Ordinal Variable:
(1) **High**, (2) **Adequate**, or (3) **Low** Performing

e_1

b

c'_1

c'_2

c'_3

c'_4

ELL Graduation Rate

e_2
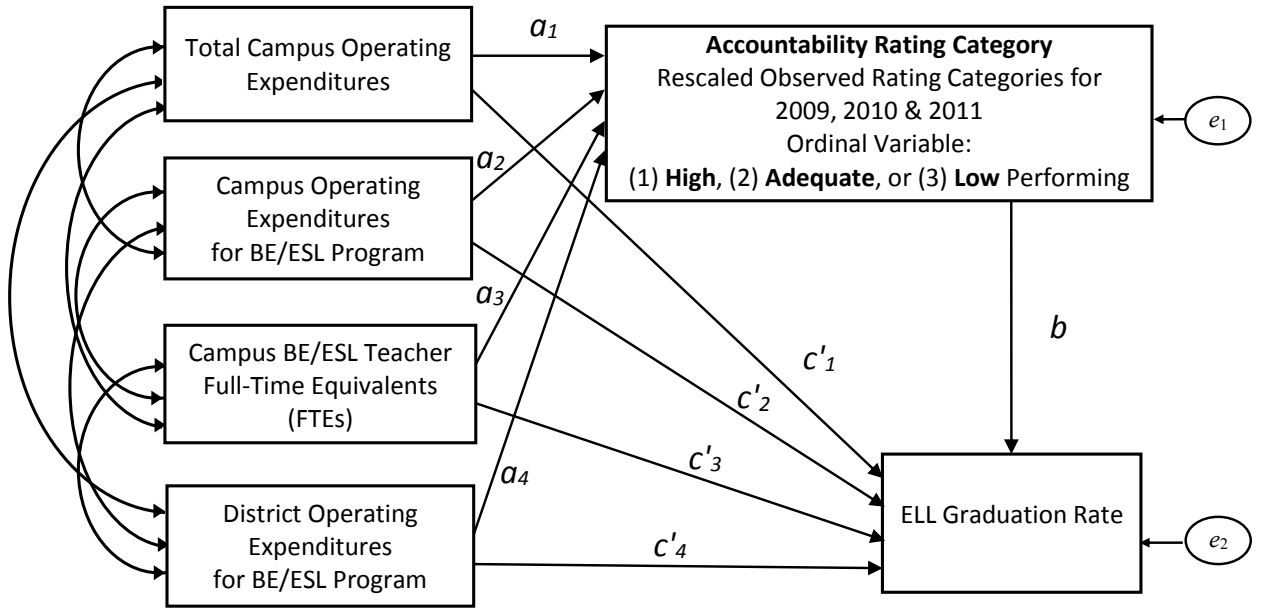
The following definitions apply to Model #3.

X = the independent variables representing Resource Allocation:
X_1 = Campus Operating Expenditures,
X_2 = Campus BE/ESL Expenditures,
X_3 = Campus BE/ESL Teacher Full-Time Equivalents (FTEs),
X_4 = District Operating BE/ESL Expenditures

Y = the dependent variable *Percent ELL Graduation Rate*
AR = the mediation variable *Accountability Rating,* where
$$M = a_1X_1 + a_2X_2 + a_3X_3 + a_4X_4$$

a_1 = the relationship between X_1 and AR, controlling for X_2, X_3, X_4
a_2 = the relationship between X_2 and AR, controlling for X_1, X_3, X_4
a_3 = the relationship between X_3 and AR, controlling for X_1, X_2, X_4
a_4 = the relationship between X_4 and AR, controlling for X_1, X_2, X_3

c'_1 = the relationship between X_1 and Y, controlling for M
c'_2 = the relationship between X_2 and Y, controlling for M
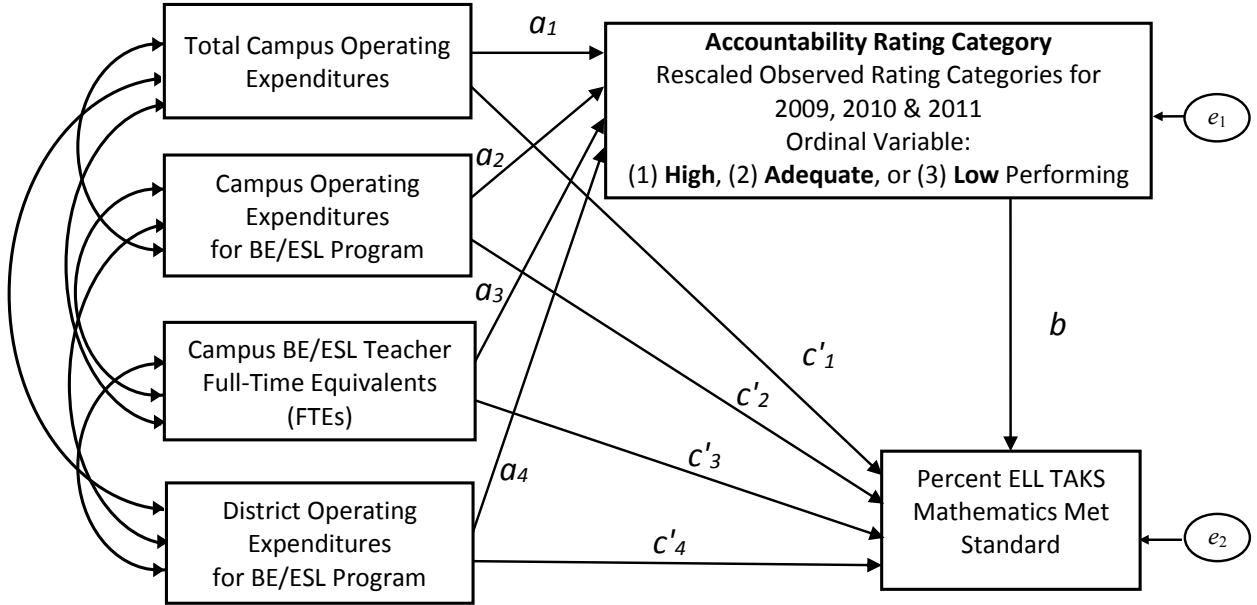c'_3 = the relationship between X_3 and Y, controlling for M
c'_4 = the relationship between X_4 and Y, controlling for M

b = the relationship between AR and Y, controlling for c'_1, c'_2, c'_3, c'_4

Figure 5
Research Study Model #3

Research model for the dependent variable ELL Graduation Rate.

A comprehensive list of all variables used in this study follows.

Table 9

Comprehensive List of Variables and Their Use

AEIS Campus Variable Names	Common Indicator Reference	AEIS Report Year	Data Type	Type of Variable	Role in Model	Reporting Method
CPFPGALLT	Operating Expenditures	2011-12	Interval/ Continuous	Independent	Exogenous	PEIMS Self-Report
CPFPGBILT	BE/ESL Expenditures	2011-12	Interval/ Continuous	Independent	Exogenous	PEIMS Self-Report
CPSTBIFP	Campus BE/ESL Teacher Full-Time Equivalents (FTEs)	2010-11	Interval/ Continuous	Independent	Exogenous	PEIMS Self-Report
DPFPGBILT	District BE/ESL Expenditures	2011-12	Interval/ Continuous	Independent	Exogenous	PEIMS Self-Report
CRAT_CAT**	State Accountability Rating Pattern	2009, 2010, & 2011	Categorical/ Ordinal	Mediator	Endogenous	Calculated by TEA*
CL311TM11R	% ELL Reading TAKS Met Standard	2010-11	Interval/ Continuous	Dependent	Endogenous	Determined by test contractor
CL311CM11R	% ELL Math TAKS Met Standard	2010-11	Interval/ Continuous	Dependent	Endogenous	Determined by test contractor
CLGC4X11R	ELL Graduation Rate	2011-12	Interval/ Continuous	Dependent	Endogenous	PEIMS Self-Report

* Variables calculated by TEA are based on PEIMS self-reported data elements.
** CRAT_CAT is a derived variable from rescaled state accountability rating patterns from 2009, 2010, and 2011.

Summary

The goal of this quantitative study was to determine the impact of the Texas public accountability measures on the resource allocation decisions of local school districts. This study examined statewide accountability outcomes and their direct relationship to actual operating expenditures, including the mediating influence of accountability measures on actual operating expenditures for instruction of ELL students.

Path analysis was used to analyze the relationship between accountability outcomes and actual operating expenditures for instruction for ELL students. District allocation decisions provide the context for school level resource allocations, therefore ELL educational outcomes, accountability measures, and resource allocation were explored at the school (campus) level. Specifically, a main goal of the study was to analyze the predictive efficacy of school resources mediated by accountability ratings on the academic success of ELL students.

CHAPTER IV

Study Results

The purpose of this study was to determine the degree and type of relationship between resource allocation and ELL achievement, specifically the extent to which accountability ratings mediate the relationship between resource allocations and ELL achievement. This chapter presents the results from the analyses including (a) descriptive statistics of the variables included in the study, (b) review of the parameters and effects of the models, and (c) evaluation of research questions and hypotheses.

Descriptive Statistics of Variables

A majority of campuses in the sample serve elementary grade levels (between kindergarten through grade 6), followed by almost a quarter serving middle school grades. Note that the first three independent variables associated with the financial resources allocated for campuses in total resources, Bilingual Education (BE) or English as a Second Language (ESL) resources, and number of teacher full-time equivalents (similar to count of full time teachers) reflect the greatest number of occurrences in the study sample. This is a result of the requirements for all school districts to report PEIMS information, specifically for the expenditure information where in the case that here are no expenditures for BE/ESL programs, a "zero" value is reported.

The dependent variables are aggregated ELL results on TAKS reading and mathematics tests, plus the overall ELL graduation rate. As mentioned in previous chapters, there are several reasons that specific campuses lack TAKS results or

graduation rates, among them are campuses that have too few students in the tested

grades 3 – 8 or high school. Due to the need for student data for a valid accountability

result, the sample includes campuses with representative students in the tested grades.

The mediating variable Accountability Rating Pattern is available for every campus in the

sample; however, the distribution of the rating patterns is skewed to the higher-level

values representing Adequate or High accountability performance over the last three

years. The variable represents the three-year pattern of state accountability rating

outcomes for school years 2008-09, 2009-10 and 2010-11. The number of low

performing rating outcomes for each of the three years was relatively low: 2009 ratings

identified 208 campuses as *Unacceptable* (2.5% of total), followed by 84 (1%) in 2010

ratings, and 496 (5.8%) in 2011.

Table 10 provides descriptive statistics of the study variables for each of the

independent (exogenous) variables and four dependent (endogenous) variables, including

the single mediating variable (also endogenous). The large values of skewness and

kurtosis indicate the resource study variables have positive skewness, with a high peak.

Table 10

Descriptive Summary of Resource Study Independent (Exogenous) Variables

	Frequency	Min	Max	Mean	Std. Deviation	Skewness	Kurtosis
Campus Operating Expenditures	6849	$493	$25,630,209	$3,503,354.22	$2,589,063.100	2.671	9.783
						Std. Error .030	Std. Error .059
Campus BE/ESL Expenditures	6842	$0	$3,155,003	$138,234.86	$326,600.300	4.252	21.990
						Std. Error .030	Std. Error .059

Table 10-Continued

Descriptive Summary of Resource Study Independent (Exogenous) Variables

	Frequency	Min	Max	Mean	Std. Deviation	Skewness	Kurtosis
District BE/ESL Expenditures	6853	$0	$154,714,478	$12,538,086.68	$31,908,672.405	3.531	12.053
						Std. Error .030	Std. Error .059
Campus BE/ESL Teacher Full-Time Equivalents (FTEs)	6847	.0000	37.4584	2.410873	4.7539306	2.997	10.279
						Std. Error .030	Std. Error .059

Descriptive statistics of the dependent variables, displayed in Table 11, indicate the sample size available for each associated model. For example, the percent of ELL students meeting standard on TAKS in reading indicates that 4,963 campuses had sufficient numbers of ELL students at the campus aggregate to be included in the model sample. Note that the model size for ELL TAKS Mathematics is similar in size; however, the sample size model evaluation of ELL Graduation Rate is only 401 campuses. The distribution of each of the dependent variables are similar as shown by the mean and standard deviation values with conservative values for skewness and kurtosis. A distribution histogram for each dependent variable is provided in Figure 6.

Table 11

Descriptive Summary of Resource Study Dependent (Endogenous) Variables

	Frequency	Min	Max	Mean	Std. Deviation	Skewness	Kurtosis
% ELL Reading TAKS Met Standard	4963	6	99.0	72.13	16.774	-.865	.391
						Std. Error .035	Std. Error .070

Table 11-Continued

Descriptive Summary of Resource Study Dependent (Endogenous) Variables

	Frequency	Min	Max	Mean	Std. Deviation	Skewness	Kurtosis
% ELL Math TAKS Met Standard	4861	6	99.0	73.67	17.896	-.939	.323
						Std. Error .035	Std. Error .070
ELL Graduation Rate	401	0.0	100.0	64.478	19.8327	-.484	.173
						Std. Error .122	Std. Error .243
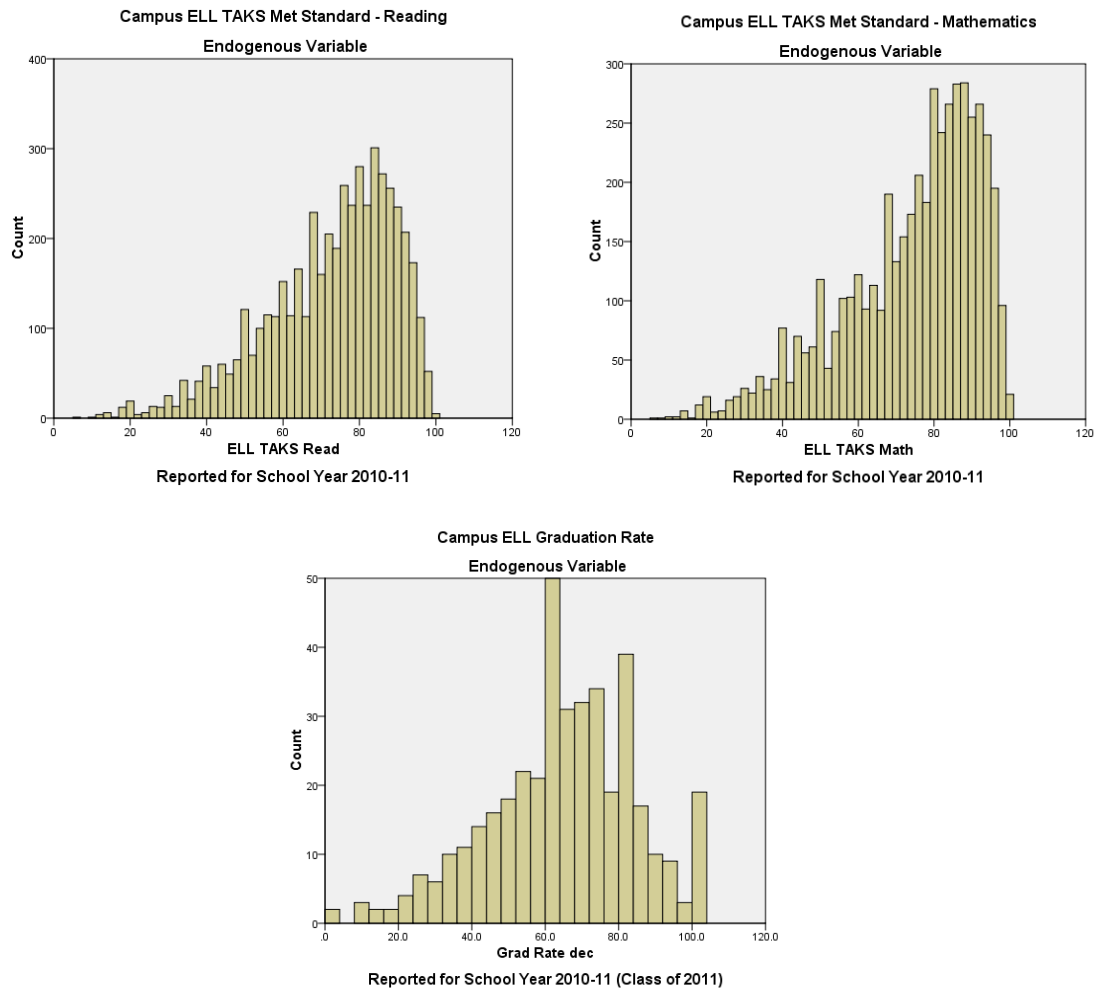
Figure 6

Histogram Distributions of Dependent (Endogenous) Study Variables

Each Dependent Study Variables represents a separate model.

Mediating variable. Table 12 provides descriptive statistics for the sample of 6,853 campuses disaggregated by Accountability Rating Pattern value for the exogenous (independent) variables used in the study. The Adequate and High values comprise the vast majority of the sample, with summary statistics indicating very similar population in both groups. Despite the skewed distribution of the mediator values, the Low rating pattern of less than 1% of all campuses is made up of 42 campuses with higher mean values for Campus Operating Expenditures and District BE/ESL Expenditures. The mean value for Campus BE/ESL Expenditures is lower than the other two categories. Table 13 provides a summary of the endogenous (dependent) variables by Accountability Rating Pattern value.

Table 12

Descriptive Summary of Independent (Exogenous) Variables by Accountability Rating Pattern

Descriptive Statistic	Campus Operating Expenditures	Campus BE/ESL Expenditures	District BE/ESL Expenditures	Campus BE/ESL Teacher FTEs
Accountability Rating Pattern				
Low				
Mean	$5,019,378.50	$102,939.17	$31,761,347.02	3.006771
Minimum	$592,506	$0	$0	.0000
Maximum	$11,667,935	$449,381	$154,714,478	13.6746
Std. Deviation	$3,473,313.59	$121,670.57	$49,816,797.80	4.2387170
Frequency	42	42	42	42
Percent of Total	0.6%	0.6%	0.6%	0.6%
Adequate				
Mean	$3,754,338.71	$120,513.46	$11,532,711.63	2.066404
Minimum	$493	$0	$0	.0000
Maximum	$25,630,209	$3,054,143	$154,714,478	37.0762
Std. Deviation	$3,054,095.74	$299,635.14	$30,080,022.68	4.1864920
Frequency	3305	3301	3305	3300
Percent of Total	48.3%	48.2%	48.2%	48.2%
High				
Mean	$3,248,306.59	$155,377.12	$13,255,538.94	2.728054
Minimum	$31,569	$0	$0	.0000
Maximum	$25,443,606	$3,155,003	$154,714,478	37.4584
Std. Deviation	$2,003,897.42	$350,900.16	$33,205,170.48	5.2179179
Frequency	3502	3499	3506	3505
Percent of Total	51.1%	51.1%	51.2%	51.2%

Table 13

Descriptive Summary of Dependent (Endogenous) Variables by Accountability Rating Pattern

Descriptive Statistic	% ELL Reading TAKS Met Standard	% ELL Math TAKS Met Standard	ELL Graduation Rate
Accountability Rating Pattern			
Low			
Mean	56.95	53.17	48.333
Minimum	22	13	16.7
Maximum	90	99	75.0
Std. Deviation	15.824	18.814	19.3966
Frequency	37	36	15
Percent of Total Sample	0.7%	0.7%	3.7%
Adequate			
Mean	64.20	64.94	64.027
Minimum	6	6	.0
Maximum	98	99	100.0
Std. Deviation	16.748	17.942	19.5307
Frequency	2481	2483	332
Percent of Total Sample	50.0%	51.1%	82.8%
High			
Mean	80.40	83.24	71.737
Minimum	20	17	20.0
Maximum	99	99	100.0
Std. Deviation	12.130	11.803	18.9266
Frequency	2445	2342	54
Percent of Total Sample	49.3%	48.2%	13.5%

Data Screening

Prior to running the analysis, data-screening procedures were conducted on all three samples. First, the data were screened for outliers. A check for the univariate statistics and the Mahalanobis distances obtained from the MPlus 7.2 PLOT command

(Muthén & Muthén, 2014) did not reveal any extreme outliers. The data were also screened for univariate normality using IBM SPSS 22.0 software. Suggested cutoffs of skewness < |2.0| and kurtosis > |7.0| provided by West, Finch, and Curran (1995) reveal that the three outcome variables were univariate normal (see Table 11).

The mediating variable used in this study was rescaled to one of three values. Unlike a Likert scale, the distribution of the rescaled variable is a result of the three-year pattern of Accountability Rating outcomes for campuses. Each year, the accountability rating distribution identifies rating outcomes among four rating categories that are not normally distributed. A summary of each of the rating results for the years in this study are provided in Table 14 and 15. As a result, the rescaled accountability rating pattern is a mediating variable that exhibits excessive univariate skewness. Although the rescaled values were attempts to create a continuous variable, researchers suggest that 4-point Likert data are inherently non-normal (Muthén & Kaplan, 1985). Due to lacking a mediator variable that is normally distributed, care should be taken when interpreting the results.

Table 14

Descriptive Summary of Mediating Variable Accountability Rating Pattern

	Frequency	Percent of Total	Skewness	Skewness Standard Error	Kurtosis	Kurtosis Standard Error
Re-scaled Rating Pattern Value						
Low	42	0.60%				
Adequate	3,305	48.30%				
High	3,502	51.10%				
Total	6,849	100%	-.159	.030	-1.640	.059

Table 15

Underlying Rating Results comprising the Mediating Variable Accountability Rating Pattern: Three-year Accountability Rating Distribution

	Total	Unacceptable	Academically Acceptable	Recognized	Exemplary
2009 Campus Accountability Ratings					
Frequency	7,662	245	2,316	2,943	2,158
Percent of Total	100%	3.2%	30.2%	38.4%	28.2%
2010 Campus Accountability Ratings					
Frequency	7,785	104	1,884	3,160	2,637
Percent of Total	100%	1%	24%	41%	34%
2011 Campus Accountability Ratings					
Frequency	7,882	530	3,287	2,833	1,232
Percent of Total	100%	7%	42%	36%	16%

Finally, a correlation matrix containing each of the study variables was constructed (see Table 16). The correlations are *Pearson's r* to determine the strength of the relationship between each pair of variables. These correlations provided an indication if there was bivariate multicollinearity. Using the Pearson Correlation with a cutoff of r ≥ |.85| (Kline, 2005), there were no instances of bivariate multicollinearity.

Table 16
Correlation Matrix of Resource Study Variables

	% ELL TAKS Reading	Acctb Rating Pattern	Campus BE/ESL Teacher FTEs	Campus Operating Expenditures	Campus BE/ESL Expenditures	District BE/ESL Expenditures
% ELL TAKS Met Standard Reading						
Pearson Correlation	1	.486**	.216**	-.229**	.209**	.102**
Test of Significance (2-tailed)		.000	.000	.000	.000	.000
N (number of observations)	4963	4963	4960	4963	4961	4963
% ELL TAKS Met Standard Mathematics						
Pearson Correlation	1	.518**	.242**	-.304**	.232**	.107**
Test of Significance (2-tailed)		.000	.000	.000	.000	.000
N (number of observations)	4861	4861	4857	4861	4859	4861

Table 16-Continued

Correlation Matrix of Resource Study Variables

	% ELL TAKS Reading	Acctb Rating Pattern	Campus BE/ESL Teacher FTEs	Campus Operating Expenditures	Campus BE/ESL Expenditures	District BE/ESL Expenditures
% ELL Graduation Rate						
Pearson Correlation	1	.198**	**-.049**	**-.006**	-.157**	-.179**
Test of Significance (2-tailed)		.000	.324	.903	.002	.000
N (number of observations)	401	401	401	401	401	401
Accountability Rating Pattern						
Pearson Correlation		1	.065**	-.105**	.054**	**.015**
Test of Significance (2-tailed)			.000	.000	.000	.207
N (number of observations)		6853	6847	6849	6842	6853
Campus BE/ESL Teacher FTEs						
Pearson Correlation			1	.091**	.386**	.072**
Test of Significance (2-tailed)				.000	.000	.000
N (number of observations)			6847	6843	6836	6847
Campus Operating Expenditures						
Pearson Correlation				1	.079**	.137**
Test of Significance (2-tailed)					.000	.000
N (number of observations)				6849	6842	6849
Campus BE/ESL Expenditures						
Pearson Correlation					1	.527**
Test of Significance (2-tailed)						.000
N (number of observations)					6842	6842
District BE/ESL Expenditures						
Pearson Correlation						1
Test of Significance (2-tailed)						
N (number of observations)						6853

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

Model Results

The estimator chosen for this study is a maximum likelihood (ML) model for specific path analysis of indirect effect. The mediator, accountability pattern, was defined as an ordinal variable with three values skewed toward the higher values representing "high" and "adequate" patterns of rating outcomes. In order to apply a continuous mediator for regression that describes the influence of the mediator on multiple measure of student outcomes, a mediation model using ML estimation techniques was chosen. Mplus software was used to generate the path analysis model estimated with continuous dependent variables using the default maximum likelihood estimator for this type of analysis. Of the 6,853 campuses included in the study sample, the number of campuses with sufficient data for analysis differs for each of the three models included in this study. The resulting parameters of each model are described in the following tables.

Model 1

Model 1 is depicted in Figure 7. The Percent of ELL Met TAKS Standard on Reading was regressed on the four ELL resources. In addition, the mediator variable Accountability Rating Pattern was included to mediate the effects of the four ELL resources on the Percent of ELL Met TAKS Standard on Reading. The direct effects include those from the four ELL resources (Campus Operating Expenditures, Campus BE/ESL Expenditures, District BE/ESL Expenditures, Campus BE/ESL Teacher FTEs) on the mediator and Percent of ELL Met TAKS Reading. In addition, there is a direct effect from the mediator, Accountability Rating Pattern, to Percent of ELL Met TAKS

Reading. Finally there are four indirect effects, one from each exogenous variable through the mediator variable to the endogenous variable Percent of ELL Met TAKS Reading.

Model # 1: Dependent variable ELL TAKS Met Standard in Reading
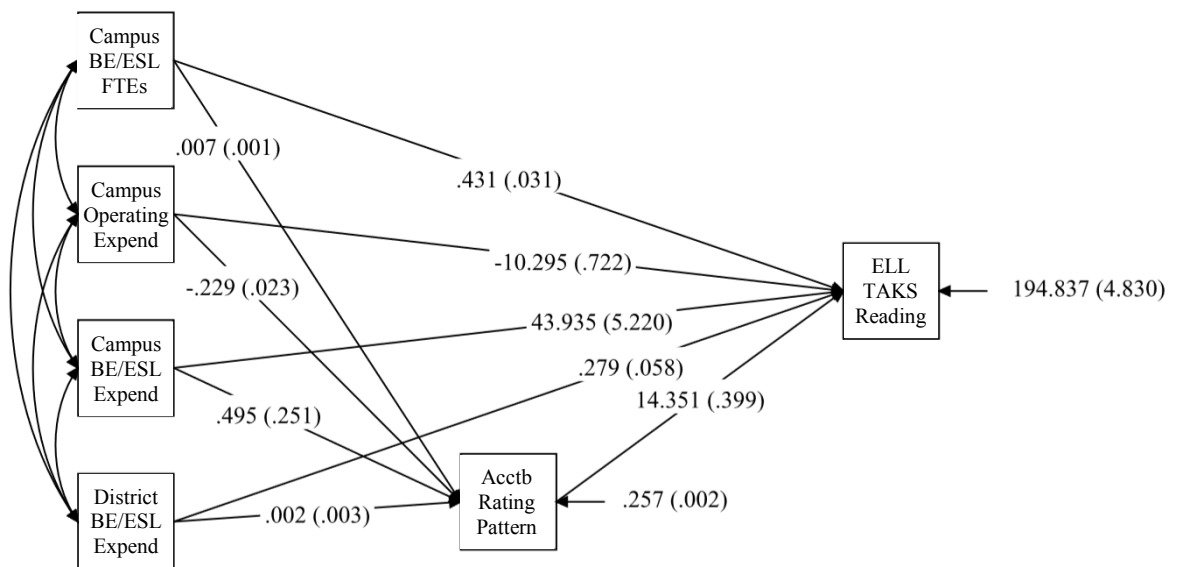

Figure 7
Model #1: Results for Dependent variable ELL TAKS Met Standard Reading

Model output for the dependent variable ELL TAKS Met Standard - Reading.

Note: Unstandardized path coefficients are displayed.

Table 17

Results of Path Analysis from Model #1: ELL TAKS Reading Met Standard

	Standardized Estimate	Unstandardized Estimate	Standard Error	Estimated Standard Error	p-value	95% Lower Bound	95% Upper Bound
Direct Effect of each Independent (Exogenous) variable on ELL TAKS Reading							
$(c'_1 - c'_4)$							
Campus BE/ESL Teacher FTEs	0.124	0.431	0.031	14.035	**0.000**	0.371	0.491
Campus Operating Expenditures	-0.162	-10.295	0.722	-14.259	**0.000**	-11.710	-8.880
Campus BE/ESL Expenditures	0.087	43.935	5.220	8.417	**0.000**	33.705	54.166
District BE/ESL Expenditures	0.054	0.279	0.058	4.783	**0.000**	0.165	0.393
Effect of Mediator Accountability Rating Pattern on ELL TAKS Reading							
$(b_1 - b_4)$	0.446	14.351	0.399	35.973	0.000	13.569	15.133
Direct Effect of each Independent (Exogenous) variable on Accountability Rating Pattern							
$(a_1 - a_4)$							
Campus BE/ESL Teacher FTEs	0.063	0.007	0.001	4.936	0.000	0.004	0.009
Campus Operating Expenditures	-0.116	-0.229	0.023	-9.759	0.000	-0.275	-0.183
Campus BE/ESL Expenditures	0.032	0.495	0.251	1.973	0.048	0.003	0.986
District BE/ESL Expenditures	0.013	0.002	0.003	0.824	0.410	-0.003	0.007
Indirect Effect of each Independent (Exogenous) variable through Accountability Rating Pattern on ELL TAKS Reading							
$(a_i * b)$							
Campus BE/ESL Teacher FTEs	0.028	0.097	0.020	4.869	0.000	**0.058**	**0.137**
Campus Operating Expenditures	-0.052	-3.288	0.348	-9.454	0.000	**-3.970**	**-2.606**
Campus BE/ESL Expenditures	0.014	7.099	3.609	1.967	0.049	**0.025**	**14.172**
District BE/ESL Expenditures	0.006	0.030	0.036	0.824	0.410	-0.041	0.100

Table 17-Continued

Results of Path Analysis from Model #1: ELL TAKS Reading Met Standard

	Standardized Estimate	Unstandardized Estimate	Standard Error	Estimated Standard Error	p-value	95% Lower Bound	95% Upper Bound
Total Effect of each Independent (Exogenous) variable on ELL TAKS Reading mediated by Accountability Rating Pattern							
(c= c'+ a_i*b)							
Campus BE/ESL Teacher FTEs	0.152	**0.528**	0.033	16.009	0.000	0.464	0.593
Campus Operating Expenditures	-0.214	**-13.583**	0.789	-17.219	0.000	-15.129	-12.037
Campus BE/ESL Expenditures	0.101	**51.034**	6.235	8.185	0.000	38.814	63.255
District BE/ESL Expenditures	0.060	0.308	0.071	4.361	0.000	0.170	0.447

The resulting parameters are found in the table above and consist of direct, indirect, and total effects. I divided the results into these two areas plus a discussion of the overall model results.

Direct Effects. The hypothesis for this model is that greater campus ELL resources increase ELL student achievement of campuses when measured by the campus Percent ELL Met TAKS Standard on Reading. Table 17 presents data on direct effects that indicate three of the paths in the model data supported the hypothesis and suggested that increased ELL resources lead to statistically significantly more likely increases in campus ELL student achievement in reading. As hypothesized, increases in Campus BE/ESL Teacher FTEs were statistically significantly more likely to led to increases in the Percent of ELL TAKS Reading (*coefficient estimate noted as c' = 0.431, SE = 0.031, 95% CI [0.371, 0.491]*). Increases in Campus BE/ESL Expenditures were also statistically significantly more likely to lead to increases in the Percent of ELL TAKS

Reading ($c' = 43.935$, $SE = 5.220$, 95% CI [33.705, 54.166]). In addition, increases in

District BE/ESL Expenditures were statistically significantly more likely to lead to

increases in the Percent of ELL TAKS Reading ($c' = 0.279$, $SE = 0.058$, 95% CI [0.165,

0.393]). The only direct path that resulted in a negative relationship was Campus

Operating Expenditures, suggesting that increased campus operating expenditures led to

decreases in ELL student achievement measured by Percent of ELL TAKS Reading

results. Table 17 also provides the standardized estimate of the direct relationship. Using

the standardized estimate in the range of 0.0 - 2.9 (Cohen, 1988), a small effect size was

found for each independent variable.

Table 18

Basic Mediation Analysis Model #1: ELL TAKS Reading Met Standard

	Sobel's z-value	Standard Error	p-value	95% Lower Bound	95% Upper Bound	Indirect/ Total Ratio
Independent (Exogenous) variables						
Campus BE/ESL Teacher FTEs	6.871	0.015	**0.0000**	0.072	0.129	0.184
Campus Operating Expenditures	-9.596	0.342	**0.0000**	-3.958	-2.615	0.242
Campus BE/ESL Expenditures	1.969	3.608	0.0489	0.033	14.174	0.139
District BE/ESL Expenditures	0.667	0.043	0.5051	-0.056	0.113	0.097

Indirect Effects. Table 17 also provides the indirect effects of each independent

(exogeneous) variables through the mediating variable, Accountability Rating Pattern, on

Percent ELL TAKS Met Standard on Reading. Three of the four ELL resources, Campus

BE/ESL Teacher FTEs, Campus Operating Expenditures, and Campus BE/ESL

Expenditures were statistically significantly mediated by the accountability rating pattern.

Of these, two the three resources had a positive relationship where only Campus Operating Expenditures had a negative relationship between the independent (exogeneous) resource variables and Percent ELL TAKS Reading. The non-parametric bootstrap procedure of 5,000 repetitions produced confidence intervals reported on Table 17. The confidence intervals indicated that the indirect effects of District BE/ESL Expenditures was not statistically significant (i.e. not different from zero because zero appeared within the confidence interval).

Model 1 Results. The total effects of Model 1 are provided in Table 17. The results suggests that for any one unit of Campus BE/ESL Teacher FTEs, on average, the Percent ELL TAKS Reading was 0.528 percentage points higher. This finding implies that for every one unit of BE/ESL Teacher full-time equivalent (FTE) staff added to a campus, the percent of ELL students on the campus that Met Standard on TAKS Reading are predicted to increase by half of one percentage point. Of that total effect (half of one percentage point), the campuses' Percent ELL TAKS Reading were 0.097 percentage points higher on average as a result of the effect of their Accountability Rating Pattern (change in the accountability rating over a three-year period), which in turn affects their Percent ELL TAKS Reading. The rest of the difference, 0.431, is independent of the effect of the changes in the accountability rating over a three-year period measured by the mediating variable Accountability Rating Pattern. This finding implies that the accountability rating explains very little of the relationship between every one unit of BE/ESL Teacher full-time equivalent (FTE) staff added to a campus and the predicted increase in the percent of ELL students on the campus that Met Standard on TAKS Reading.

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Recall that due to the wide range of campus sizes and resources, all three

expenditure variables (Campus Operating Expenditures, Campus BE/ESL Expenditures

and District BE/ESL Expenditures) were rescaled from reported dollar amounts to

represent the value one for every ten million dollars (original expenditures/10,000,000).

The results shown on Table 17 indicate Campus BE/ESL Expenditures have the same

pattern as Campus BE/ESL Teacher FTEs, suggesting that for any one unit of Campus

BE/ESL Expenditures on average, the Percent ELL TAKS Reading was 51.034

percentage points higher. The finding implies that for every one unit of BE/ESL

Expenditures added to a campus, the percent of ELL students on the campus that Met

Standard on TAKS Reading are predicted to increase by over 50 percentage points.

However, due to the rescaled expenditure values, the single unit represents an additional

ten million dollars in expenditures. Of that total effect, the campuses' Percent ELL TAKS

Reading were 7.099 percentage points higher on average as a result of the effect of their

Accountability Rating Pattern, which in turn affects their Percent ELL TAKS Reading.

The remainder of the difference, 43.935, is independent of the effect of the changes in the

accountability rating over a three-year period measured by the mediating variable

Accountability Rating Pattern. This finding implies that the accountability rating explains

very little of the relationship between every one unit of BE/ESL Expenditures added to a

campus and the predicted increase in the percent of ELL students on the campus that Met

Standard on TAKS Reading.

Unlike the previous resource variables discussed above, the results indicate a

negative relationship with the variable Campus Operating Expenditures. The results

suggest that for any one-unit increase of Campus Operating Expenditures on average, the

Percent ELL TAKS Reading was 13.583 percentage points lower. The finding implies that for every one unit of Operating Expenditures, an additional ten million dollars in expenditures added to a campus, the percent of ELL students on the campus that Met Standard on TAKS Reading are predicted to increase by 14 percentage points. Of that total effect, the campuses' Percent ELL TAKS Reading were 3.288 percentage points lower on average as a result of the effect of their Accountability Rating Pattern, representing the change in the accountability rating over a three-year period, which in turn affects their Percent ELL TAKS Reading. The rest of the difference, 10.295, is independent of the effect of the changes in the accountability rating over a three-year period measured by the mediating variable Accountability Rating Pattern. This finding implies that the accountability rating explains very little of the relationship between every one unit of Operating Expenditures (an additional ten million dollars) added to a campus and the predicted increase in the percent of ELL students on the campus that Met Standard on TAKS Reading. Table 18 provides the basic mediation analysis values of Sobel test (z-value), confidence intervals, and ratio of indirect to total effect. Although each of the independent variables indicate a strong Sobel test of significance, the ratio indicates that the accountability pattern (mediator) explains very little of the variance is the relationship between ELL resource allocation variables and ELL TAKS Met Standard on Reading.

Model 2

Model 2 is depicted in Figure 8. The Percent of ELL Met TAKS Standard on Mathematics was regressed on the four ELL resources. In addition, the mediator variable

Accountability Rating Pattern was included to mediate the effects of the four ELL

resources on the Percent of ELL Met TAKS Standard on Mathematics. The direct effects

include those from the four ELL resources (Campus Operating Expenditures, Campus

BE/ESL Expenditures, District BE/ESL Expenditures, Campus BE/ESL Teacher FTEs)

on the mediator, Accountability Rating Pattern, and Percent of ELL Met TAKS

Mathematics. In addition, there is a direct effect from the mediator to Percent of ELL Met

TAKS Mathematics. Finally there are four indirect effects one from each exogenous

variable through the mediator variable to the endogenous variable Percent of ELL Met

TAKS Mathematics.

Model # 2: Dependent variable ELL TAKS Met Standard in Mathematics
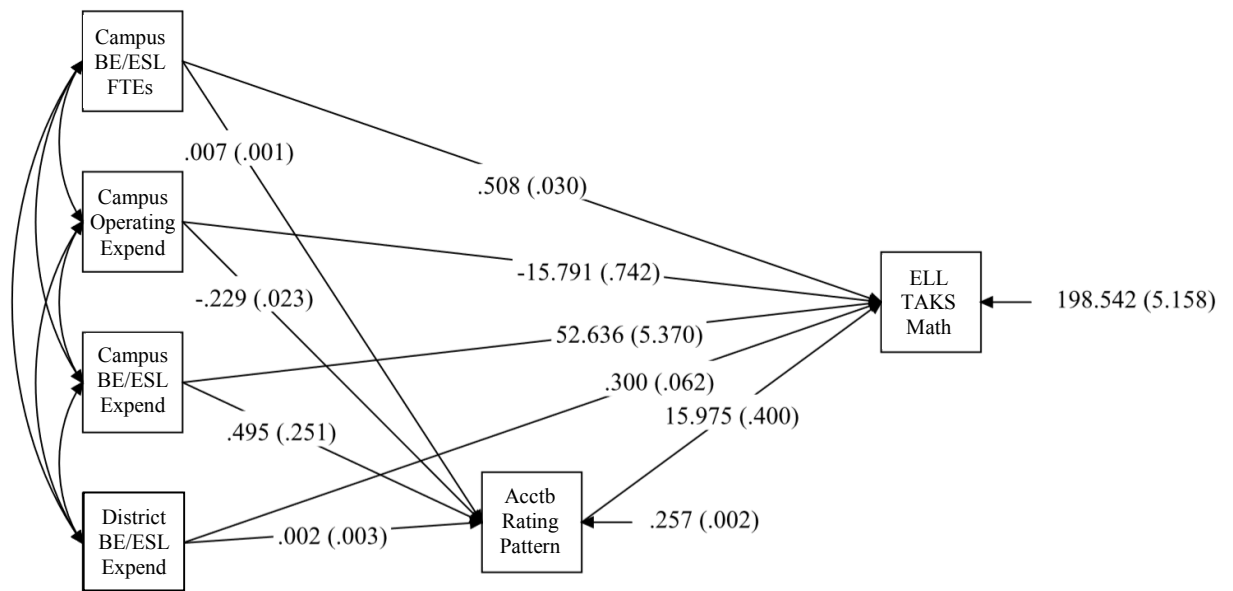

Figure 8
Model #2: Results for Dependent variable ELL TAKS Met Standard Mathematics

Model output for the dependent variable ELL TAKS Met Standard.- Mathematics

Note: Unstandardized path coefficients are displayed.

Table 19

Results of Path Analysis from Model #2: ELL TAKS Mathematics Met Standard

	Standardized Estimate	Unstandardized Estimate	Standard Error	Estimated Standard Error	p-value	95% Lower Bound	95% Upper Bound
Direct Effect of each Independent (Exogenous) variable on ELL TAKS Mathematics							
$(c'_1 - c'_4)$							
Campus BE/ESL Teacher FTEs	0.138	0.508	0.030	16.695	**0.000**	0.448	0.568
Campus Operating Expenditures	-0.234	-15.791	0.742	-21.293	**0.000**	-17.244	-14.337
Campus BE/ESL Expenditures	0.099	52.636	5.370	9.801	**0.000**	42.11	63.161
District BE/ESL Expenditures	0.054	0.300	0.062	4.839	**0.000**	0.178	0.421
Effect of Mediator Accountability Rating Pattern on ELL TAKS Reading							
$(b_1 - b_4)$	0.469	15.975	0.400	39.927	0.000	15.190	16.759
Direct Effect of each Independent (Exogenous) variable on Accountability Rating Pattern							
$(a_1 - a_4)$							
Campus BE/ESL Teacher FTEs	0.063	0.007	0.001	4.936	0.000	0.004	0.009
Campus Operating Expenditures	-0.116	-0.229	0.023	-9.758	0.000	-0.275	-0.183
Campus BE/ESL Expenditures	0.032	0.495	0.251	1.974	0.048	0.003	0.986
District BE/ESL Expenditures	0.013	0.002	0.003	0.824	0.410	-0.003	0.007
Indirect Effect of each Independent (Exogenous) variable through Accountability Rating Pattern on ELL TAKS Reading							
$(a_i * b)$							
Campus BE/ESL Teacher FTEs	0.030	0.108	0.022	4.859	0.000	0.065	0.152
Campus Operating Expenditures	-0.054	-3.660	0.385	-9.516	0.000	-4.414	-2.906
Campus BE/ESL Expenditures	0.015	7.903	4.015	1.969	0.049	0.034	15.772
District BE/ESL Expenditures	0.006	0.033	0.040	0.824	0.410	-0.046	0.112

Table 19-Continued

Results of Path Analysis from Model #2: ELL TAKS Mathematics Met Standard

	Standardized Estimate	Unstandardized Estimate	Standard Error	Estimated Standard Error	p-value	95% Lower Bound	95% Upper Bound
Total Effect of each Independent (Exogenous) variable on ELL TAKS Mathematics mediated by Accountability Rating Pattern							
*(c= c'+ a$_i$*b)*							
Campus BE/ESL Teacher FTEs	0.168	0.616	0.033	18.529	0.000	0.551	0.682
Campus Operating Expenditures	-0.288	-19.451	0.854	-22.787	0.000	-21.124	-17.778
Campus BE/ESL Expenditures	0.114	60.539	6.526	9.276	0.000	47.747	73.331
District BE/ESL Expenditures	0.060	0.333	0.073	4.552	0.000	0.189	0.476

The resulting parameters for the second model are found in the table above and consist of direct, indirect, and total effects. I divided the results into these two areas plus a discussion of the overall model results.

Direct Effects. The hypothesis for this model is that greater campus ELL resources increase ELL student achievement of campuses when measured by the campus Percent ELL Met TAKS Standard on Mathematics results. Table 19 presents data on direct effects that indicate three of the paths in the model data supported my hypothesis and suggested that increased ELL resources lead to statistically significantly more likely increases in campus ELL student achievement in mathematics. As hypothesized, increases in Campus BE/ESL Teacher FTEs were statistically significantly more likely to led to increases in the Percent of ELL TAKS Mathematics (*coefficient estimate noted as c' = 0.508, SE = 0.030, 95% CI [0.448, 0.568]*). Increases in Campus BE/ESL Expenditures were also statistically significantly more likely to lead to increases in the

Percent of ELL TAKS Mathematics ($c' = 52.636$, *SE* = 5.370, 95% CI [42.11, 63.161]).

In addition, increases in District BE/ESL Expenditures were statistically significantly

more likely to led to increases in the Percent of ELL TAKS Mathematics ($c' = 0.300$, *SE*

= 0.062, 95% CI [0.178, 0.421]). The only direct path that resulted in a negative

relationship was Campus Operating Expenditures, suggesting that increased campus

operating expenditures led to decreases in ELL student achievement measured by Percent

of ELL TAKS Mathematics results. Table 19 also provides the standardized estimate of

the direct relationship. Using the standardized estimate in the range of 0.0 – 0.29 (Cohen,

1988), a small effect size was found for each independent variable.

Table 20

Basic Mediation Analysis Model #2: ELL TAKS Mathematics Met Standard

	Sobel's *z*-value	Standard Error	p-value	95% Lower Bound	95% Upper Bound	Indirect/ Total Ratio
Independent (Exogenous) variables						
Campus BE/ESL Teacher FTEs	6.895	0.016	**0.0000**	0.076	0.140	0.175
Campus Operating Expenditures	-9.661	0.379	**0.0000**	-4.402	-2.918	0.188
Campus BE/ESL Expenditures	1.970	4.015	0.0489	0.034	15.772	0.131
District BE/ESL Expenditures	0.667	0.048	0.5050	-0.061	0.127	0.099

Indirect Effects. Table 19 provides the indirect effects of each independent

(exogeneous) variables through the mediating variable, Accountability Rating Pattern, on

Percent ELL TAKS Met Standard on Mathematics. Three of the four ELL resources,

Campus BE/ESL Teacher FTEs, Campus Operating Expenditures, and Campus BE/ESL

Expenditures were statistically significantly mediated by the accountability rating pattern. Of these, two the three resources had a positive relationship where only Campus Operating Expenditures had a negative relationship between the independent (exogeneous) resource variables and Percent ELL TAKS Mathematics. The non-parametric bootstrap procedure of 5,000 repetitions produced confidence intervals reported on Table 19. The confidence intervals indicated that the indirect effects of District BE/ESL Expenditures was not statistically significant (i.e. not different from zero because zero appeared within the confidence interval).

Model 2 Results. The total effects of Model 2 are provided in Table 19. The results suggests that for any one unit of Campus BE/ESL Teacher FTEs on average, the Percent ELL TAKS Mathematics was 0.616 percentage points higher. This finding implies that for every one unit of BE/ESL Teacher full-time equivalent (FTE) staff added to a campus, the percent of ELL students on the campus that Met Standard on TAKS Reading are predicted to increase by over half of one percentage point. Of that total effect (over half of one percentage point), the campuses' Percent ELL TAKS Mathematics were 0.108 percentage points higher on average as a result of the effect of their Accountability Rating Pattern, which in turn affects their Percent ELL TAKS Mathematics. The rest of the difference, 0.508, is independent of the effect of the changes in the accountability rating over a three-year period measured by the mediating variable Accountability Rating Pattern. This finding implies that the accountability rating explains very little of the relationship between every one unit of BE/ESL Teacher full-time equivalent (FTE) staff added to a campus and the predicted increase in the percent of ELL students on the campus that Met Standard on TAKS Mathematics.

The results shown on Table 19 also indicate Campus BE/ESL Expenditures have the same pattern as Campus BE/ESL Teacher FTEs, suggesting that for any one unit of Campus BE/ESL Expenditures average, the Percent ELL TAKS Mathematics was 60.539 percentage points higher. Due to the rescaled expenditure values, this implies that for every one unit of BE/ESL Expenditures, an additional ten million dollars in expenditures added to a campus, the percent of ELL students on the campus that Met Standard on TAKS Mathematics are predicted to increase by over 60 percentage points. Of that total effect, the campuses' Percent ELL TAKS Mathematics were 7.903 percentage points higher on average as a result of the effect of their Accountability Rating Pattern, which in turn affects their Percent ELL TAKS Mathematics. The remainder of the difference, 52.636, is independent of the effect of the changes in the accountability rating over a three-year period measured by the mediating variable Accountability Rating Pattern. This finding implies that the accountability rating explains very little of the relationship between every one unit of BE/ESL Expenditures added to a campus and the predicted increase in the percent of ELL students on the campus that Met Standard on TAKS Mathematics.

Like the previous model, the results for Model 2 indicate a negative relationship with the variable Campus Operating Expenditures. The results suggest that for any one-unit increase of Campus Operating Expenditures on average, the Percent ELL TAKS Mathematics was 19.451 percentage points lower. The finding implies that for every one unit of Operating Expenditures, an additional ten million dollars in expenditures added to a campus, the percent of ELL students on the campus that Met Standard on TAKS Mathematics are predicted to increase by 19 percentage points. Of that total effect, the

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campuses' Percent ELL TAKS Mathematics were 3.660 percentage points lower on average as a result of the effect of their Accountability Rating Pattern, representing the change in the accountability rating over a three-year period, which in turn affects their Percent ELL TAKS Mathematics. The rest of the difference, 15.791, is independent of the effect of the changes in the accountability rating over a three-year period measured by the mediating variable Accountability Rating Pattern. This finding implies that the accountability rating explains very little of the relationship between every one unit of Operating Expenditures (an additional ten million dollars) added to a campus and the predicted increase in the percent of ELL students on the campus that Met Standard on TAKS Mathematics. Table 20 provides the basic mediation analysis values of Sobel test (z-value), confidence intervals, and ratio of indirect to total effect. Although each of the independent variables indicate a strong Sobel test of significance, the ratio indicates that the accountability pattern (mediator) explains very little of the variance is the relationship between ELL resource allocation variables and ELL TAKS Met Standard on Mathematics.

Model 3

Model 3 is depicted in Figure 9. The Percent of ELL Graduation Rate was regressed on the four ELL resources. In addition, the mediator variable Accountability Rating Pattern was included to mediate the effects of the four ELL resources on the ELL Graduation Rate. The direct effects include those from the four ELL resources (Campus Operating Expenditures, Campus BE/ESL Expenditures, District BE/ESL Expenditures, Campus BE/ESL Teacher FTEs) on the mediator, Accountability Rating Pattern, and

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ELL Graduation Rate. In addition, there is a direct effect from the mediator to ELL

Graduation Rate. Finally there are four indirect effects one from each exogenous variable

through the mediator variable to the endogenous variable ELL Graduation Rate.

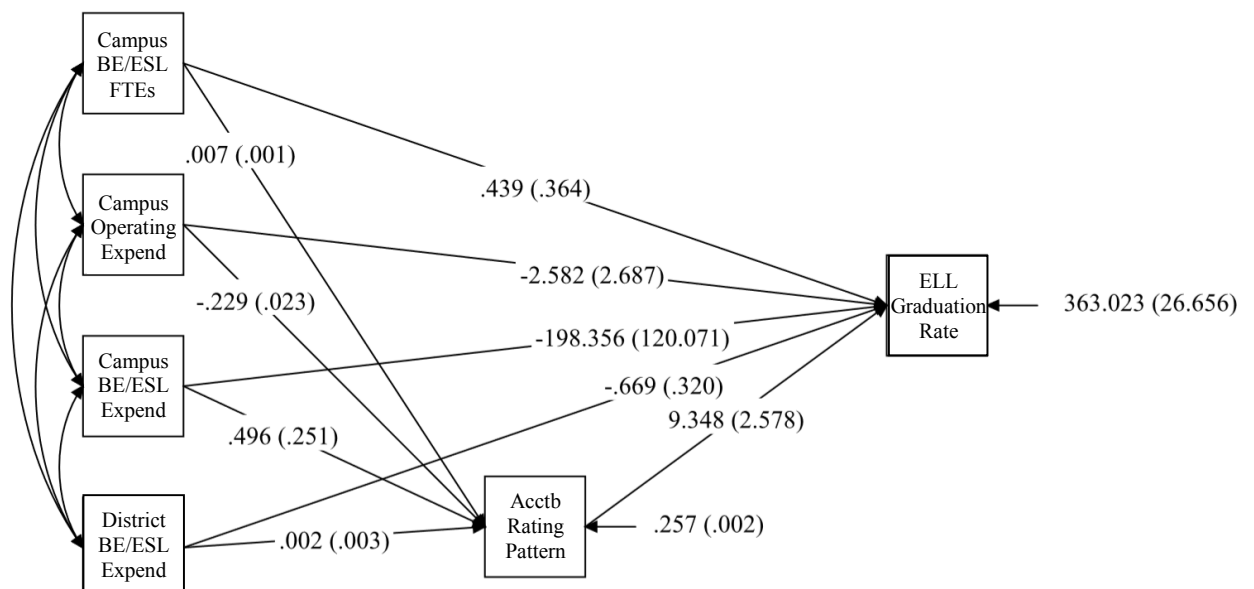**Model # 3: Dependent variable ELL Graduation Rate**

Figure 9
Model #3: Results for Dependent variable ELL Graduation Rate

Model output for the dependent variable ELL Graduation Rate

Note: Unstandardized path coefficients are displayed.

Table 21

Results of Path Analysis from Model #3: ELL Graduation Rate

	Standardized Estimate	Unstandardized Estimate	Standard Error	Estimated Standard Error	p-value	95% Lower Bound	95% Upper Bound
Direct Effect of each Independent (Exogenous) variable on ELL TAKS Reading							
$(c'_1 - c'_4)$							
Campus BE/ESL Teacher FTEs	0.100	0.439	0.364	1.206	0.228	-0.274	1.152
Campus Operating Expenditures	-0.032	-2.582	2.687	-0.961	0.337	-7.848	2.685
Campus BE/ESL Expenditures	-0.309	-198.356	120.071	-1.652	0.099	-433.695	36.982
District BE/ESL Expenditures	-0.101	-0.669	0.320	-2.090	0.037	-1.297	-0.042
Effect of Mediator Accountability Rating Pattern on ELL TAKS Reading							
$(b_1 - b_4)$	0.228	9.348	2.578	3.626	0.000	4.296	14.400
Direct Effect of each Independent (Exogenous) variable on Accountability Rating Pattern							
$(a_1 - a_4)$							
Campus BE/ESL Teacher FTEs	0.063	0.007	0.001	4.935	0.000	0.004	0.009
Campus Operating Expenditures	-0.116	-0.229	0.023	-9.756	0.000	-0.275	-0.183
Campus BE/ESL Expenditures	0.032	0.496	0.251	1.977	0.048	0.004	0.987
District BE/ESL Expenditures	0.013	0.002	0.003	0.822	0.411	-0.003	0.007
Indirect Effect of each Independent (Exogenous) variable through Accountability Rating Pattern on ELL TAKS Reading							
(a_i*b)							
Campus BE/ESL Teacher FTEs	0.014	0.063	0.022	2.944	0.003	0.021	0.106
Campus Operating Expenditures	-0.026	-2.141	0.640	-3.347	0.001	-3.395	-0.887
Campus BE/ESL Expenditures	0.007	4.633	2.797	1.657	0.098	-0.848	10.115
District BE/ESL Expenditures	0.003	0.019	0.024	0.795	0.427	-0.028	0.067

Table 21-Continued

Results of Path Analysis from Model #3: ELL Graduation Rate

	Standardized Estimate	Unstandardized Estimate	Standard Error	Estimated Standard Error	p-value	95% Lower Bound	95% Upper Bound
Total Effect of each Independent (Exogenous) variable on ELL TAKS Reading mediated by Accountability Rating Pattern							
(c= c'+ a_i*b)							
Campus BE/ESL Teacher FTEs	0.114	0.502	0.366	1.370	0.171	-0.216	1.221
Campus Operating Expenditures	-0.058	-4.723	3.007	-1.571	0.116	-10.616	1.170
Campus BE/ESL Expenditures	-0.302	-193.723	120.264	-1.611	0.107	-429.441	41.994
District BE/ESL Expenditures	-0.098	-0.650	0.322	-2.016	0.044	-1.282	-0.018

The resulting parameters for the second model are found in the table above and consist of direct, indirect, and total effects. I divided the results into these two areas plus a discussion of the overall model results.

Direct Effects. The hypothesis for this model is that greater campus ELL resources increase ELL student achievement of campuses when measured by the campus ELL Graduation Rate. Table 21 presents data on direct effects that indicate only one of the paths in the model data supported the hypothesis. The results suggest that increased ELL campus-level resources do not lead to statistically significantly more likely increases in campus ELL Graduation Rate. Unlike what was hypothesized, increases in Campus BE/ESL Teacher FTEs, Campus Operating Expenditures, and Campus BE/ESL Expenditures were not statistically significant to any increases in the ELL Graduation Rate. The bootstrap confidence intervals indicated that the direct effect of each independent (exogenous) variable was not statistically different from zero (e.g. because

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zero is inside the confidence interval). The only statistically significant path in the model is the District BE/ESL Expenditures. The results suggest that increases in District BE/ESL Expenditures were statistically significantly more likely to lead to increases in ELL Graduation Rate (*coefficient estimate noted as c' = -0.669, SE = 0.320, 95% CI [-1.297, -0.042]*). Table 21 also provides the standardized estimate of the direct relationship. Using the standardized estimate in the range of 0.0 - 0.29, a small effect size was found for each independent variable or very slightly above that range (Cohen, 1988).

Table 22

Basic Mediation Analysis Model #3: ELL Graduation Rate

	Sobel's z-value	Standard Error	p-value	95% Lower Bound	95% Upper Bound	Indirect/ Total Ratio
Independent (Exogenous) variables						
Campus BE/ESL Teacher FTEs	3.220	0.020	**0.0013**	0.023	0.103	0.125
Campus Operating Expenditures	-3.407	0.628	**0.0007**	-3.372	-0.910	**0.453**
Campus BE/ESL Expenditures	1.735	2.672	0.0827	-0.604	9.870	-0.024
District BE/ESL Expenditures	0.656	0.029	0.5120	-0.037	0.075	-0.029

Indirect Effects. Table 21 provides the indirect effects of each independent (exogeneous) variables through the mediating variable, Accountability Rating Pattern, on ELL Graduation Rate. Two of the four ELL resources, Campus BE/ESL Teacher FTEs and Campus Operating Expenditures were statistically significantly mediated by the accountability rating pattern. Campus BE/ESL Teacher FTEs had a positive relationship while Campus Operating Expenditures had a negative relationship between the independent (exogeneous) resource variables and ELL Graduation Rate. The non-

parametric bootstrap procedure of 5,000 repetitions produced confidence intervals reported on Table 21. The confidence intervals indicated that the indirect effects of Campus BE/ESL Expenditures and District BE/ESL Expenditures were not statistically significant (i.e. not different from zero because zero appeared within the confidence interval).

Model 3 Results. The total effects of Model 3 are provided Table 21. The results suggests that for any one unit of Campus BE/ESL Teacher FTEs on average, the ELL Graduation Rate was 0.502 percentage points higher. This finding implies that for every one unit of BE/ESL Teacher full-time equivalent (FTE) staff added to a campus, the percent of ELL students on the campus that graduate are predicted to increase by half of one percentage point. Of that total effect (half of one percentage point), the campuses' ELL Graduation Rate were 0.063 percentage points higher on average as a result of the effect of their Accountability Rating Pattern, which in turn affects their ELL Graduation Rate. The rest of the difference, 0.439, is independent of the effect of the changes in the accountability rating over a three-year period measured by the mediating variable Accountability Rating Pattern. This finding implies that the accountability rating explains very little of the relationship between every one unit of BE/ESL Teacher full-time equivalent (FTE) staff added to a campus and the predicted increase in the percent of ELL students graduating.

Similar to model 1 and 2, the results shown on Table 21 also indicate a negative relationship with the variable Campus Operating Expenditures. The results suggest that for any one-unit increase of Campus Operating Expenditures on average, the ELL

Graduation Rate was 4.723 percentage points lower. This finding implies that for every one unit of Operating Expenditures, an additional ten million dollars in expenditures added to a campus, the percent of ELL students graduating are predicted to decrease by nearly five percentage points. Of that total effect, the campuses' ELL Graduation Rate was 2.141 percentage points lower on average as a result of the effect of their Accountability Rating Pattern which in turn affects their ELL Graduation Rate. The rest of the difference, 2.582, is independent of the effect of the changes in the accountability rating over a three-year period measured by the mediating variable Accountability Rating Pattern. This finding implies that the accountability rating explains less than half of the relationship between every one unit of Operating Expenditures added to a campus and the predicted decrease in the percent of ELL students graduating.

Table 22 provides the basic mediation analysis values of Sobel test (z-value), confidence intervals, and ratio of indirect to total effect. Although each of the independent variables indicate a strong Sobel test of significance, the ratio indicates that the accountability pattern (mediator) explains very little of the variance in the relationship between ELL Graduation Rate and ELL resource allocation variables measured by Campus BE/ESL Teacher FTEs, Campus BE/ESL Expenditures, and District BE/ESL Expenditures. Only one relationship was found to have a medium effect size falling within the range of 0.30 - 0.49 was the relationship between Campus Operating Expenditure and ELL Graduation Rate (Cohen, 1988).

Findings for Research Questions and Hypotheses

The research questions and hypotheses consider the total and mediating effects represented by Models 1, 2, and 3, discussed for each of the four independent (exogenous) variables:

1. To what degree does resource allocation explain and/or predict the outcome of ELL educational achievement, specifically of:

    i. ELL Met Standard on TAKS Reading,

    ii. ELL Met Standard on TAKS Mathematics,

    iii. ELL Graduation Rate?

Directional Hypothesis: There is a statistically significant total effect of resource allocations measures on ELL educational outcomes, specifically on:

    i. ELL Met Standard on TAKS Reading

There is a statistically significant total effect of (a) Campus BE/ESL Teacher FTE, (b) Campus BE/ESL Expenditure and (c) Campus Operating Expenditure measures on ELL TAKS Met Standard in Reading.

    ii. ELL Met Standard on TAKS Mathematics

There is a statistically significant total effect of (a) Campus BE/ESL Teacher FTE, (b) Campus BE/ESL Expenditure and (c) Campus Operating Expenditure measures on ELL TAKS Met Standard in Mathematics.

    iii. ELL Graduation Rate

There is a statistically significant total effect of (a) Campus BE/ESL Teacher FTE, and

(b) Campus Operating Expenditure measures on ELL Graduation Rate.

2. Does the accountability rating mediate the effects of resource allocation on

ELL educational outcomes, specifically on:

i. ELL Met Standard on TAKS reading,

ii. ELL Met Standard on TAKS mathematics,

iii. ELL Graduation Rate?

Directional Hypothesis: Accountability rating significantly mediates the effects of

resource allocations on ELL educational outcomes, specifically on:

i. ELL Met Standard on TAKS Reading

The accountability rating is a statistically significant mediator of the effect of (a) Campus

BE/ESL Teacher FTE, (b) Campus BE/ESL Expenditure and (c) Campus Operating

Expenditure measures on ELL TAKS Met Standard in Reading.

ii. ELL Met Standard on TAKS Mathematics

The accountability rating is a statistically significant mediator of the effect of (a) Campus

BE/ESL Teacher FTE, (b) Campus BE/ESL Expenditure and (c) Campus Operating

Expenditure measures on ELL TAKS Met Standard in Mathematics.

iii. ELL Graduation Rate.

The accountability rating is a statistically significant mediator of the effect of (a) Campus BE/ESL Teacher FTE and (b) Campus Operating Expenditure measures on ELL Graduation Rate.

Summary

The goal of this study was to determine the impact of the Texas public accountability measures on the resource allocation decisions of local school districts. This study examined statewide accountability outcomes and their direct relationship to actual operating expenditures, including the mediating influence of accountability measures on actual operating expenditures for instruction of ELL students.

The regression of ELL resource allocation measures and ELL student outcomes produced a statistically significant total effect of campus-level resources. The district-level measure was the only ELL resources measure not found to be statistically significant to any of the ELL student outcomes used in this study. Further, two measures of ELL student outcomes, ELL Met Standard on TAKS Reading and ELL Met Standard on TAKS Mathematics, were found to produce a statistically significant total effect based on the campus-level resource directly related to the instruction of ELL students: Campus BE/ESL Teacher FTE and Campus BE/ESL Expenditure. Only one measure of ELL resources, Campus Operating Expenditure, was found to have a negative relationship with all three measures of ELL student outcomes.

Further, the findings identified the accountability rating as a statistically significant mediator of the effect of (a) Campus BE/ESL Teacher FTE, (b) Campus BE/ESL Expenditure and (c) Campus Operating Expenditure measures on both ELL

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TAKS Met Standard in Reading and Mathematics. Similar results were found in

relationship to ELL Graduation Rates, however, the accountability rating is not

determined to be a statistically significant mediator of the effect of Campus BE/ESL

Expenditure on ELL Graduation Rates

CHAPTER V

Discussion

Introduction

The focus of this study is on the extent of the discrepancy formed by Texas ELL educational policies through resources allocated and measures designed specifically for ELL student success (Fernandez, 2012; Texas State Historical Association [TSHA], 2013; Valencia, 2008). A critical element of this study is the historical review of the Texas public education language policy and school finance from the mid-1800's through the development of the current state testing and accountability requirements for ELL students. By the early 1970s, the legal issues concerning school finance and minority language instruction dovetailed in the case of United States v. Texas. In parallel to the legal developments in Texas, the national standards and accountability movement propelled Texas to the forefront in the late 1990s. By 2001, the No Child Left Behind Act (NCLB) required all states to produce similar accountability measures. Following the decades of legal arguments on minority student and school finance issues, mainstream citizen groups and school districts began to issue complaints against the educational resources provided by the State of Texas resulting in six simultaneous lawsuits filed against the state by 2009. Even with the decades of educational challenges, the current dismal performance results of Texas ELLs remains evident in statewide academic reports. National public policy inform the most recent advancements in standards and accountability of ELLs, but the unique history of Texas' origins, the state's view of

public education, and the minority language policy history formed the critical basis for this study.

Review of the Research Study

The purpose of this study was to determine the degree and type of relationship between resource allocation and ELL achievement, specifically how accountability ratings mediate the relationship between resource allocations and ELL achievement. The study examined actual operating expenditures for ELL students and teacher full-time equivalents and their relationship to three measures of ELL student outcomes: Texas Assessment of Academic Skills (TAKS) percent Met Standard in reading, TAKS percent Met Standard in mathematics, and ELL Graduation Rates.

Three separate models were used to answer the research question posed in this study. Analyses conducted using each model included the direct and indirect relationships between four observed variables serving as resources to each of the three ELL outcome variables. Each analytic model included one endogenous variable and four exogenous variables for each model. The three models are identified by their unique endogenous variable representing ELL Educational Outcomes:

- ELL Met Standard on TAKS reading,

- ELL Met Standard on TAKS mathematics, and

- ELL Graduation Rate.

The set of four exogenous variables are the observed continuous variables of resources expended during the 2010-11 school year:

- Total Operating Expenditures based on actual program expenditure for all funds,

- Campus level Operating Expenditures for Bilingual Education (BE) or English as a Second Language (ESL) Instructional Programs,

- Campus Full-Time Equivalents (FTEs) that serve students in the BE/ESL Instructional Programs,

- Campus level Operating Expenditures for BE/ESL Instructional Programs.

Review of Literature Findings

The historical context of public policy development is essential to a comprehensive understanding of the education of immigrant children. The long, complex political history in the United States is compounded by the unique history of ELL educational policy in Texas. The formation of Texas with origins in a foreign land, the historic challenges to unjust educational practices, and the progressive efforts to address issues through the courts uniquely situates Texas' ELL education policy challenges. For example, following Texas' independence, the state's design of educational policies that control student's spoken language demonstrated the diminutive view of minority language education perpetuating through the next one hundred years. Legal avenues were sought by the early 1900s to address minority and language segregation continuing through the Civil Rights era. Texas school finance lawsuits in the 1970s were the first in the country to address the issue of educational equity, adequacy, and appropriate local control (Hanushek & Lindseth, 2009). School districts that serve large numbers of minority students found themselves with very few economic resources or property

wealth. Eventually, justice for language minority students emerged as civil rights lawsuits addressing their educational opportunity, thus converging with school finance lawsuits addressing financial resources available for their education. The August 6, 1971 court ruling in the case of United States v. Texas found that English language and cultural barriers made the successful integration of Latino students impossible, and led to Civil Action 5281, one of the seminal federal cases in the development of desegregation and minority language education in Texas (TEA, 1998; United States v. State of Texas, 1981; Walsh, Kemerer, & Maniotis, 2005).

The decades following led to unprecedented litigation regarding the Texas school finance system and became a model for similar court cases throughout the country that challenged other state systems of school finance. The national standards movement, No Child Left Behind Act (2001), and state legislative accountability requirements offered the impetus for student performance while affecting local resource allocation decisions (Roza, Hill, Sclafani, & Speakman, 2004; Rubenstein, Schwartz, Stiefel, & Amor, 2007). Yet state and national performance measures indicate an ongoing achievement gap between ELLs and their English-speaking peers (National Assessment of Educational Progress [NEAP], 2009; TEA, 2011e).

It is within this challenging context that the Texas local school resources are studied. Reflective of the attitudes of Texas communities toward their own educational responsibility, the allocation of local resources is one indicator of a communities' educational responsibility. Challenging local educational decisions are the overarching statewide educational and accountability priorities. A critical lens of this social context is necessary for appropriate evaluation of the findings of this study. The need to measure

school resource and resource allocation calls for a quantitative study that challenges previous notions of efficiencies and student performance.

This study uses an epistemological frame based on critical realism in order to capture the structural representations of the problem of ELL performance within the social context. Critical realism allows for alternative models of the social context constructed from the historical view of Texas education as a function of the political colonialist view, the progressive social remedies, and the overarching ethical arrangements that create the condition of educational attainment of ELLs. Through the lens of critical realism, clarification of the generative social and political mechanisms that form the relationship between resources allocation and educational achievement were attainable. The political mechanisms are drawn from the competing forces between state academic and accountability requirements versus shrinking financial resources. The social mechanisms are shaped from the historical and continuing view of immigrants with native languages other than English. The aim of this study was to explain the generative, or real, mechanism that surrounds the research questions, peel back each layer and focus on the quantitative measures that reveal truth within the complex relationships.

Discussion of the Results

The study was designed to evaluate schools throughout the state of Texas and the relationship between school resource allocations and school level ELL educational outcomes. Three models were developed to answer the proposed research questions and hypotheses. The models included one for each dependent (endogenous) variable representing campus level ELL educational outcomes: (a) Percent of ELLs taking TAKS

Reading tests that Met Standard, (b) Percent of ELL Met Standard TAKS Mathematics, and (c) Class of 2011 Four Year Graduation Rate for ELLs. Each model included four observed measures of resource allocations: (a) Campus Total Operating Expenditures, (b) Campus Operating Expenditures for Bilingual Education (BE) or English as a Second Language (ESL) Instructional Programs, (c) Campus Teacher full-time equivalents (FTEs) that serve students in the BE/ESL Instructional Programs, and (d) District Operating Expenditures for BE/ESL Instructional Programs.

The two models that measured the dependent (endogenous) variables ELL Met Standard on TAKS Reading and Mathematics were found to produce a statistically significant total effect based on the campus-level resource directly related to the instruction of ELL students, Campus BE/ESL Teacher FTEs and Campus BE/ESL Expenditure. Furthermore, these results show the accountability rating to be a statistically significant mediator of the effect of Campus BE/ESL Teacher FTEs and Campus BE/ESL Expenditure on both ELL TAKS Met Standard in Reading and Mathematics. As discussed in Chapter 2, the accountability systems in place during the 2009, 2010, and 2011 rating systems did not include a specific measure of ELL students. After a maximum three-year exemption from testing for all ELL students, students tested on TAKS were included in the accountability rating system. The model findings indicate that despite the exclusion of a large number of ELL students in their earliest years in U.S. school, an improved accountability rating may have a mediating effect on ELL TAKS reading and mathematics performance, as relates to resources expended on ELL instruction through BE/ESL program expenditures and BE/ESL teachers.

Similar results were found from the model that measured the dependent (endogenous) variable ELL Graduation Rates, however, only for the campus-level resource Campus BE/ESL Teacher FTEs. As discussed in Chapter 2, the only instructional program offered for students in secondary grade levels is the English as a Second Language (ESL) program. This finding may imply that for ELLs, the number of teachers of the ESL programs are of more effect than ESL program expenditures.

In all three of the models, the results show that the district-level measure of BE/ESL instructional program expenditures were not statistically significant to any of the ELL student outcomes used in this study. The finding implies that the district resource for BE/ESL instructional programs, which includes the BE/ESL instructional program resources of all campuses within the school district, do not have a direct relationship with the campus-level ELL student outcome. It may follow that the allocation of resources to individual campuses are of greater effect than the overall district allocation.

Despite the significant relationships found in the analysis, the indirect to total ratio also indicate that the accountability rating pattern had very little practical effect on the relationship between ELL resource allocation measures and ELL outcomes measured by ELL Met Standard on TAKS Reading and Mathematics. Regarding ELL Graduation Rates, three of the four ELL resource measures, showed little practical effect, with the relationship between Campus Operating Expenditures and ELL Graduation Rate the only relationship mediated by the accountability rating pattern.

Of interest is the Campus Operating Expenditure that was found to have a negative relationship with all three measures of ELL student outcomes. This may imply that larger campuses serving a greater number of students, and therefore expending more

resources, have less effective programs for ELL students. However, it may also reveal that campuses may face challenges in creating specialized instructional programs for small numbers of ELLs due to economy of scale.

Assumptions and Limitations

The greatest limitation of this study is that the assumption of a possible causal relationship between resources and student achievement. For example, given any two variable relationship, the following requirements are necessary in order to infer causal relationships (1) X is related to Y, (2) X temporally precedes Y, and (3) the relationship between X and Y is not mediated by a third variable – Z (Cohen & Cohen, 2003). The findings of this study demonstrate the challenge in the association of resources to student achievement, specifically in defining this as a causal relationship. There is a risk in using such a direct relationship for the quantitative analysis of this study, since scholars have criticized research that includes such assumptions. Within the framework of critical realism it is important to clarify existing measures and how they were generated within social systems. Additionally, it is important to reveal the limitations of quantitative measures used as underlying assumptions of the study model. The models presented in this study served to enlighten scholars to the formal specifications offered, the parameters selected, the sample, the evaluation and development of the measures for ELL academic study. Scholars acknowledge that models are imperfect and can never be made exact, however, the findings of this study focused attention to the measures and contribute to the use of mathematical models in academic research (MacCallum, 2003). In addition, the measures of resources and student achievement used for this study were not exhaustive.

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The real measures of resources available to students that influence educational outcomes are found in the quality of education, typically not measured quantitatively. For example, the successful model of education to develop contributing members of a community, or educational models promoting artistic success. Similarly, measures of student achievement include the quality of student success not just in the short term (as in graduation rates), but in the long-term quality of life. For example, success through alternative paths to postsecondary education, or success in adulthood through attainment of long-term goals. These shortcomings may be address by future qualitative or quantitative studies focused on ELL student success.

As mentioned earlier, information on the AEIS are reported from the extensive amount of school data collected through the Texas PEIMS data collection system. School district reported data are assumed to be accurate and reasonable measures for school districts. Each year, the PEIMS Data Standards provide instructions on the submission of PEIMS data by school districts to the Texas Education Agency at a level of detail in order to maximize the accuracy of information provided by local school districts. The TEA Data Standards also outline the statutory responsibilities of school districts, education service centers, and the state agency, in the data submission process. School districts are required to provide accurate student or staff data and previously audited expenditure data in their annual PEIMS data submission.

The statewide PEIMS data collection may be considered a self-administered survey instrument. Completed by school districts, the PEIMS submissions represents a closed set of distinct questions requiring uniformity from all statewide school districts and therefore of greater reliability. Unlike data collected from self-reported instruments,

PEIMS data mitigates the two main disadvantages of self-reported data summarized by Kerlinger and Lee (2000). Low numbers of respondents is remedied by the legal requirement for school district PEIMS submissions, in addition to TEA measures to evaluate and administer consequences for districts' lack of critical PEIMS data submissions. The second disadvantage of self-reported data is the lack of uniformity due to misinterpretation of questions. Despite statewide and regional training of school district staff, the PEIMS data submission may be prone to human error. Additional lack of uniformity may also exist due to differing instructional program implementation across school districts. These differences may be found in data elements reported through PEIMS staff, student and financial instructional information that are subject to local interpretation. However, given that Texas includes over 1,200 local regular and charter districts with varying levels of resources, the accuracy of PEIMS data reported by school districts was a limitation of this study.

Finally, this study was an attempt to measure the mediating effect of the accountability system on local resource allocation, which required a carefully constructed mediating variable. The variable was created from categorical information across time to produce a continuous measure of rating progression. Had the variable been defined as a categorical ordinal variable, a different estimation method would have been used.

Implications for Future Research

This study is intended to fill the void of much needed future research of ELL resources in relationship to student achievement, and establish the groundwork for future studies. Court arguments over the cost associated with adequate and equitable education

call for quantitative analysis of the cost of education, available and efficient use of resources, and student outcomes. Studies centered on the, and resource disparity of, English language learners are rare. Far too few studies are focused on ELL school-level funding, associated costs, appropriateness of allocated funding, or its efficient use. Despite the long history of Texas school finance cases regarding ELLs, these studies remain rare (Imazeki and Reschovsky, 2006; Jiménez-Castellanos and Rodríguez, 2009; Verstegen, 2011).

As shown in the study finding, each of the model results revealed a negative relationship between Campus Operating Expenditure and all three ELL student outcomes measured. This finding warrants further studies to investigate the possibility that large campuses may not offer specialized instructional programs for small numbers of ELLs due to economy of scale. The addition of a covariate of the size of Bilingual/ESL programs, such as percent of ELL students in the district, would reveal more about this particularly finding.

This study also provides the groundwork for future studies that address the shortcomings of identifying a real measure ELL success and available resources in order to satisfy the critical realist framework. Future qualitative studies should focus on the quality of ELL educational programs and relevant measures of student achievement through measures of long-term quality of life. Further studies should consider the use of an alternative data collection that ensures a uniform measure of program implementation and resource definition by an objective source among a smaller sample of local school districts.

Summary and Conclusion

The results of this study serve to substantiate the claim that available school resources has a relationship on student achievement, particularly additional research to apply a focused approach in measuring BE/ESL instructional programs. Ongoing debate concerning adequate educational funding is measured by evidence of student achievement; however, for ELL students, the evidence is poor. As argued by six school finance lawsuits, efficient instructional program development is dependent on available resources and rigorous achievement standards. Even as the most recent judicial ruling declared the Texas school finance system unconstitutional, the historically habitual delay of the state of Texas to address the issue provides the greatest impetus for more research.

Providing the evidence of the dismal performance of secondary ELL students in an effort to assist with the determination of liability among the State of Texas or individual school districts is the primary reason for this research. Despite recent political movements regarding immigration, educators maintain the role of watchmen of the student-citizens produced from our schools. The call for future research is an attempt to stop the continued production of under-prepared students in the nation's workforce from our public schools. The critical realism framework guides this perspective, and further quantifiable evidence assists in its redress. *Does money matter?* The findings of this study attempted to disentangle the role of school resources on student achievement, specifically on ELL student achievement, from the highly visible accountability results; and promote future research on ELL student achievement.

Appendix A

Observed Values that Define the Accountability Rating Pattern Ordinal Variable

Count	2009 State Accountability Rating	2010 State Accountability Rating	2011 State Accountability Rating	Rescaled Variable Value
1.	Low Performing	Low Performing	Low Performing	Low
2.	Low Performing	Low Performing	Acceptable	Low
3.	Low Performing	Low Performing	Recognized	Low
4.	Low Performing	Low Performing	Exemplary	Low
5.	Low Performing	Acceptable	Low Performing	Adequate
6.	Low Performing	Acceptable	Acceptable	Adequate
7.	Low Performing	Acceptable	Recognized	Adequate
8.	Low Performing	Acceptable	Exemplary	Adequate
9.	Low Performing	Recognized	Low Performing	Low
10.	Low Performing	Recognized	Acceptable	Adequate
11.	Low Performing	Recognized	Recognized	High
12.	Low Performing	Recognized	Exemplary	High
13.	Low Performing	Exemplary	Low Performing	Low
14.	Low Performing	Exemplary	Acceptable	Adequate
15.	Low Performing	Exemplary	Recognized	High
16.	Low Performing	Exemplary	Exemplary	High
17.	Acceptable	Low Performing	Low Performing	Low
18.	Acceptable	Low Performing	Acceptable	Adequate
19.	Acceptable	Low Performing	Recognized	Adequate
20.	Acceptable	Low Performing	Exemplary	Adequate
21.	Acceptable	Acceptable	Low Performing	Adequate
22.	Acceptable	Acceptable	Acceptable	Adequate
23.	Acceptable	Acceptable	Recognized	Adequate
24.	Acceptable	Acceptable	Exemplary	Adequate
25.	Acceptable	Recognized	Low Performing	Adequate
26.	Acceptable	Recognized	Acceptable	Adequate
27.	Acceptable	Recognized	Recognized	High
28.	Acceptable	Recognized	Exemplary	High
29.	Acceptable	Exemplary	Low Performing	Adequate
30.	Acceptable	Exemplary	Acceptable	Adequate
31.	Acceptable	Exemplary	Recognized	High

Observed Values that Define the Accountability Rating Pattern Ordinal Variable

Count	2009 State Accountability Rating	2010 State Accountability Rating	2011 State Accountability Rating	Rescaled Variable Value
32.	Acceptable	Exemplary	Exemplary	High
33.	Recognized	Low Performing	Low Performing	Low
34.	Recognized	Low Performing	Acceptable	Adequate
35.	Recognized	Low Performing	Recognized	Adequate
36.	Recognized	Low Performing	Exemplary	Adequate
37.	Recognized	Acceptable	Low Performing	Adequate
38.	Recognized	Acceptable	Acceptable	Adequate
39.	Recognized	Acceptable	Recognized	Adequate
40.	Recognized	Acceptable	Exemplary	Adequate
41.	Recognized	Recognized	Low Performing	Adequate
42.	Recognized	Recognized	Acceptable	Adequate
43.	Recognized	Recognized	Recognized	High
44.	Recognized	Recognized	Exemplary	High
45.	Recognized	Exemplary	Low Performing	Adequate
46.	Recognized	Exemplary	Acceptable	Adequate
47.	Recognized	Exemplary	Recognized	High
48.	Recognized	Exemplary	Exemplary	High
49.	Exemplary	Low Performing	Low Performing	Low
50.	Exemplary	Low Performing	Acceptable	Adequate
51.	Exemplary	Low Performing	Recognized	Adequate
52.	Exemplary	Low Performing	Exemplary	Adequate
53.	Exemplary	Acceptable	Low Performing	Adequate
54.	Exemplary	Acceptable	Acceptable	Adequate
55.	Exemplary	Acceptable	Recognized	Adequate
56.	Exemplary	Acceptable	Exemplary	Adequate
57.	Exemplary	Recognized	Low Performing	Adequate
58.	Exemplary	Recognized	Acceptable	Adequate
59.	Exemplary	Recognized	Recognized	High
60.	Exemplary	Recognized	Exemplary	High
61.	Exemplary	Exemplary	Low Performing	Adequate
62.	Exemplary	Exemplary	Acceptable	Adequate
63.	Exemplary	Exemplary	Recognized	High
64.	Exemplary	Exemplary	Exemplary	High

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