



SCHOOL of
GRADUATE STUDIES
EAST TENNESSEE STATE UNIVERSITY

East Tennessee State University
**Digital Commons @ East
Tennessee State University**

Electronic Theses and Dissertations

Student Works

12-2013

TCAP Scores and Per Pupil Expenditures: Statewide Changes Before and After Tennessee's First to the Top Act

Martha Ely Cantrell

East Tennessee State University

Follow this and additional works at: <https://dc.etsu.edu/etd>



Part of the [Educational Assessment, Evaluation, and Research Commons](#)

Recommended Citation

Cantrell, Martha Ely, "TCAP Scores and Per Pupil Expenditures: Statewide Changes Before and After Tennessee's First to the Top Act" (2013). *Electronic Theses and Dissertations*. Paper 1779. <https://dc.etsu.edu/etd/1779>

This Dissertation - Open Access is brought to you for free and open access by the Student Works at Digital Commons @ East Tennessee State University. It has been accepted for inclusion in Electronic Theses and Dissertations by an authorized administrator of Digital Commons @ East Tennessee State University. For more information, please contact digilib@etsu.edu.

TCAP Scores and Per Pupil Expenditures:
Statewide Changes Before and After Tennessee's First to the Top Act

A dissertation

presented to

the faculty of the Department of Educational Leadership And Policy Analysis

East Tennessee State University

In partial fulfillment

of the requirements for the degree

Doctor of Education in Educational Leadership

by

Martha Ely Cantrell

December 2013

Dr. Pamela Scott, Chair

Dr. Virginia Foley

Dr. Donald Good

Dr. Aimee Govett

Keywords: Race to the Top (RTTT), First to the Top Act (FTTT), Per Pupil Expenditures (PPE),
Tennessee Comprehensive Assessment Program (TCAP)

ABSTRACT

TCAP Scores and Per Pupil Expenditures: Statewide Changes Before and After Tennessee's First to the Top Act

by

Martha Ely Cantrell

The purpose of this study was to investigate the relationships between the changes in Tennessee Comprehensive Assessment Program (TCAP) scores and the changes in Per Pupil Expenditures (PPE) after the enactment of *First to the Top Act of 2010* and the receipt of \$501,000,000 in federal Race to the Top (RTTT) grant monies. Half of that money was retained by Tennessee Department of Education (TDOE) for education reform initiatives. The other half was awarded to each Local Education Agency (LEA) according to the Title I formula after TDOE approval of individual Scopes of Work. Reform initiatives included transition to Common Core State Standards, changes to standardized testing, teacher evaluation system reflecting teacher effect partly based on student achievement, changes to tenure, and establishment of an Achievement School District for low-performing schools. Fast-paced reforms and increasing accountability for student achievement and gap closure brought a climate of pressure and tension.

Secondary data were readily available on the Tennessee Report Card from TDOE's website (www.tn.gov/education). Data from each LEA were collected, organized, and analyzed in the areas of PPE; TCAP scores in math, reading/language arts, and science for 2010, 2011, and 2012; and student population.

No significant relationships were found between the changes in PPE and the changes in TCAP scores. Significant differences were found between the math scores for Year 1 and Year 2. No significant differences were found between the reading/language arts scores for Year 1. A significant difference was found between the reading/language arts scores from 2010 to 2012. Significant differences were found for the science scores for both time periods; however, Year 1 science scores fell while 2010 to 2012 science scores rose. Mixed results were found when investigating the relationship between PPE and number of students.

This study indicates the importance of careful discussions of *how* school funds are spent, perhaps even more than *how much* money is spent. Implications for further study might include qualitative investigations of the perceptions of stakeholders at all levels about the climate during the fast-paced reforms. Further study of data for Years 3 and 4 of the grant is also recommended.

DEDICATION

This work, as with everything I do, is dedicated to faith and family. My faith is in God and his Son and my Savior Jesus Christ, and it is that faith that sustains me.

My family is my first and greatest blessing. My forever love and thanks go to my husband Tony and our children Jared, Lydia, and Nathan. Thank you for your support even while I seemed to be making no progress and for your sacrifice of my time and our money. I'm so proud of all of you, and I hope you can be proud of me. I dedicate this work to your patience and love. I finally finished it!

Elaine and Sandra, you are not just my sisters but also my best friends, and I dedicate this work to your support of and love for me. If only everyone were so blessed.

And lastly, I dedicate this dissertation to Leo and Shirley Ely. Mama and Daddy, you had to go before I achieved this goal, and I'm sorry I took so long. I know you were and still are proud of all of us. Thank you for the upbringing in faith, integrity, and ethics that allows us to dream and achieve. Mama, I remember who I am and whose I am, and Daddy, I know that if it's worth doing, it's worth doing right. I hope my work reflects that always. I love you and miss you. This is another one we owe the Lord.

ACKNOWLEDGEMENTS

With gratitude I acknowledge the support given by my Chair, Dr. Pamela Scott, and the other members of my committee: Dr. Virginia Foley, Dr. Donald Good, and Dr. Aimee Govett.

I would like to thank my colleagues in several arenas. There were many people in the Sevier County School System who assisted me with gracious attitudes and supported my efforts. My Sevierville Cohort was a tight-knit group as we completed our coursework together, and I appreciate our teamwork. My particular study friend, Karen Kelley, was a constant help; I'm so proud of you for completing the final hurdle so well and so quickly. I finally caught up!

After my failure to launch and several other realities, I finally got back on track with the incredible help of Dissertation Boot Camp. Thank you to Dr. Marie Jones, Dr. Cecilia McIntosh, Emily Redd, Joanna Anderson, the wonderful and helpful guest speakers you assembled, and all my fellow Boot Campers. Food, fellowship, and frantic writing brought us together. It is right to acknowledge you because without Boot Camp and your support, I would still be cringing every time I thought of my dissertation and how much I had not written.

TABLE OF CONTENTS

	Page
ABSTRACT	2
DEDICATION	4
ACKNOWLEDGEMENTS	5
LIST OF FIGURES	8
Chapter	
1. INTRODUCTION	9
Statement of the Problem.....	10
Research Questions	11
Significance of the Study	12
Scope of the Study	13
Delimitations of the Study	13
Definitions of Terms and Selected Acronyms	15
Overview of the Study	19
2. REVIEW OF RELATED LITERATURE	21
History of Federal Education Reform Initiatives and Related Funding	21
Achievement, Accountability, Adequacy, and Equity	35
Educational Policy, Funding, and Recent Initiatives in Tennessee	47
Summary	54
3. RESEARCH METHOD	56
Research Questions and Null Hypotheses	57
Population	59
Instrumentation.....	61

Chapter	Page
Data Collection	63
Data Analysis	64
Summary	65
4. DATA ANALYSIS	66
Research Question 1	66
Research Question 2	67
Research Question 3	68
Research Question 4	69
Research Question 5	73
Research Question 6	76
Research Question 7	78
Summary	82
5. FINDINGS, IMPLICATIONS, AND CONCLUSION	84
Summary of Findings	84
Research Questions 1 and 4	84
Research Questions 2 and 5	85
Research Questions 3 and 6	86
Research Question 7	86
Implications for Practice	87
Recommendations for Future Research	89
Conclusion	91
REFERENCES	93
VITA	101

LIST OF FIGURES

Figure	Page
1. Race to the Top Funding Allocations	47
2. Distribution of Scores for TCAP Math 2010 and TCAP Math 2011	71
3. Distribution of Scores for TCAP Math 2010 and TCAP Math 2012	72
4. Distribution of Scores for TCAP Reading/Language Arts 2010 and TCAP Reading/ Language Arts 2011	74
5. Distribution of Scores for TCAP Reading/Language Arts 2010 and TCAP Reading/ Language Arts 2012	75
6. Distribution of Scores for TCAP Science 2010 and TCAP Science 2011	77
7. Distribution of Scores for TCAP Science 2010 and TCAP Science 2012	78
8. Distribution of Scores for Student Population and PPE by LEA for 2010	79
9. Distribution of Scores for Student Population and PPE by LEA for 2011	80
10. Distribution of Scores for Student Population and PPE by LEA for 2012	81

CHAPTER 1

INTRODUCTION

The state of Tennessee passed Senate Bill No. 7005, cited as the Tennessee First to the Top Act of 2010 (FTTT), on January 16, 2010. In this legislation, sweeping changes were made to Tennessee Code Annotated (T.C.A.) Chapter 49, Chapters 1, 3, 4, and 5 to affect many areas of education in the state, such as the establishment of an Achievement School District (ASD) for schools not meeting performance standards and a new evaluation system for teachers and principals. Just 2 days later Governor Phil Bredesen submitted Tennessee's Race to the Top (RTTT) application to the United States Education Department (ED). RTTT was "a competitive grant program authorized under the federal American Recovery and Reinvestment Act of 2009 (ARRA)" with the purpose of encouraging and rewarding reform at the state level (Norman-Gordon & Huwieler, 2011, p. 2). In March 2010 ED announced that Tennessee and Delaware were the only states awarded grants in the first round of competition; Tennessee received approximately 501 million dollars in July 2010, half of which was to be disbursed to the 136 Local Education Agencies (LEAs) in the state with the other half being retained by Tennessee Department of Education (TDOE) to administer and govern the reforms that were tied to the money. The framework of RTTT required that grant monies be used for comprehensive education reform in four areas: adopting rigorous standards and assessments to prepare students for college and career readiness; professional development for effective teachers and leaders; formation and maintenance of data systems to measure student success and educator practices; and turnaround of lowest performing schools. Essentially the RTTT funds were granted to Tennessee with the goal of increased student achievement.

Statement of the Problem

The timeline of action in Tennessee surrounding the 501 million dollar RTTT grant involved fast-paced and sweeping changes with little time for adjustment at the state, LEA, school, and classroom levels. Operating under the FTTT act and RTTT grant added pressure to Tennessee educators and students, partly due to the strictures of No Child Left Behind (NCLB) rules and regulations that mandated increasingly higher requirements for LEAs to make Adequate Yearly Progress (AYP). In October 2011 TDOE's Commissioner Kevin Huffman applied to ED for an Elementary and Secondary Education Act (ESEA) Flexibility Waiver, stating that Tennessee's hard work was "significantly undermined" by NCLB regulations that are "unrealistic and unattainable" (TDOE, 2012b, p. 13). The waiver application was an effort to gain time for Tennessee's LEAs to plan and administer student academic growth; strike "the right balance between what is ambitious and achievable" (TDOE, 2012b, p. 14); and reach Annual Measureable Objectives (AMOs) of 3% to 5% annual growth in proficiency levels and closure of achievement gaps between student subgroups. This waiver was approved by ED in February 2012, conditionally freeing the state and its districts from certain requirements of ESEA and NCLB "through the end of the 2013-2014 school year." (Duncan to K. Huffman, February 9, 2012b)

Tennessee RTTT education initiatives after grant approval include the following: implementing the FTTT Act, changing tenure laws, transitioning to new Common Core State Standards (CCSS), transitioning to computer-based Partnership for Assessment of Readiness for College and Careers (PARCC) assessments, and implementing a new educator evaluation system (U.S. Department of Education, 2012c). There was very little time for transitions or training for practitioners and stakeholders at every level. The ultimate goal of Tennessee's reforms and

initiatives was student achievement and growth. The purpose of the study was to determine if there was a significant relationship between changes in PPE and changes in TCAP scores before and after RTTT. The study of a possible relationship between PPE after receipt of the RTTT funds and student growth is timely and valuable to discussions of the current initiatives.

Research Questions

In the quantitative study of the relationship between Per Pupil Expenditures (PPE) in Tennessee after 2010 and subsequent changes in TCAP scores in grades 3 – 8, the following research questions were investigated.

1. Is there a significant relationship between the change in Per Pupil Expenditure (PPE) and the change in TCAP math scores for grades 3-8?
2. Is there a significant relationship between the change in PPE and the change in TCAP reading/language scores arts for grades 3-8?
3. Is there a significant relationship between the change in PPE and the change in TCAP science scores for grades 3-8?
4. Is there a significant difference between mean TCAP math scores for grades 3-8 from 2010 to 2012?
5. Is there a significant difference between mean TCAP reading/language arts scores for grades 3-8 from 2010 to 2012?
6. Is there a significant difference between mean TCAP science scores for grades 3-8 from 2010 to 2012?
7. Is there a significant relationship between each LEA's number of students and PPE?

Significance of the Study

Before 2010 education in Tennessee “struggled with poor student outcomes and inadequate standards that did not properly prepare students for the demands of college or work after high school” (TDOE, n.d.a, para. 6). In fact, in what ED Secretary Arne Duncan called “an artificial goal of proficiency,” (Duncan, 2012a, para. 2), Tennessee’s proficiency requirements were, according to Petersen and Lastra-Anadon (2010), the lowest standards of all states since 2003. Petersen and Lastra-Anadon stated that Tennessee in 2009 reported over 90 % of its fourth graders were proficient in math while the National Assessment of Education Progress (NAEP) revealed Tennessee’s proficiency level to be only 28 %. One estimation was that Tennessee’s proficiency level prior to 2010 could be equated to a D- on a child’s report card (Duncan, 2013a, para. 71). Sarrio (2010) interpreted that the change in the reporting of student achievement for 2010 meant that 67% of students in Grades 3-8 were below expectations instead of the 9% failure rate that the old 2009 system would have posted (para. 6). In the context of this educational landscape Tennessee’s approval for RTTT funds applied more dollars to the problem of raising student achievement and progress. The reforms, mandates, applications, waivers, test dates, data systems, and committees were all focused toward the goal of increased student achievement. Events have progressed quickly in Tennessee, and a study to determine if there is a significant relationship between the addition of RTTT funds in 2010 and subsequent measures of student progress is timely and important. TDOE boldly claimed that “Tennessee is in position to achieve proficiency, and is committed to leading the nation in developing education leaders” (TDOE, n.d.a, para. 6). Conversely Lonsbury and Apple (2012) admitted a belief that “education reforms like those (mandated by NCLB) have made it *less* likely that schools will accomplish their designated social aims” (p. 760). In the rapidly-evolving climate of education in

Tennessee, insight into the relationship between Per Pupil Expenditures (PPE) after the addition of RTTT funds and measures of student growth and achievement can bring insight and useable data to current discussions and decisions.

Scope of the Study

A quantitative study was used to examine the relationship between the change in TCAP scores and the change in Per Pupil Expenditures (PPE) in Tennessee before and after the First to the Top Act and receipt of the Race to the Top grant monies. Since the first year of the grant was 2010, TCAP scores and PPE for 2010, 2011, and 2012 were used. There were 137 Local Education Agencies (LEA) in Tennessee and all were included in the RTTT grant application and participated in the RTTT plan. Because of unique demographics and student populations two LEAs, the Achievement School District (ASD) and Carroll County, were excluded from the study. The ASD was instituted as a self-contained LEA as part of the FTTT initiatives and did not have TCAP scores for 2010. Carroll County School System provides special services to several special school districts in the county but as a self-contained LEA reported fewer than 10 students for each of the years included in the study. Tennessee does not publish TCAP data for any population of less than 10 students to protect individual anonymity. Within these parameters PPE data, student population, and Grades 3-8 TCAP data in the areas of reading/language arts, math, and science from 135 LEAs were included in the present study.

Delimitations of the Study

The following are delimitations of the study:

1. The changes in TCAP scores and PPE from 2010, 2011, and 2012 were examined. The RTTT monies were granted for a 4-year period. According to Norman-Gordon and Huwieler (2011), “many districts chose to frontload their spending in the first year of the grant and decrease spending incrementally over the next three years,” and the first-year expenditures on a state-wide average were larger than years 2, 3, or 4 (p. 5). Unequal yearly division of RTTT monies by LEAs and adjustments in policies may have contributed to different levels of change and might result in different conclusions.
2. Per Pupil Expenditure (PPE) was a general number calculated by dividing the funds spent in a school district by the number of pupils served. It did not reflect or specify how funds were targeted toward areas of need or toward areas of specific student achievement. Each LEA submitted a specific Scope of Work to the Tennessee Department of Education (TDOE) that reflected various means and uses of the RTTT funds. TDOE also retained a portion of the total grant allocation for administration at the state level that would not be reflected in PPE for any LEA.
3. The study examined and analyzed data from 135 LEAs in Tennessee; therefore, generalization to other states in receipt of RTTT grant monies may not be applicable.
4. Tennessee Department of Education reported standardized testing data in two different ways, achievement and growth. TCAP achievement data were used for this study; TVAAS longitudinal student growth data was not used for this study, and consideration of TVAAS data might result in different conclusions.

5. TCAP data for reading/language arts, math, and science were included for this study. Social studies was a TCAP-tested area, but achievement levels were not reported in the same way as the other three areas; therefore, it was not included in the study.

Definitions of Terms and Selected Acronyms

The following terms as defined were used in the study:

1. Basic Education Plan (BEP) – Tennessee’s main funding formula for education. The initial BEP was phased in during the mid-1990s. State education funding operates now under BEP 2.0, a revision in 2006 which “drew a line in the sand” so that districts would be guaranteed not to receive less in state funding than they received the previous year, probably in response to a downward economy. The BEP is a “funding formula, not a funding plan,” which means it determines how money is generated, not how it is spent. (K. King, personal communication, March 6, 2012).
2. Common Core State Standards (CCSS) – Educational standards in English language arts and mathematics for kindergarten through 12th grade. These standards were developed by the National Governors Association (NGA) and the Council of Chief State School Officers (CCSSO). States voluntarily adopt these common standards. States that have joined the initiative will cease administration of current year-end tests and administer common assessments aligned to these standards in the 2014-2015 school year.
3. First to the Top Act of 2010 (FTTT) – Senate Bill No. 7005 written in the First Extraordinary Session of the Tennessee legislature after Governor Phil Bredesen’s Address to the General Assembly in a Special Session on Education in January 2010.

The purpose of FTTT was “to amend Tennessee Code Annotated, Title 49, Chapters 1, 2, 3, and 5, relative to education” (Tennessee First to the Top Act of 2010, p. 1). The Act was the legislative action necessary to put reform measures into place that would make the state’s Race to the Top application for federal funds competitively viable. Bredezen told the General Assembly, “If you fail to act on these accountability reforms, we’ll likely be pushed to the side” (State of Tennessee, Governor’s Communication Office, 2010, p. 4).

4. Local Education Agency (LEA) – Public boards of education or other governing bodies with legal authority for administration of public schools in an area of the state such as cities or counties. Tennessee’s *RTTT: Initial Application for Funding* (2010) numbered the LEAs in the state 136 school districts and 4 state special schools and reported that all 140 had committed to the RTTT plan in “a unanimous show of support” (TDOE, 2010a, p. 17). Because of FTTT’s institution of the ASD as a self-contained LEA, there are now 137 LEAs and 4 state special schools. For this study, the data for 135 regular LEAs were considered.
5. Per Pupil Expenditure (PPE) – Tennessee Department of Education defined PPE as “total current operating expenditures on a per pupil basis. Some examples are instructional materials, maintenance, and transportation” (TDOE n.d.d, p. 1). The TDOE Report Card displayed the average PPE statewide, and the Report Card for each LEA displayed its individual PPE. The difference in statewide and individual district PPE was explained as “a comparison among school systems of different sizes which illustrate school systems’ annual financial reports, expenditures by the state on behalf of school systems and the value of commodities provided by the U.S.

Department of Agriculture for school food service programs” (TDOE, n.d.e).

Tennessee PPE is derived from local, state, and federal funds. The Basic Education Program (BEP), the primary source of local funds, delivered money to LEAs based on a formula designed for equity that delivered state funds at differing rates based on the local capacity derived from property tax and local option sales tax.

6. Race to the Top (RTTT) – a federal grant competition offered to states for improvement and reform. As part of the American Recovery and Reinvestment Act of 2009 (ARRA), \$4.35 billion was appropriated for RTTT. States applied for a portion of the grant money based on four reform areas: adoption of rigorous standards and assessments to prepare students for college and career; developing effective leadership in teachers and principals; development and use of student data systems to measure student achievement and teacher and principal success; and turn-around of the lowest performing schools. Tennessee was one of two states accepted in the first round of the competition and was awarded \$501 million, with half to be distributed “directly to participating local school systems through the existing Title I funding formula” (State of Tennessee, Governor’s Communication Office, 2010, p. 2). The 136 LEAs received their portions of the Tennessee grant money based on approved Scope of Work documents. The other half of the RTTT grant money was retained by the state “for the purposes of spurring additional education innovation” (State of Tennessee, Governor’s Communication Office, 2010, p. 2).
7. Reading/Language Arts – heading given to TCAP tested reading and language arts standards on the Tennessee Report Card. In other professional literature these skills might be referred to as *literacy* or as *language arts* without the slash and addition of

the term *reading*. Because the Tennessee Report Card is the source of data for this study, the double terminology and use of the slash are retained.

8. Tennessee Comprehensive Assessment Program (TCAP) – statewide assessments given in grades 3 – 8 to measure skills and progress in the areas of English language arts, mathematics, science, and social studies. The Achievement portion of the test is a set of four multiple-choice criterion-referenced subtests administered statewide with a standardized timetable and testing format. The results of the TCAP Achievement test are reported in various ways to include results by State Performance Indicator (SPI), or state standard, and Reporting Category Performance Indicator (RCPI), or achievement levels labeled Below Basic, Basic, Proficient, and Advanced. School and parent reports are generated for each student to display and explain various parts of a student’s results. School reports are generated for educators to use in planning and are embargoed to the public until the State Report Card is issued. Final results are given as TCAP (or Achievement) data and TVAAS (or Growth) data. (TDOE, n.d.f).
9. Title I – the shortened name most often given to the section, or chapter, of ESEA of 1965, entitled Title I – Improving the Academic Achievement of the Disadvantaged. The most recent Title I data from the United States Department of Education (ED) were from the 2009-2010 school year. ED reported that over 56,000 public schools received Title I funds to provide extra academic support for low-achieving students. That data represented over 21 million children. Schools with the highest percentages of students from low-income families, as determined by approval for free or reduced price meals, were eligible to receive Title I funds. Those schools with 40% or more

students determined to be from low-income families could operate a schoolwide program to improve the educational opportunities of the entire student body.

10. Tennessee Value-Added Assessment System (TVAAS) – longitudinal student data that uses statistical analysis based on the work of William Sanders to record student growth over time and “assesses the influence of schooling on that progress,” or “the degree to which each Tennessee teacher has added value, as measured by average score gains...on the educational progress of students” (TDOE, n.d.c, para. 1). A year’s gain is determined to be the minimum goal for each student, and gains of more than a year are desired to close achievement gaps and increase student progress. TVAAS data are used for a component of each teacher’s and principal’s evaluation process and for school planning purposes only and as such are not made public.

Overview of the Study

Chapter 1 details the introduction of the study of the relationship between the change in TCAP scores and the change in PPE before and after RTTT. Chapter 1 also includes a statement of the problem, the research questions that drive the study, the scope and significance of the study, delimitations, and finally a definition of terms for the study. Chapter 2 contains a review of the literature surrounding federal involvement in historic educational reform; the relationship between spending, achievement, accountability, and equity; and Tennessee educational policy, funding, and initiatives after the First to the Top Act of 2010. Chapter 3 describes the research design, research questions, data collection and process of analysis, and a summary of the study’s methodology. Chapter 4 is comprised of an analysis and summary of the data. Chapter 5

consists of the findings and conclusions of the study, recommendations for best practices and future studies, and a general summary of the study and findings.

CHAPTER 2

REVIEW OF RELATED LITERATURE

The educational climate in Tennessee following the successful grant application for Race to the Top (RTTT) funds and the enactment of the First to the Top Act (FTTT) has been very fluid. Rapid changes and new initiatives have appeared quickly, and research and available literature surrounding RTTT and FTTT are limited. Available literature about federal involvement in historical educational reform informs the background of the current study. Original documents including the RTTT grant application and acceptance letter provide further insight. Additionally, the Tennessee Department of Education (TDOE) regularly posts updates and summaries of FTTT progress on its website, and some of these are reviewed. Chapter 2 is a brief review of the literature to be found on historical education reform initiatives in American education, including federal funding related to the reforms. Also included is a review of the literature on the relationship between spending and achievement. Chapter 2 also reviews specific issues surrounding educational policy, funding, and education initiatives arising from FTTT in Tennessee from 2010 to the present.

History of Federal Education Reform Initiatives and Related Funding

The Old Deluder Satan Acts in Massachusetts in the mid-1600s were probably the first examples of compulsory education in America, requiring towns of certain sizes to provide for the education of their children, and by 1930 all states had compulsory education laws (Kelly, 2010). The United States Constitution did not make provisions for education, thus leaving it for many years to the states, but the federal government has maintained an interest in education. The

Northwest Ordinance of 1787 required that land be set aside in each town to support education (Cross, 2004). The Morrill Act of 1862 provided to each state 30,000 acres of land for each member of Congress. The land was to be used to provide colleges for agriculture and mechanic arts, resulting in what has become known as the land-grant colleges. The federal government's educational involvement continued in response to military concern that 25% of World War I inductees were illiterate when the Smith-Hughes Act of 1917 was enacted to promote vocational education (Cross, 2004). Cross wrote of other scattered attempts at federal involvement in the years leading up to World War II but nothing of particular note until after the war.

Federal involvement in education at the end of World War II was based on concerns of national defense. The watershed began with the Servicemen's Readjustment Act of 1944, known as the GI Bill, which Cross (2004) noted as transformational in the federal education arena. Among other benefits to veterans of active duty, the GI Bill provided tuition and living expenses for high school, vocational, and college educations (Servicemen's Readjustment Act of 1934). The Impact Aid Act of 1950 gave federal assistance to districts that suffered property tax loss due to federal installations or areas in which children under federal support were educated, such as children on Indian lands or from military families (Cross, 2005). *Brown v. Board of Education of Topeka* in 1954 represented landmark federal involvement from the judicial branch when the U.S. Supreme Court declared the *de jure* segregation of the South and the *de facto* segregation of the North to be unconstitutional (Engl, Permuth, & Wonder, 2004). Cross (2004) discussed the slow pace of desegregation following the Court's decision because the volatile issue of race made it difficult to pass enforcement legislation or provide funding.

Three years later on October 4, 1957, the USSR launched the Sputnik satellite. Powell (2007) said that "Sputnik's radio signal highlighted not only the fact that the Soviet Union had

beaten the United States into space, it also made it clear the Soviets possessed rocket technology strong enough to launch nuclear bombs at the United States” (para. 3). Powell also noted that the resulting panic “galvanized the United States to enact reforms in science and engineering education so that the nation could regain technological ground” (para. 2).

The National Defense Education Act (NDEA) of 1958 was federal legislation in response to the Sputnik crisis that called for the government to subsidize student loans and assist in developing science and language laboratories (Ravitch, 2010). According to Cross (2004), the NDEA succeeded in Congress where other, similar bills had failed because in the aftermath of Sputnik the legislators felt pressure from the public. Boers (2007) described NDEA as the method by which the federal government began its “role as the national curriculum developer [by] controlling funding” (p. 93). Cross (2004) noted that federal involvement in education in the decade of the 1950s culminated in Sputnik and NDEA, “when education meets national defense” (p. 11).

Sunderman (2010) indicated that the 1960s marked the first major significance of federal presence in the educational climate where, although states had legal authority over education, local agencies actually made operational decisions (p. 228). Sunderman further cited the Civil Rights Movement as the driving force that impelled the federal government into an increased role that in turn developed “a larger role for state departments of education” as a way to “funnel money (and) enforce and monitor the emerging federal requirements” (p. 228). Even though *Brown v. Board of Education of Topeka* made segregation of schools unconstitutional in 1954, Cross (2005) asserted that “nothing much happened to desegregate the schools until the passing of the Civil Rights Act in 1964” (p. 4), which “settled once and for all the legal issue of school desegregation” (p. 5) by making all forms of discrimination illegal.

As part of President Lyndon B. Johnson's War on Poverty and his Great Society programs, the landmark Elementary and Secondary Education Act (ESEA) of 1965 was passed. ESEA authorized one billion dollars in federal money to be used, by way of several sections called Titles, to "build capacity of children from impoverished backgrounds who had historically struggled in public schools" (O'Brien & Roberson, 2012, p. 358). Sunderman (2010) asserted that the passage of ESEA was the catalyst for all subsequent federal education legislation. One member of Congress, Howard Smith, noted that ESEA was a point at which "we apparently have come to the end of the road as far as local control over our education in public facilities is concerned" (Sundquist, 1968, p. 215). However, several researchers have noted that ESEA, at least in its early authorizations, funneled federal money to states and schools without stringent monitoring or accountability practices (Cross, 2004, 2005; O'Brien & Roberson, 2012; Ravitch, 2010; Sunderman, 2010).

Little research into American educational reform can be undertaken without a discussion of *Equality of Educational Opportunity* (1966), commonly known as the Coleman Report. As requested by the Civil Rights Act of 1964, Coleman conducted an extensive survey to study educational opportunities for minorities and "the relationship between students' achievement, as measured by achievement tests, and the kinds of schools they attend" (p. 1). The report was widely noted in the literature as prestigious and pervasive (Borman & Dowling, 2010; Bowles & Levin, 1968; Cross, 2004, 2005; Hanushek & Lindseth, 2009; O'Brien & Roberson, 2012; Ravitch, 2010; Wenglinsky, 1997). The fundamental conclusion of the Coleman report was that "schools bring little influence to bear on a child's achievement that is independent of his background" (p. 325), commonly interpreted as meaning that schools make little difference in the achievement of underprivileged and minority children. Borman and Dowling (2010)

asserted that the Coleman report has continued to influence education policy and public opinion and has continued to be cited by those with an interest in arguing against greater financial resources for schools.

Historical education reform on the federal level continued in the mid-1960s with the establishment of the National Assessment for Educational Progress (NAEP), a federally mandated program to collect national data on student achievement. Cross (2004) reported on the objections of state education authorities in regard to the assembling of data that would make “state-by-state comparisons, calling them unfair and not useful” (p. 83). Vinovskis (1998) said that influential educational associations were also fearful of the collection and dissemination of student data due to the harmful effects that comparisons would have. Resistance to national assessment of students and collection of data was also due to fears of federal poaching on the state responsibility to educate students and the narrowing of the curriculum (Beaton et al., 2011). By 1969 NAEP was crafted to carefully protect states’ rights by limiting the assessments to voluntary basis, sampling students by age rather than grade, and by reporting results in four geographical regions rather than state-by-state (Beaton et al., 2011; Cross, 2004; Vinovskis, 1998). Cross (2004) noted that in its early years “NAEP data showed little more than that children in the South did not score as well as children in the Northeast and Midwest” (p. 84). NAEP evolved as federal involvement in education evolved, later becoming known as “The Nation’s Report Card” and becoming more involved in comparisons and accountability (Beaton et al., 2011). Hombo (2003) discussed the federal mandates that drive NAEP as a part of the U.S. Education Department. Hombo also described NAEP’s many reauthorizations and changes as it took on the new role in the late 1990s of tracking individual progress in individual states when the assessments emerged as a tool for the federal government to tie progress to funding.

Ravitch (2001) indicated that NAEP's regular and standard reports on student achievement from 1970 on have made it "the only consistent national barometer of educational performance and a constant reminder of the need for improved achievement" (p. 451).

The role of the federal government in education continued to grow in the 1970s. Cross (2004) discussed a tightening of regulations, creation of targeted federal efforts, and a lessening of trust in the Nixon, Ford, and Carter administrations. The Education Amendments of 1972 were primarily for aid to higher education, although most of the press at the time focused on the issue of race in the form of school busing that was addressed in Section 803. The 1972 bill was also notable for the introduction of Title IX to bar discrimination on the basis of sex in any educational program that received federal funds. The Vocational Rehabilitation Act of 1974 was notable for Section 504, which contained language that disallowed discrimination on the basis of disability. While Section 504 represented a general ban on discrimination in all areas of the public sector, it had speedy application to education, and Cross (2004) said it "set the stage for the special education law in 1975" (p. 54). Public Law 94-142, the Education of all Handicapped Children Act of 1975 (now known as the Individuals with Disabilities Education Act, or IDEA), mandated how schools would provide services to children with special needs. Cross (2004) and Ravitch (2001) reviewed the social, political, and educational climates that came together at the right time to impel Congress to provide legislation to protect the educational rights of students with disabilities.

Many reauthorizations of ESEA spanning from 1965 to the present are interwoven throughout federal involvement, commissions, laws, and mandates. Cross (2005) called ESEA "in its various incarnations, one of the most important vehicles for federal education legislation" (p. 7). McGuinn (2006) and Whilden (2011) detailed many reauthorizations and related

increases in federal funding. O'Brien and Roberson (2012) concluded, "Since its inception, every sitting president, in conjunction with Congress, has reauthorized ESEA" (p. 358). The Educational Amendments of 1978 stood out in Cross's (2004) discussion of the Carter Administration because its reauthorization of ESEA represented the largest increases in funding to date and created a striking number of new programs such as consumer, gifted and talented, and environmental education, as well as the schoolwide project for Title I schools with 75% eligible children.

The cabinet-level U.S. Department of Education (ED) was created by President Carter in 1979 in what Boers (2007) described as a "deal" struck with the National Education Association (NEA) in "return for NEA endorsement" (p. 99). Several authors wrote of the increased role, importance, and recognition that education received on the federal stage by the establishment of a cabinet-level department (Boers, 2007; Cross, 2004; Hanushek & Lindseth, 2009, Ravitch, 2001). Illustrating the significance of the creation of the ED, Boers (2007) called it a "bully pulpit" from which the Secretary of Education could now "manage the administration's educational agenda" (p. 100). The term *bully pulpit* arises often in the literature in reference to the federal role in education (Cross, 2004, 2005; O'Brien & Roberson, 2012; Ravitch, 2001).

The Educational Amendments of 1978, the creation of ED, and huge increases in federal spending set the stage for the educational agenda of the next president, Ronald Reagan, and the block grants of the 1980s. Reagan's 1980 campaign platform on education was to lessen the role of the federal government, disassemble ED, and decentralize and shrink the programs of ESEA (Cross, 2004; McGuinn, 2006). The Education Consolidation and Improvement Act (ECIA) of 1981 was intended to cut federal education aid to states by 20%, but the cuts were offset by the lessening of federal strictures and paperwork that gave the states more authority to use the

money. According to McGuinn (2006) many small programs of ESEA were consolidated into blocks with Reagan's New Federalism reforms, and he estimated that federal education mandates were reduced by 85% (p. 42). Sunderman (2010) pointed out the Reagan administration's emphases on deregulation and support of greater authority at the state level. Federal involvement in education was lessened in the Reagan administration, but his goal of abolishing ED was not realized.

The Reagan White House and his Secretary of Education Terrell Bell commissioned a report that McGuinn (2006) called "a milestone in the history of federal education policy" (p. 42). The National Commission on Excellence in Education (NCEE) published *A Nation at Risk: The Imperative for Educational Reform (NAR)* in April, 1983 (Gardner, Larsen, & Baker, 1983). As discussed by many researchers (Adams & Ginsberg, 2007; Beaton et al., 2011; Bourque, 2009; Cross, 2004; Hanushek & Lindseth, 2009; McGuinn, 2006; O'Brien & Roberson, 2012; Ravitch, 2001; Sunderman, 2010; Vinovskis, 1998), *NAR* was pivotal in focusing national attention on educational progress in America in what Sunderman (2010) called "a sweeping critique of the nation's education system" (p. 233). Hanushek and Lindseth (2009) wrote that *NAR*'s publication "sparked the period of public concern regarding education that continues unabated to this day" (p. 44). *NAR*'s most often quoted lines come from the beginning of the report:

...the educational foundations of our society are presently being eroded by a rising tide of mediocrity that threatens our very future as a Nation and a people.

What was unimaginable a generation ago has begun to occur--others are matching and surpassing our educational attainments.

If an unfriendly foreign power had attempted to impose on America the mediocre educational performance that exists today, we might well have viewed it as an act of war. As it stands, we have allowed this to happen to ourselves. We have even squandered the gains in student achievement made in the wake of the Sputnik challenge. Moreover, we have dismantled essential support systems which helped make those gains possible. We have, in effect, been committing an act of unthinking, unilateral educational disarmament. (Gardner et al., 1983, p. 6)

These dire warnings were accompanied in *NAR* by recommendations to the nation's legislators, educators, parents, and students that standards should be raised and time on the task of education should be increased. Calling for a more standardized high school curriculum of New Basics including 4 years of English language arts, 3 years of math, science, and social studies, 2 years of foreign language, and a half-year of computer science, *NAR* urged the nation to educational excellence instead of competency, stating that "the 'minimum' tends to become the 'maximum,' thus lowering educational standards for all" (Gardner, et al. 1983, p. 19).

The educational and political climate following the release of *NAR* led to a 1988 reauthorization of ESEA. According to Cross (2004) the 1988 reauthorization was notable for requiring more of local and state education agencies in the area of student performance. Defined levels of progress for students individually and schools, systems, and states collectively were required for those who received federal funds. The 1988 ESEA improved the Title I Schoolwide Project (SWP) allowing more schools with 75% or more disadvantaged children to provide services to their entire enrollments. Cross (2004) and Vinovskis (1998) discussed the changes to NAEP that resulted from the 1988 ESEA reauthorization. For the first time, and on a voluntary basis, states could participate in a state-by-state comparison of student achievement data in what

NAEP called The Nation's Report Card (Cross, 2004, p. 84). Beaton et al. (2011) and Bourque (2009) noted that the restructured NAEP introduced three achievement levels for students: Basic, Proficient, and Advanced. In 1990, when P.L. 94-142 was renamed IDEA, NAEP began to report the test results of students with disabilities (SWD) and English language learners (ELL). Several researchers remarked on the importance of these testing and accountability developments and the advent of The Nation's Report Card in making student achievement data accessible and relevant to stakeholders and the media (Beaton et al., 2011; Bourque, 2009; Cross, 2004; Hombo, 2003; Vinovskis, 1998).

In 1989 President George H. W. Bush invited the nation's governors and other dignitaries to an education summit in Charlottesville, Virginia, to set national performance goals that, according to Cross (2004), "would focus on the outcomes of education rather than the inputs" (p. 94). The group produced a report entitled *Joint Statement on the Education Summit With the Nation's Governors in Charlottesville, Virginia* (1989) that outlined the following goals for the nation's education system to reach by the year 2000:

1. The readiness of children to start school;
2. The performance of students on international achievement tests, especially in math and science;
3. The reduction of the dropout rate and the improvement of academic performance, especially among at-risk students;
4. The functional literacy of adult Americans;
5. The level of training necessary to guarantee a competitive workforce;
6. The supply of qualified teachers and up-to-date technology; and
7. The establishment of safe, disciplined, and drug-free schools.

Cross (2004) wrote of his experiences as a member of the working group that was appointed to fine-tune the broad language of the Charlottesville summit. The group's task was to prepare the goals of the President's and governors' summit into a working document that included specific objectives for the general goals, which they edited from seven goals to six. President Bush announced the National Education Goals in his 1990 State of the Union address, but Congress did not take action on them for several years; according to Cross (2004), this was mostly because no legislator was a part of the goals-development process. Cross (2004) and McGuinn (2006) noted that one of the pivotal roles at the summit and in the working group was played by then-governor of Arkansas, Bill Clinton. As President in 1994 Clinton signed the Goals 2000: Educate America Act that encouraged states to adopt the goals and develop standards and assessments "by sweetening the pot with \$420 million in grants" (Cross, 2004, p. 108). Ravitch (2001) indicated the federal board authorized by Goals 2000 to develop national and state standards was not successful mainly because almost every state began developing its own standards (p. 433). McGuinn (2006) also discussed the voluntary participation of the states in goals development but added that states were required to submit goals to the federal government if they were to receive Goals 2000 federal funds.

Cross (2004, 2005), Sunderman (2010), and McGuinn (2006) detailed the Clinton administration's efforts to link education reform to billions of federal funds with the 1994 reauthorization of ESEA, entitled Improving America's Schools Act (IASA). Unlike previous authorizations, IASA tied funding for Title I to standards, assessments, and stronger curricula for children in poverty and their schools. McGuinn (2006) called it "the most significant change to ESEA since 1965 because it restructured federal education programs to align with the new focus on academic improvement for all students that had been outlined in Goals 2000" (p. 95).

Standards-based reform aligned to assessments and school improvement plans became required under IASA, along with the following new language: “narrowing the achievement gap between children in high-poverty and low-poverty schools” (IASA, 1994, Sec 1001 (b) 4).

IASA was the last reauthorization of ESEA until the No Child Left Behind Act (NCLB) of 2001. Cross (2004) noted that from 1994-2001, only 1/3 of the states were in compliance of IASA’s requirements and systemic reform. According to Shepard, Hannaway, and Baker (2009), “since 1992, the era of test-based accountability has been associated with increasing student achievement, but improvements have not been as clear-cut or dramatic as had been hoped” (p. 2). Adams and Ginsberg (2007) said that none of the 1990 National Education Goals were attained by the target year 2000 and concluded that “history’s lesson is that, of all education reforms, changes in teaching and student achievement come slowly” (para. 38). Cross (2004) and McGuinn (2006) described the political climate between Republicans and Democrats in the legislature that contributed to the slow pace of implementation and compliance.

President George W. Bush was elected in 2000; one of his first initiatives was NCLB. There is more information in the literature about NCLB than other educational reforms. According to Cross (2004), McGuinn (2006), O’Brien and Roberson (2012), Ravitch (2001), and Sunderman, (2010) national dissatisfaction with the state of education reform and student achievement contributed to an unusual bipartisanship of the major parties and paved the way for NCLB’s landmark, sweeping reauthorization of ESEA. The stated goal of NCLB was “to close the achievement gap with accountability, flexibility, and choice, so that no child is left behind” (NCLB, 1983, p. 1). Besides the top priority of closing the achievement gap, this act also called for states to develop methods to ensure that teachers and principals were highly qualified and that all students would be reading on grade level by third grade. McGuinn (2006) summarized

the highlights of NCLB into nine main areas: annual tests for Grades 3-8; academic improvement leading to 100% proficiency by 2014; corrective action for failing schools; report cards for states, districts, and schools; teacher quality; scientifically researched reading programs; transferability of funds; flexibility for states in exchange for performance agreements; and public charter schools (p. 180-1). McGuinn (2006) also noted that NCLB required state-led adoption of standards, testing, and accountability while Goals 2000 merely encouraged them. McClure, as cited in McGuinn (2006), declared that “NCLB has grabbed the education community’s attention like no previous ESEA reauthorization” due to its requirements, timetables, and real threat of losing federal dollars for noncompliance (p. 183). Hanushek and Lindseth (2009) noted that NCLB required accountability from all states and proficiency of all students by 2014, but “left the task of defining ‘proficiency’ up to the individual states” (p. 74), leaving no generalizability in results from state to state. Duncan (as quoted in Humphrey, 2011, para. 17) posited that the priorities of NCLB were “exactly backwards. It was loose on goals but tight on the means for getting there.”

NCLB expired in 2007 without being reauthorized, although states continued to be held responsible for its mandates. President Barack Obama, elected in 2008 and again in 2012, released his administration’s plan for revision, *ESEA Blueprint for Reform*, which President Obama called “not only a plan to renovate a flawed law, but also an outline for a re-envisioned federal role in education” (U. S. Department of Education, 2010, p. 2). *Blueprint for Reform*’s stated key priorities were: (1) College- and Career-Ready Students; (2) Great Teachers and Leaders in Every School; (3) Equity and Opportunity for All Students; (4) Raise the Bar and Reward Excellence; and (5) Promote Innovation and Continuous Improvement. Congress did not reauthorize ESEA, and Obama’s Department of Education guided by Secretary Arne Duncan

announced a competition for grant money called *Race to the Top* (RTTT), offering money to states with “the most innovative plans to improve teacher quality and student achievement” (The White House, Office of the Press Secretary, 2011b, para. 12). The RTTT grant money comprised \$5 billion out of the approximately \$100 billion provided for education by the American Recovery and Reinvestment Act of 2009 (U.S. Department of Education, 2009). In March 2010 Tennessee and Delaware were the first two states to be awarded RTTT funds. Tennessee had already passed the First to the Top Act (FTTT) to legislate the reforms required by the grant.

In September 2011 President Obama announced plans to give states the opportunity for flexibility from the mandates of NCLB. Because NCLB was still expired and not reauthorized, Obama stated in his remarks, “So, given that Congress cannot act, I am acting” (The White House, Office of the Press Secretary, 2011, para. 16), and announced that flexibility from the mandates of NCLB would be granted to states that set high standards. A fact sheet found on the website of the White House (The White House, Office of the Press Secretary, 2011a) summarized the case for offering ESEA flexibility, stating that a majority of states had adopted common college- and career-ready standards, developed assessments, and implemented reforms in educator evaluations in spite of NCLB, rather than because of it. The position of the Obama administration was:

Instead of fostering progress and accelerating academic improvements, many NCLB requirements have unintentionally become barriers to State and local implementation of reforms. It is time for a new partnership where the federal role is to support innovation and reform in the states while maintaining a high bar for

the success of all students. (The White House, Office of the Press Secretary, 2011a, para. 3)

State-requested flexibility from specific provisions of NCLB was made through waivers of the 2014 timeline for 100% proficiency, AYP requirements, and strict use of funding streams. State applications for waivers were required to show plans that addressed “the three critical areas that are designed to improve educational outcomes for all students, close achievement gaps and increase equity, and improve the quality of instruction” (The White House, Office of the Press Secretary, 2011a, para. 8). Tennessee applied for and was granted its request for flexibility in November 2011 (U.S. Department of Education, 2012a).

The role of the federal government in education throughout the history of the United States has been reviewed in the preceding section. Because the U.S. Constitution did not provide for education, many would argue that it is a sole right and responsibility of the individual states. According to Hanushek and Lindseth (2009) federal involvement has always been directed toward specific programs instead of general, operational funding. In order to provide for various national groups and needs, the federal government has a history of implementing reforms and initiatives that are tied to funding. Federal involvement has increased through the years, although it still accounts for only about 9% of total education revenues in K-12 education (U.S. Government Accountability Office, 2010). From 1965 to the present, federal involvement has been related to ESEA and its various reauthorizations.

Achievement, Accountability, Adequacy, and Equity

Increased student achievement is the common goal of educators, education reforms, and reformers. In *ESEA Blueprint for Reform*, President Obama stated, “We must reform our

schools to accelerate student achievement, close achievement gaps, inspire our children to excel, and turn around those schools that for too many young Americans aren't providing them with the education they need" (U. S. Department of Education, 2010, p. 2). Every author and researcher that was reviewed gave a similarly stated goal for education reform and for federal involvement in education. The differences in authors' conclusions and opinions lie in what constitutes acceptable achievement; how achievement is to be measured; how to fairly compare achievement of different students, schools, districts, and states; what constitutes an adequate education; and how to ensure equitable distribution of resources to supply an adequate education for each student. This section reviews available literature addressing these issues.

Historically, federal involvement in education constituted sending uncategorized money to states to support special populations and programs. ESEA arose out of President Johnson's War on Poverty in an attempt to support schools and districts with high populations of disadvantaged students, and subsequent reauthorizations have continued that effort. Cross (2004) discussed the general consensus of federal legislators in the 1960s that extra money would support well-trained and well-meaning educators and would translate into a better education for marginalized students. Cross (2004) interviewed Samuel Halperin and Barry White, White House staffers in the 1960s:

In 1965, everyone had a naïve view of education. We felt, in the words of Senator Wayne Morse, educators were all good people and that all you needed to do was give them some tools and some dollars and good things would happen. They didn't need a lot of specifics. Not much thought was given on how to assess what they had done; it was assumed that the right thing would happen. In the 1960s it was more important to get money into low-income areas than to do

anything that was educational or accountable. The belief was that money was the end game. It didn't work, dropouts weren't eliminated, kids didn't learn. (pp. 29-30)

The practice of holding schools, districts, and states accountable for student progress increased as federal involvement evolved. The NAR report in 1984 sparked a national conversation about academic progress. The 1988 reauthorization of ESEA called for voluntary comparisons of states' NAEP scores. Goals became more measurable and less voluntary in succeeding years. Cross (2004) termed the 1989 Charlottesville Summit "a new era – an era in which agreement on the aims and outcomes of education seemed possible" (p. 95). In 1994 Clinton's IASA reauthorized ESEA with a new framework, "one that linked standards, testing, teacher training, curriculum, and accountability in what was termed systemic reform" (Cross, 2004, p. 113), and one in which using student achievement in the form of standardized test scores was no longer voluntary for states that accepted federal money for education. In 2002 NCLB tightened the strings tying accountability to federal money and, while NCLB has yet to be reauthorized, the federal government has continued to increase accountability requirements in the ensuing 11 years (Whilden, 2011).

Many writers and researchers have concluded that the achievement and academic growth of American students is not at a desirable level (Bourque, 2009; Duncan, 2012; Hombo, 2003; O'Brien & Roberson, 2012; Ravitch, 2010; Shepard et al., 2009). Hanushek and Lindseth (2009) reported that since the first authorization of ESEA in 1965 "student achievement has remained flat, even as education spending, adjusted for inflation, has almost quadrupled" (p. 1), estimated that education spending exceeds the national defense budget (p. 10), and concluded that "we are

not getting much in return for our massive financial commitment... Sadly, our students are still performing at 1960 and 1970 levels” (p. 48). Student achievement as a professional responsibility and in return for financial investment is recognized as accountability. Haladyna (2002) argued that “true accountability involves a shared responsibility among everyone in society for providing clear learning outcomes, equal opportunities for learning, and measures of student learning that accurately show student achievement” (p. 204).

Measurements of student achievement have varied over the decades of historical federal involvement. NAEP has consistently been the national standard for student progress and “NAEP results serve as a common metric for all states” (U.S. Department of Education, 2012b, para. 2). NAEP measurement of student proficiency has been inconsistently applied due to voluntary state participation until the late 1990s when mandatory participation began at limited levels.

Vinovskis (1998) discussed the slow progression of NAEP assessments from limited, voluntary testing to eventual state-by-state comparisons mandated by NCLB in reading and math at grades 4 and 8. NAEP does not document or track scores for individual students or schools, but the National Center for Education Statistics reported that NAEP’s uniformity over time clearly provides information about student progress nationwide (U.S. Department of Education, 2012b).

Some researchers reported a problem in what constitutes student achievement. Shepard et al. (2009) discussed the limitations of reporting student progress: “Reporting improvements in percent proficient has been the standard metric for tracking progress since the beginnings of the standards movement. But percent proficient does not tell us much if proficiency is defined so differently by states” (p. 5). As discussed by Shepard et al. other problems of determining student proficiency include: the arbitrary creation of cut scores that can vary widely from test to test and from state to state; status measures that can skew results for cohorts of students due to

their neighborhoods and backgrounds; the use of value-added models that statistically quantify the contributions of individual teachers and schools; and the sometimes “skeletal” (p. 4) alignment of curricular components such as standards, assessments, textbooks, and professional development. Hanushek and Lindseth (2009) proposed the possibility that the problem of measuring achievement may be due to the special issues of society that appear to be worsening, such as students with disabilities, economic disadvantages, and personal instabilities in their homes. Acknowledging these issues in determining levels of achievement, Hanushek and Lindseth (2009) concluded:

A multitude of factors outside the school’s control affects performance. The child’s ability, the education of the child’s parents, their involvement in their child’s education, the resources in the home, how much the child studies, how much TV the child watches, the child’s motivation, the child’s health, and a host of other circumstances beyond the control of the school authorities all enter the equation. (p. 176)

Other researchers have identified another difficulty in measuring achievement. The variance from state to state in what is to be taught and learned makes it difficult to accurately measure student achievement. The material and skills that teachers teach and students learn has been called by different labels such as goals, objectives, benchmarks, learning targets, and standards. Cross (2004) reviewed the political and educational climate of the Reagan era 1980s following the publication of *A Nation at Risk* that gave rise to what could be called the standards movement. The ESEA reauthorization of 1994 set standards-based reform into law, requiring that states set challenging standards and develop aligned assessments that measured student progress. Shepard et al. (2009) discussed the limitations of the implementation of the regulations

as each state adopted its own standards, benchmarks, and achievement levels. They listed lack of coherence in various curricula, low expectations, top-down commitment, inadequate training, and underdeveloped capacity of districts and schools as some of the reasons that the state-based standards movement has yielded only small gains in student achievement. Another major problem highlighted by Shepard et al. is test-score inflation that is related to student and teacher familiarity with state tests and formats over time, resulting in test-based accountability instead of standards-based accountability.

Another limitation in measuring student achievement is using a benchmark of percent proficient to determine school, district, and state success in student achievement. Shepard et al. (2009) discussed the atmosphere of “gaming, distortion, and perverse incentives (that) can be expected to occur when performance indicators are imperfect measures of desired outcomes” (p. 3). Peterson and Hess (2008) highlighted an essential problem in using proficiency to measure student achievement: NCLB required that all students become proficient by 2014 but allowed the states to set their own definition of proficiency. The Peterson and Hess analysis showed that a few states set world-class standards, but most had markedly lower standards. By comparing proficiency on the state assessment to proficiency as defined by NAEP, Peterson and Hess determined that Tennessee had the lowest standards of all 50 states. Peterson and Lastra-Anadon (2010) elaborated with a specific example of Tennessee’s test score inflation:

Based on its own tests and standards, the state claimed in 2009 that over 90 percent of its 4th-grade students were proficient in math, whereas NAEP tests revealed that only 28 percent were performing at a proficient level. Results in 4th-grade reading and at the 8th-grade level are much the same. With such divergence, the concept of ‘standard’ has lost all meaning. It’s as if a yardstick

can be 36 inches long in most of the world, but 3 inches long in Tennessee. (p. 14)

The differences in standards, assessments, and determination of proficiency from state to state fueled national debate over the need to reauthorize ESEA. In *ESEA Blueprint for Reform*, President Obama called for states to either upgrade their existing standards or work with other states to develop common standards. In 2009 the Council of Chief State School Officers (CCSSO) and the National Governors Association (NGA) led the move to develop common academic standards in English language arts and math in an initiative called Common Core State Standards (CCSS). Whilden (2011) wrote that the CCSS initiative was “the highest-profile national effort to create rigorous, uniform academic standards” for student achievement (p. 3). By 2013, the consortium of governors and state education commissioners reported that 45 states, the District of Columbia, 4 U.S. territories, and the Department of Defense Education Activity had adopted CCSS (National Governors Association Center for Best Practices, Council of Chief State School Officers, 2010a). To fairly compare achievement of different students, schools, districts, and states a common assessment tool will be necessary. Members of the consortium will collaborate on common assessments aligned to the CCSS to replace existing state assessments. The newly-aligned, common assessments will be available in the 2014-2015 school year (National Governors Association Center for Best Practices, Council of Chief State School Officers, 2010b).

Another historical issue in American education has been the question of what constitutes an adequate education. Hanushek (2005) argued that ambiguity of terms fuels the debate in school finance discussions, and different players in the political game misuse terms such as *adequacy* to suit their own purposes. Throughout the literature, adequate education continued to

be defined in terms of linking school funding to the goal of educating students to a level of proficiency on state standards. The differences in state standards, levels and cut scores for proficiency, and assessment tools have made adequacy difficult to discuss and compare on a national level. Minorini and Sugarman (1999) described an adequate education as “a state-guaranteed high-minimum (that) would specifically take into account the varying needs of different types of pupils (and) that individual schools or districts face differing costs” (p. 188). Much of the literature addressed the difference between adequacy and equality or equity. According to Minorini and Sugarman adequacy regards giving all children access to needed educational opportunities, and the argument “does not rest on a norm of equal treatment...except in the sense that all pupils are equally entitled to at least a high-minimum” (p. 188). Hanushek (2005) and other researchers noted that adequacy is about inputs in terms of dollars rather than outputs in terms of educational progress. Regarding efficiency studies to determine how much is too little or too much, Myhan (2011) wrote, “Logic decrees a minimum threshold of dollars for adequate funding and a maximum threshold for diminishing return on investment” (p. 18). Much of the literature warned that setting a minimum level of spending for an adequate education would drag instructional delivery to the middle instead of setting high expectations. Kagan (2003) described the vaguely-worded clauses that almost all state constitutions use to require that children be provided with an adequate education. The legal requirement to define adequate education has been driven by state legislation and court decisions as a part of school finance reform and litigation “to reduce the disparity in funding between school districts that come from schools’ reliance on local property taxes to raise revenues” (Hanushek & Lindseth, 2009, p. 3).

Augenblick, Myers, and Anderson (1997) determined that “ensuring equity and adequacy of education funding are two of the most complex problems facing state legislatures” (p. 63).

Cost studies were prepared for state legislatures and boards of education to arrive at a level of spending per pupil and for use in preparing state funding formulas. Hanushek wrote often on the issue of determining what makes up adequate education and what it costs. According to Hanushek (2005) the common practice by districts and states of hiring consultants to “cost out” an adequate education produces a “political document” designed for “clients with an agenda” (p. 36) rather than scientific study that can lead to education reform and student achievement.

The cost of an adequate education has been the subject of school finance litigation in most states due to the inequities that arise because property taxes commonly provide the monies for local education spending. As argued by Slavin (1999) “if funding equity were popular, legislators would ensure it and courts would not need to be involved” (p. 4). Hanushek and Lindseth (2009) posed the quandary of whether better schools make homes more valuable or whether high-property-tax homes result in better schools (p. 64). Poorer districts in many states have sued to require the state to equalize funding by providing more state funds in areas where property taxes are lower. Dayton (2003) reviewed several pertinent school funding cases including *Serrano v. Priest* (1971), “commonly regarded as the beginning of the modern era in school funding litigation” (p. 2), and *San Antonio Independent School District v. Rodriguez* (1973), in which “the United States Supreme Court recognized the disparities in taxable wealth created by industrialization and the growth of urban areas” (p. 2). For several years other states experienced school funding equity litigation centered on school buses, restroom facilities, and other issues of equal opportunity.

The Tennessee Supreme Court heard a case that highlighted the financial differences between rural and metropolitan area schools when a coalition of small school districts and related stakeholders brought suit in *Tennessee Small School Systems v. Ned Ray McWherter* (1993). The

court found that there was a disparity between the fiscal capacity of small or rural systems and those in urban or heavily commercial areas. This decision rendered the funding formula for Tennessee schools unconstitutional, resulting in a new Basic Education Plan (BEP) to send differing amounts to different school districts based on complicated calculations of local fiscal capacity so that per pupil expenditures would be equalized. According to Hanushek and Lindseth (2009) a foundation formula results when the “state provides equalizing grants to local districts so that poor districts have more funds for schools than they would be able to raise on their low property tax wealth (by declaring) a foundation level, coupled with a base tax rate that it expects all districts to set” (p. 59). Sometimes called a minimum tax effort, the local base tax rate is added to differing amounts of state funding, or equalization grants, to ensure that all districts have at least the foundation amount for schools. Downes and Shah (2006) considered various arguments about the effect of nondiscretionary reform on local spending. They concluded that local support lessened when a state moved “from a local to a state system of finance, (and) education is forced to compete with other services for state dollars” (p. 2). Minorini and Sugarman (1999) argued that “overt ‘Robin Hood’...litigation” geared toward equal treatment of dollars actually worked against the “high-minimum quality education for all” that is desired for adequacy and equity (p. 188). Karen King, a member of Tennessee’s BEP Review Committee and Director of Finance for an East Tennessee school system, reported that the BEP phase-in of the mid-1990s and subsequent revision BEP 2.0 of 2006 were inadequate efforts to equalize funding. Because a district’s fiscal capacity was determined by property tax and sales tax revenue, new inequities resulted for some districts. According to King, determinants such as Tourism Development Zones, Central Business Improvement Districts, and percentage of students eligible for free and reduced price meals should also be considered in the

state's funding formula (personal communication, March 6, 2012). Tennessee Senate Finance Committee Chairman Randy McNally (as cited in Humphrey, 2013, para. 8) stated that the system functions well, even though "comparing one county to another, there are number of variables that tend to smooth it all out – or tend to give some counties a boost." Humphrey reported that many county leaders in the state dispute the equity of the flow of tax dollars into and out of the state's counties.

One final funding topic from the literature is the difference between vertical and horizontal equity. Hanushek and Lindseth's (2009) discussion of equity described it horizontally as equal treatment of equals and vertically as equal opportunities that may require unequal spending because of at-risk populations. Most writers in the literature concluded that horizontal equity on the state level is district to district, and vertical equity is found within a district among populations of students with different needs. On a national level with federal funds, horizontal and vertical equity have similar connotations from state to state and among different populations.

The common thread in discussions of education spending is whether increased spending will result in increased achievement. The "money matters/money doesn't matter" debate began after the Coleman Report of 1966 concluded that "school economic characteristics, such as teacher-student ratios and the number of years of teachers' experience, are either weakly or not at all associated with academic achievement when SES (socio-economic status) is taken into account" (Wenglinsky, p. 222). Many writers in the literature examined varying research about the relationship between spending and achievement and overwhelmingly concluded that the critical issue is not how much money is spent, but rather how the money is spent. For example, Myhan (2011) stated, "The real dilemma in school finance policy was determining which resources matter, and in which situations resources matter" (p. 18). Wenglinsky (1997)

suggested “that schools can make a difference when their economic resources are allocated in a fashion conducive to positive school social environments” (p. 221). Another way of stating the conclusion was, “Yet even more important than funding equity itself is the question of how new resources can be used by poor districts to improve their students’ achievement” (Slavin, 1999, p. 2). Augenblick and Myers (as cited in Hanushek, 2005) prefaced one of their contracted costing-out studies by admitting that “no existing research demonstrates a straightforward relationship between how much is spent...and performance, whether of student, school, or school district” (p. 17). Card and Payne (2002) reported that “there is relatively little direct evidence linking school finance reforms to student outcomes. Moreover, research on the generic effects of school spending is controversial” (p. 68). Because of few evidentiary links Card and Payne expressed only “tentative” conclusions when studying the relationship between shifts in spending and SAT scores (p. 80). Gordon (2004) wrote specifically about Title I federal spending and contended that “the guidance on *how* school districts are to use Title I funds is and traditionally has been broad” (p. 1774), and she emphatically concluded, “Researchers asking if money matters must first establish that the money is *spent* in ways that should matter” (p. 1791). In conclusion of their discussion supporting the argument that how money is spent matters more than how much money is spent, Lips, Watkins, and Fleming (2008) proposed:

Simply increasing government spending on education may no longer be a viable option for federal and state policymakers. Furthermore... simply increasing education spending does not appear to improve American students’ academic achievement. To improve learning opportunities for American children, policymakers should refocus on allocating resources more efficiently and effectively. (p. 2)

Educational Policy, Funding, and Recent Initiatives in Tennessee

The state of Tennessee passed Senate Bill No. 7005, cited as the Tennessee First to the Top Act of 2010 (FTTT), on January 16, 2010. In this legislation sweeping changes were made to Tennessee Code Annotated (T.C.A.) Chapter 49, Chapters 1, 3, 4, and 5 to affect many areas of education in the state, such as the establishment of an Achievement School District (ASD) for schools not meeting performance standards, a new evaluation system for teachers and principals tied heavily to student achievement, and changes to the tenure laws. Swift changes occurred in Tennessee in response to efforts to meet the challenges required to receive federal Race to the Top (RTTT) grant monies. In July 2010 the state was granted \$501 million in the first round of the federal grant competition. The rules of the grant stipulated that the monies be evenly divided between the state and the LEAs. Each LEA was allocated funds in accordance with a unique Scope of Work planned by the LEA and approved by TDOE. RTTT funds were based on the federal Title I formula but were not restricted by Title I regulations. Individual LEA grants ranged in size from \$45,000 to \$67 million, but most LEAs received between \$500,000 and \$2 million (Norman-Gordon & Huwieler, 2011, p 4). See Figure 1 for statewide RTTT funding allocations by LEA.

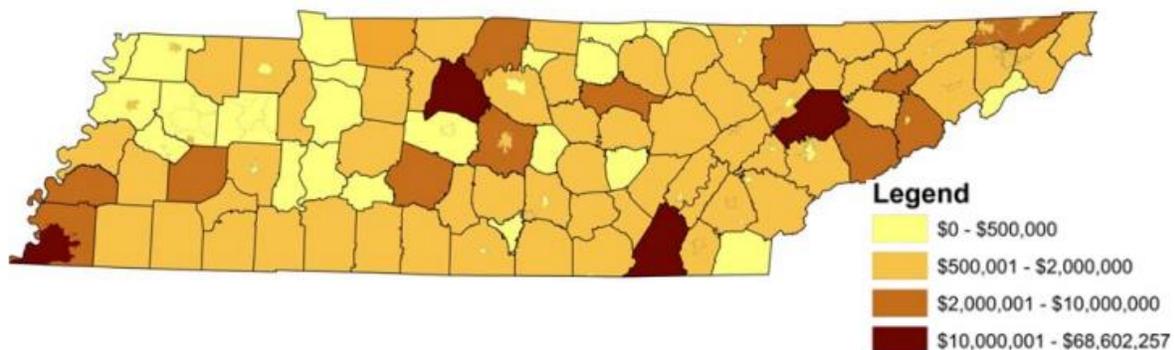


Figure 1. Race to the Top Funding Allocations by LEA (From Norman-Gordon & Huwieler, 2011, p. 4. No copyright. Reprinted with permission.)

The framework of RTTT required that grant monies be used for comprehensive education reform in four areas: adopting rigorous standards and assessments to prepare students for college and career readiness; professional development for exceptional teachers and leaders; formation and maintenance of data systems to measure student success and educator practices; and turnaround of lowest performing schools (U.S. Department of Education, 2012c). Essentially the RTTT funds were granted to Tennessee with the goal of increased student achievement.

One of the first initiatives mentioned in literature about changes following FTTT was the creation of the Achievement School District (ASD). The First to the Top Act of 2010 was enacted in a special legislative session to “amend Tennessee Code Annotated (TCA), Title 49, Chapters 1, 2, 3, and 5, relative to education.” Governor Phil Bredesen said in his address to the General Assembly, “The legislation before you in this extraordinary session includes granting the Commissioner of Education the authority to create a special school district – an Achievement School District – for the purposes of intervening in consistently failing schools, and getting them back on track” (State of Tennessee, Governor’s Communication Office, 2010, p. 3). Six days later Section 9 of FTTT ordered that language be inserted “as a new § 49-1-614” (Tennessee First to the Top Act of 2010, p. 2) to establish an ASD under the governance of TDOE. The new language added to TCA, Title 49 established authority for the Commissioner of Education to contract with individuals or entities to manage the operations of schools that have been placed in the ASD; also included was language about due process and rights of students and employees. The Act included general, nonnegotiable directives for the establishment and continuance of the ASD, but specific guidelines for placement, retention, and governance of schools into the ASD were given in TDOE’s *Race to the Top: Application for Initial Funding* (2010) that was filed 2 days after FTTT was signed into law. Smith (2013) consolidated Tennessee’s RTTT application

into a blueprint for the Achievement School District with seven areas: Eligibility, Governance, Teachers and Staff, Partners, Timing, Models, and Exit Strategy (p.7-8). Schools were eligible to enter the ASD by being consistently in the bottom 5% of Tennessee Title I schools. Schools in the ASD were governed not by their Local Education Agency (LEA) but fell under the jurisdiction of the TDOE, specifically governed by an ASD superintendent, a new position outlined in the RTTT application. Teachers and staff entered new contracts with the ASD, and many did not remain at their previous schools. Community partners in the form of leadership and charter organizations were recruited. School year 2010-2011 was designated as a planning and community-building year, and school year 2011-2012 was slated as the launch year of actual school management by the ASD. The models for ASD schools were Turnaround, Restart, Closure, and Transformation, including varying degrees of rigor in the mandated changes. The original proposal's exit strategy involved phasing a school back to LEA governance after making Adequate Yearly Progress (AYP) for successive years (Smith, 2013, pp. 7-8).

The ASD's actual launch occurred in August 2011 with six schools, three of which were governed by the ASD superintendent and three of which were matched with charter organizations. Five of the six schools were from the Memphis City School System, and one was from Metro Nashville Public Schools. The ASD's stated goal was, "Proving the Possible by moving the bottom 5% of schools in Tennessee to the top 25% within five years" (Achievement School District, 2013, para. 1). Smith (2013) reported that charters have been granted to 9 more schools in Memphis and Nashville for the 2013-14 school year, to bring the ASD total to 15 schools. According to the ASD, there were 85 schools in the bottom 5% of the state, and the key to their transformation was partnership with high-performing charter schools (Achievement School District, 2013). Tennessee's initial application for RTTT funding lists the ASD as a

budget line item of the “Intervention/Human Capital” type with a recommended 4-year budget of \$49,168,869 out of the total RTTT requested grant total of \$501,792,892 (TDOE, 2010a, p. 169); thus, funding for the ASD represents almost 10% of the grant total.

While the establishment of the ASD was the first major initiative named in much of the general literature reviews of FTTT, Smith (2013) reported that Governor Bredesen’s address to the special session of the General Assembly “dwelt on selling the most controversial aspect of his ‘First to the Top’ legislation, tying teacher evaluations to student achievement results” (p. 5). Section 10 of the Tennessee First to the Top Act of 2010 amended the existing § 49-1-302(d)(1) and (2) by “deleting those subdivisions in their entirety and by substituting” (p. 5) a series of sections that created a Teacher Evaluation Advisory Committee (TEAC) to devise criteria for annual evaluation of all teachers and principals to include student achievement data as 50%. The TVAAS database of longitudinal student growth data was already in place in the state and would be used for 35% of the student achievement evaluation measure. The state’s *RTTT: Application for Initial Funding* referred to the use of TVAAS data for teacher effect data in striking language: “Most notably, we have fully ‘unlocked’ our TVAAS data by removing statutory barriers to using it in key employment decisions for teachers” (TDOE, 2010a, p. 12). The other 15% of the student achievement portion was to be agreed upon by the educator and the educator’s supervisor from list of student achievement measures to be developed by TEAC. The remaining 50% for teachers was comprised of scores given on a series of classroom observations to be determined by TEAC. The implementation of multiple observations for every educator every year was an impactful change in the working conditions of both teachers and principals. The Year 1 report on the changes in teacher evaluation acknowledged that “public discussion about teacher evaluation began to detract from the real purpose of the evaluation system:

improving student achievement” (TDOE, 2012c, p. 2) and outlined steps to mitigate some of the more widespread complaints such as time consumption, lack of professional development in understanding the rubrics, and fairness in assigning 15% and 35% measures (TDOE, 2012c).

Tennessee First to the Top Act of 2010 provided for the first time in the state for student achievement data and teacher observation scores to be tied to “employment decisions, including, but not necessarily limited to promotion, retention, termination, compensation and the attainment of tenure status” (p. 5). Governor Bredesen acknowledged that using student achievement data to make employment decisions “causes some anxiety among many teachers, and a great deal of anxiety with their union: the Tennessee Education Association,” but appealed to the legislators to make the change with the argument, “If you fail to act on these accountability reforms, we’ll likely be pushed to the side” (State of Tennessee, Governor’s Communication Office, 2010, p. 4) in the Race to the Top competition. Just a few days later, “Tennessee’s First to the Top Act (was) adopted by the General Assembly with bipartisan support during 2010’s extraordinary session under the backdrop of the federal Race to the Top competition” (TDOE, 2012c, p. 1). Changes to the tenure law were made in Public Chapter 70 of March 2011, which amended existing tenure language in T.C.A. The “significant revisions to the laws regarding tenure for public school teachers in Tennessee” were summarized for educators and the public on the TDOE website in a question-and-answer formatted document (TDOE, n.d.g, p. 1). In short the law changed tenure from an automatic guarantee of continued employment to a status to be granted for continued exceptional performance; teachers without tenure prior to July 1, 2011, would serve a probationary period of 5 school years with a requirement to maintain high performance levels to gain and retain tenure status. Two other considerations of the new tenure law were that a teacher who does not achieve tenure could still be indefinitely employed on a

year-to-year basis, and teachers who achieved tenure prior to July 1, 2011, would not be affected by the new law, except in the case of new language regarding inefficiency. Inefficiency was one of the causes for termination in the prior law; however, Public Chapter 70 redefined educator inefficiency to include an overall performance effectiveness level in the bottom two rating categories of the new evaluation system. Although much legislative and administrative action was taken in regards to employment standards and policies, another important part of the RTTT application regarded expectations for students, reflected in the adoption of and transition to Common Core Standards.

Tennessee's *RTTT: Application for Initial Funding* listed "higher and clearer standards" (TDOE, 2010a, p. 14) as the first item in its summary of the entire reform agenda. The application referenced the fact that Tennessee policymakers had recognized and taken steps to improve the academic proficiency of Tennessee's students in 2007 by "joining the American Diploma Project and pursuing the college- and career-readiness agenda" and "the State Board of Education approved the new, more rigorous standards in 2008" (p. 14). With the advent of FTTT and in the hope of receiving RTTT grant monies, the state announced its intention to adopt the Common Core State Standards (CCSS) and outlined a plan for phased-in implementation in the initial application. According to the CCSS website, the Standards were developed through

a state-led effort that established a single set of clear educational standards for kindergarten through 12th grade in English language arts and mathematics that states voluntarily adopt. The nation's governors and education commissioners, through their representative organizations the National Governors Association (NGA) and the Council of Chief State School Officers (CCSSO) led the development of the Common Core State Standards and continue to lead the

initiative. (National Governors Association Center for Best Practices, Council of Chief State School Officers, 2010b, para. 2)

CCSS have been adopted by 45 states, the District of Columbia, 4 territories, and the Department of Defense Education Activity. Adoptees of CCSS will cease to administer state-developed year-end assessments and will administer common assessments aligned to the standards beginning in the 2014-2015 school year. As a state-led initiative, development and implementation of CCSS was not affiliated with the federal government. While adoption and implementation of CCSS is not legally mandatory, Tennessee's *RTTT: Application for Initial Funding* committed the state to participation. TDOE developed an online resource for educators, parents, and community members to introduce and explain Tennessee's commitment to CCSS. According to that website, "the decision to adopt the Common Core State Standards was made by the governor and the State Board of Education" because "it is vital for the economic competitiveness of our state that employers are able to find skilled people for jobs in Tennessee" (TNCORE Common Core Standards, n.d., para. 8). The newly aligned year-end assessment to be administered in the 2014-15 school year will be the Partnership for Assessment of Readiness for College and Careers (PARCC). The PARCC assessment will be completely web-based, and the technology readiness of some districts in Tennessee is a budgetary hurdle. TNCORE reported that the 2013 state budget included a one-time investment of \$51 million to assist schools with technology needs associated with transition to online testing (TNCORE Common Core Standards, n.d. para. 10). While the First to the Top Act of 2010 did not specifically mention transitioning to

CCSS or PARCC assessment, the application for the RTTT funds made the commitment for the state and set the initiatives in motion.

The political climate surrounding the passage of the First to the Top Act of 2010 was reported to be very cohesive. Governor Bredesen made note of a lack of political party disagreements in his appeal to the special legislative session by claiming, “The need for reform, for accountability in education, is one of those fortunate areas that has not succumbed to purely partisan politics; this is a truly bipartisan effort, both here in Tennessee and nationally” (State of Tennessee, Governor’s Communication Office, 2010, p. 4). Tennessee’s *RTTT: Application for Initial Funding* included a statement that “Tennessee is responding in a comprehensive and bipartisan manner” as evidence that “conditions are ripe for wholesale education reform” (TDOE, 2010a, p. 11-12). According to Smith (2013) the continuity of supportive leadership was unusual because Democrat Bredesen’s successor, Bill Haslam, was Republican and yet continued to push forward FTTT initiatives such as the establishment of the ASD. After assuming office in January 2011, Haslam told an education roundtable in March, “Race to the Top has made Tennessee the focal point of education reform in the nation, and I am thankful to those who worked so hard for this incredible opportunity” (TDOE, 2011a, para. 2).

Summary

Federal involvement in education has had a wide scope and a varied history. Although education was thought to be left to the states because it was not mentioned in the U.S. Constitution, since the passage of ESEA in 1965 there has been a rapidly-increasing influx of federal funds to states, and these funds have been tied to increasingly tighter strings. It has been through the threat of withholding funds that the federal government has kept a hand in guiding

education reform in the states. The reauthorization of ESEA known as No Child Left Behind of 2001 (NCLB) was landmark legislation that raised the bar for state standards and student achievement. NCLB expired in 2007 and has yet to be reauthorized. Recent events surrounding the movement to more rigorous instruction and assessment and the widespread state adoption of Common Core Standards have caused the educational climate to be in constant upheaval. Tennessee was one of the first two states to submit a successful application for federal funds in a competition called Race to the Top. Tennessee's application for initial RTTT funding committed the state and all its school districts to sweeping education reform, adoption of new standards and assessments for students, and striking changes to the employment and evaluation of educators. The rapid initiatives and changes were noted in the review of literature to inform the current study.

CHAPTER 3

RESEARCH METHOD

Tennessee received \$501 million dollars in round one of the federal Race to the Top (RTTT) competition in 2010. Approximately half of those dollars were to be distributed over the 4-year period of the grant to Local Education Agencies (LEAs) in accordance with individual Scopes of Work that were submitted by each LEA and approved by Tennessee Department of Education (TDOE). The Per Pupil Expenditure (PPE) of each LEA was recorded on the state's Report Card for 2010 and 2011, which represented the time periods before RTTT and after RTTT. The TCAP achievement levels of each LEA in the areas of English language arts, mathematics, and science were recorded for the same time parameters. The data were found on the state Report Card available online in the public domain (TDOE, n.d.e).

The purpose of the study was to determine if there was a significant relationship between the changes in PPE and TCAP scores before and after RTTT. While the individual Scopes of Work for each LEA prescribed a range of uses for the grant monies that varied from district to district, this study focused not on how the money was used but rather on how much money was used. Examination of the overall relationship between the change in spending and the change in achievement is significant to the body of knowledge and to educational practitioners and policymakers in Tennessee. Educational literature is extensive in the discussion of achievement and spending, which could be called a debate about whether money matters. The addition of RTTT funds in year 1 of the grant to Tennessee was examined on a general level in relationship to the change in achievement levels to investigate whether a correlation existed between change in PPE and change in TCAP scores.

The nonexperimental study was a bivariate correlational design using *ex post facto*, secondary data obtained from the Tennessee Report Card found on the TDOE website. The data are readily available to the public and cannot be identified to any individual student or teacher. McMillan and Schumaker (2006) discussed the “simultaneous study of several variables” as an advantage of correlational studies and stressed the importance that the variables in bivariate studies be selected based upon careful justification that they are related (p. 222-223).

Research Questions and Null Hypotheses

The following research questions and related null hypotheses (H_0) were investigated in the current study. It is important to note McMillan and Schumaker’s assertion that the null hypothesis is “not undesirable or negative” and rejection of the null hypothesis does not make it an automatically true statement (2006, p. 292).

1. Is there a significant relationship between the change in Per Pupil Expenditure (PPE) and the change in TCAP math scores for grades 3-8?

H_{01} . There is no significant relationship between the change in Per Pupil Expenditure (PPE) and the change in TCAP math scores for grades 3-8 for the academic years 2009-2010 and 2010-2011.

H_{02} . There is no significant relationship between the change in Per Pupil Expenditure (PPE) and the change in TCAP math scores for grades 3-8 for the academic years 2009-2010 and 2011-2012.

2. Is there a significant relationship between the change in PPE and the change in TCAP reading/language scores arts for grades 3-8?

H_{02_1} . There is no significant relationship between the change in PPE and the change in TCAP reading/language scores arts for grades 3-8 for the academic years 2009-2010 and 2010-2011.

H_{02_2} . There is no significant relationship between the change in PPE and the change in TCAP reading/language scores arts for grades 3-8 for the academic years 2009-2010 and 2011-2012.

3. Is there a significant relationship between the change in PPE and the change in TCAP science scores for grades 3-8?

H_{03_1} . There is no significant relationship between the change in PPE and the change in TCAP science scores for grades 3-8 for the academic years 2009-2010 and 2010-2011.

H_{03_2} . There is no significant relationship between the change in PPE and the change in TCAP science scores for grades 3-8 for the academic years 2009-2010 and 2011-2012.

4. Is there a significant difference between mean TCAP math scores for grades 3-8 from 2010 to 2012?

H_{04_1} . There is no significant difference between 2010 and 2011 mean TCAP math scores for grades 3-8.

H_{04_2} . There is no significant difference between 2010 and 2012 mean TCAP math scores for grades 3-8.

5. Is there a significant difference between mean TCAP reading/language arts scores for grades 3-8 from 2010 to 2012?

H_{05_1} . There is no significant difference between 2010 and 2011 mean TCAP reading/language arts scores for grades 3-8.

H_{05_2} . There is no significant difference between 2010 and 2012 mean TCAP reading/language arts scores for grades 3-8.

6. Is there a significant difference between mean TCAP science scores for grades 3-8 from 2010 to 2012?

H_{06_1} . There is no significant difference between 2010 and 2011 mean TCAP science scores for grades 3-8.

H_{06_2} . There is no significant difference between 2010 and 2012 mean TCAP science scores for grades 3-8.

7. Is there a significant relationship between each LEA's number of students and PPE?

H_{07_1} . There is no significant relationship between each LEA's number of students and PPE for 2010.

H_{07_2} . There is no significant relationship between each LEA's number of students and PPE for 2011.

H_{07_3} . There is no significant relationship between each LEA's number of students and PPE for 2012.

Population

McMillan and Schumaker (2006) defined population as “a group of elements or cases, whether individuals, objects, or events, that conform to specific criteria and to which we intend to generalize the results of the research” (p. 119). The population for this study included 135 school districts in Tennessee, or LEAs. The actual count of Tennessee LEAs varied somewhat in the literature. This variation is accounted for by the three different designations of LEAs in Tennessee, including county, city, and Special School Districts (SSD). The make-up of LEAs in

some regions has changed over time according to state legislation and voter preference. According to Brenda Pursley, Executive Administrative Assistant in TDOE's Policy, Legislation, and Local Finance Departments, there were 137 LEAs in Tennessee, including 95 county systems, 27 city systems, 14 SSDs, and the Achievement School District (ASD), as well as four special schools for students with unique needs that are not included in any LEA (personal communication, June 28, 2013). Funding streams impacting PPE for all LEAs include local, state, and federal sources. Because of unique demographics and student populations, data from two LEAs were not used in the present study, leaving 135 LEAs to be included. The ASD was instituted as a self-contained LEA as part of the FTTT initiatives and did not have TCAP scores for 2010. Carroll County School System provides special services to several special school districts in the county but as a self-contained LEA reported fewer than 10 students for each of the years included in the study. Tennessee does not publish TCAP data for any population of less than 10 students to protect individual anonymity.

In 2010 LEA size in number of students ranged from 312 to 103,593 with a total state student population of 933,703. In 2011 student populations ranged from 310 to 102,798 with a total state student population of 934,246. Student populations in 2012 ranged in size from 328 to 101,696 with a total state student population of 935,317. PPEs ranged by LEA from \$6,672 to \$11,923 in 2010, from \$6,730 to \$12,112 in 201, and from \$6,836 to \$12,466 in 2012. The state mean PPE was \$8,773 in 2010, \$9,084 in 2011, and \$9,123 in 2012.

Instrumentation

All data for the study were readily available on the website of the Tennessee Department of Education (TDOE). The Tennessee Education Improvement Act of 1992, in addition to updating accountability standards for the state's public schools, also marked initial passage of a requirement that TDOE make a Report Card available each year to the public (Tennessee State Library and Archives, 2011, para. 1). The current Report Card and all archives were available online in the public domain (TDOE, n.d.e). The Report Card for each LEA and each school in the state included demographic information such as grades served, number of students, number of teachers and administrators, and Per Pupil Expenditures (PPE). Other tabs for each LEA and school included accountability, achievement, and value-added results from the annual standardized testing. Information about test results was not identifiable to any individual student on the state website for public use. Other tabs on each Report Card that were not used for this study included attendance and graduation, discipline, teacher quality or highly-qualified status, special education overview, and career technical education.

The standardized testing instrument used in Tennessee for grades 3 – 8 was the Tennessee Comprehensive Assessment Program (TCAP). According to the Tennessee State Board of Education (2005) the TCAP was a criterion-referenced assessment that for grades 3 – 8 addressed the four curricular areas of mathematics, reading/language arts, science, and social studies. The Tennessee State Board of Education (2005) reported that the TCAP “evaluate(s) the level of students’ proficiency on the Tennessee curriculum frameworks..., provides diagnostic information for specific state content objectives..., and complies with the requirements of the federal No Child Left Behind Act of 2001” (p. 3). As a result of the RTTT grant, FTTT initiatives, and ESEA flexibility waiver, TCAP administration and reporting since 2010 has

reflected transition to Common Core State Standards (CCSS) and progress toward measurable goals that “support the groundbreaking reforms” that were instrumental in the RTTT award (Duncan, 2012b, para. 2).

The Tennessee State Board of Education (2005) reported that the TCAP was aligned to Tennessee curriculum content and designed to match instructional materials used in the classroom. TDOE’s Office of Assessment Logistics reported that the multiple-choice test items are “fresh, non-redundant..., and customized yearly” (2013, p. 3). The four subtests were administered to Tennessee students in grades 3 – 8 on a prescribed schedule with standardized test instructions and strict security guidelines. Teachers and other school employees are bound by state law to comply with security guidelines; compromising the integrity of the testing process has severe repercussions including dismissal and revocation of teaching license (TDOE, n.d.b). Beginning in 2008 Tennessee transitioned vendors from CTB/McGraw-Hill to Pearson Education; new test items were created and reviewed throughout 2008-2009 to prepare for newly formatted and aligned assessments that were administered beginning in Spring 2010 (Atkins, 2008). The reliability and validity of the TCAP has been affirmed by several authors and entities (Atkins, 2008, Bratton, Horn, & Wright, n.d., Tennessee Education Association, n.d., TDOE, 2011b). The TCAP assessment system included accommodated instruments for students with special needs and English language learners: the TCAP-Modified Academic Achievement Standards (TCAP-MAAS), TCAP-Alt Portfolio (TCAP-Alt P), and TCAP-English Linguistically Simplified Assessment (TCAP-ELSA). Student achievement results from the ELSA were included in Report Card data, but results from the MAAS and Alt P were not. The TCAP assessment system included other components such as writing assessments, constructed-response assessments, and end-of-course tests for high school students that were not included in this study.

Long and Tidwell noted that federal and state laws required that parents and other stakeholders must be notified of student, school, and LEA test results (Tennessee Education Association, n.d.). Schools and LEAs received advanced reporting and statistical analyses for diagnostic and planning purposes that were not available to the public. TDOE issued media releases to inform interested parties that the test results and other data were prepared and ready to be viewed. Tennessee Report Card data were available online to the public. Parents and students received from their individual schools paper copies of individual student reports and guides to interpreting each student's scores.

Data Collection

State and system level *ex post facto* data were used for this study. The existing data were collected from the Tennessee Report Card available online in the public domain (TDOE, n.d.e). The report card was organized to show information at the state, system (LEA), and school level. The information for number of students and PPE were found on the Profile tab of each LEA. TCAP achievement data were found on the Achievement tab of each LEA. At the top of the screen at all times was a drop-down menu for users to move between school years. The data for each year were collected from the report card and organized into a Microsoft Excel spreadsheet for access and manipulation. The spreadsheet was checked for accuracy by two independent readers. The readers repeated the process of accessing the online report card data for each LEA individually and proofreading for accuracy on the spreadsheet. In the case of PPE and TCAP scores for math, reading/language, and science, a column was prepared on the spreadsheet to calculate the change from 2010 to 2011. These calculations were performed using the formula function in the Excel program.

No data were identifiable to any student. In most cases the data were not identifiable to any particular school, but in the case of very small systems containing only one school or only one class of a grade level, investigation could be made from the website to determine the school and/or class. This concern was addressed by members of the Tennessee Education Association Representative assembly to Long and Tidwell. Their response acknowledged the possibility of school identification in the case of small LEAs and asserted that a “district report card reports achievement and uses a minimum number of students, not teachers, for reporting data” (Tennessee Education Association, n.d., p. 13). School identification was not the purpose of this study, and no investigation was done to determine school names included in LEA data.

Data Analysis

The data were organized into a spreadsheet, and amount of change from 2010 to 2011 and 2010 to 2012 for PPE and three TCAP achievement areas were calculated using Microsoft Excel. The data were analyzed using Statistical Process for the Social Sciences (SPSS) software on the campus of East Tennessee State University. Research questions 1, 2, and 3 concerning the relationship between change in PPE and change in TCAP scores were analyzed using a series of bivariate correlations with the Pearson product-moment coefficient technique, or Pearson r . Question 7 concerning the relationship between PPE and number of students was also subjected to the Pearson r technique. Research questions 4, 5, and 6 concerning the change in TCAP scores for three curricular subject areas from 2010 to 2011 were analyzed with a series of paired t -tests. All data were analyzed at the .05 level of significance.

Summary

Chapter 3 comprised an explanation of the methodology for the present study to determine the relationship between the change in PPE and the change in TCAP scores from 2010 to 2011 and 2010 to 2012. This time span represented education in Tennessee before and after the RTTT grant was awarded, which provided over \$501 million in new funds to the state. The bivariate correlational research design used *ex post facto* data. The population from which the data were drawn included 135 LEAs all of which received funding streams from local, state, and federal sources. The data were collected from the Report Card available in the public domain on the TDOE website. PPE, number of students, and TCAP data from mathematics, reading/language arts, and science from 2010, 2011, and 2012 from Grades 3 – 8 in each LEA were organized into a Microsoft Excel spreadsheet. Simple subtraction calculations were performed to determine the change. The data were analyzed using SPSS. Two statistical techniques, Pearson *r* correlations and a series of paired-samples *t* tests, were employed for the seven research questions. Chapter 3 provided the methodology for the analysis of the data to follow in Chapter 4.

CHAPTER 4

DATA ANALYSIS

The purpose of the study was to determine if there was a significant relationship between the changes in PPE and TCAP scores before and after FTTT and receipt of RTTT grant monies. Secondary *ex post facto* data were gathered from the Tennessee Report Card available online in the public domain (TDOE, n.d.f). Data for 2010, the year before FTTT, and for the next 2 years, 2011 and 2012, were included in the study. Data categories for each LEA included student populations, PPE, and TCAP results for Grades 3-8 in math, reading/language arts, and science. The data were first organized into an Excel spreadsheet and then statistical analyses were performed using SPSS.

Research Question 1

Is there a significant relationship between the change in Per Pupil Expenditure (PPE) and the change in TCAP math scores for grades 3-8?

H_{01} . There is no significant relationship between the change in Per Pupil Expenditure (PPE) and the change in TCAP math scores for grades 3-8 for the academic years 2009-2010 and 2010-2011.

A Pearson correlation coefficient was computed to test the relationship between the changes in PPE and TCAP math scores from 2010 to 2011. The results of the analysis revealed a weak negative relationship between change in PPE ($M = 264$, $SD = 298.04$) and change in TCAP math scores ($M = .74$, $SD = 1.07$) and a statistically insignificant correlation [$r(134) = -.028$, $p = .747$]. As a result of the analysis the null hypothesis was not rejected. In general the results

suggest that an LEA's change in spending from 2010 to 2011 did not tend to correspond with its change in TCAP math scores for the same time period.

H_{012} . There is no significant relationship between the change in Per Pupil Expenditure (PPE) and the change in TCAP math scores for grades 3-8 for the academic years 2009-2010 and 2011-2012.

A Pearson correlation coefficient was computed to test the relationship between the changes in PPE and TCAP math scores from 2010 to 2012. The results of the analysis revealed a weak positive relationship between change in PPE ($M = 325.08$, $SD = 340.83$) and change in TCAP math scores ($M = 2.71$, $SD = 2.01$) and a statistically insignificant correlation [$r(134) = .146$, $p = .091$]. As a result of the analysis the null hypothesis was not rejected. In general the results suggest that an LEA's change in spending from 2010 to 2012 did not necessarily tend to significantly correspond with its change in TCAP math scores for the same time period.

Research Question 2

Is there a significant relationship between the change in PPE and the change in TCAP reading/language scores arts for grades 3-8?

H_{021} . There is no significant relationship between the change in PPE and the change in TCAP reading/language scores arts for grades 3-8 for the academic years 2009-2010 and 2010-2011.

A Pearson correlation coefficient was computed to test the relationship between the changes in PPE and TCAP reading/language arts scores from 2010 to 2011. The results of the analysis revealed a weak positive relationship between change in PPE ($M = 264$, $SD = 298.04$)

and change in TCAP reading/language arts scores ($M = .04$, $SD = .86$) and a statistically insignificant correlation [$r(134) = .021$, $p = .812$]. As a result of the analysis the null hypothesis was not rejected. In general the results suggest that an LEA's change in spending from 2010 to 2011 did not necessarily tend to correspond with its change in reading/language scores for the same years.

H_{02} . There is no significant relationship between the change in PPE and the change in TCAP reading/language arts scores for grades 3-8 for the academic years 2009-2010 and 2011-2012.

A Pearson correlation coefficient was computed to test the relationship between the changes in PPE and TCAP reading/language arts scores from 2010 to 2012. The results of the analysis revealed a weak negative relationship between change in PPE ($M = 325.08$, $SD = 340.83$) and change in TCAP reading/language arts scores ($M = .59$, $SD = 1.45$) and a statistically insignificant correlation [$r(134) = -.048$, $p = .578$]. As a result of the analysis the null hypothesis was not rejected. In general the results suggest that there is no significant relationship between an LEA's increase in spending from 2010 to 2012 and reading/language scores for the same time period.

Research Question 3

Is there a significant relationship between the change in PPE and the change in TCAP science scores for grades 3-8?

H_{03_1} . There is no significant relationship between the change in PPE and the change in TCAP science scores for grades 3-8 for the academic years 2009-2010 and 2010-2011.

A Pearson correlation coefficient was computed to test the relationship between the changes in PPE and TCAP science scores from 2010 to 2011. The results of the analysis revealed a weak positive relationship between change in PPE ($M = 264, SD = 298.04$) and change in TCAP science scores ($M = -.21, SD = .94$) and a statistically insignificant correlation [$r(134) = .069, p = .424$]. As a result of the analysis the null hypothesis was not rejected. In general the results suggest that an LEA's change in spending from 2010 to 2011 did not tend to correspond with its change in TCAP science scores for the same time period.

H_{03_2} . There is no significant relationship between the change in PPE and the change in TCAP science scores for grades 3-8 for the academic years 2009-2010 and 2011-2012.

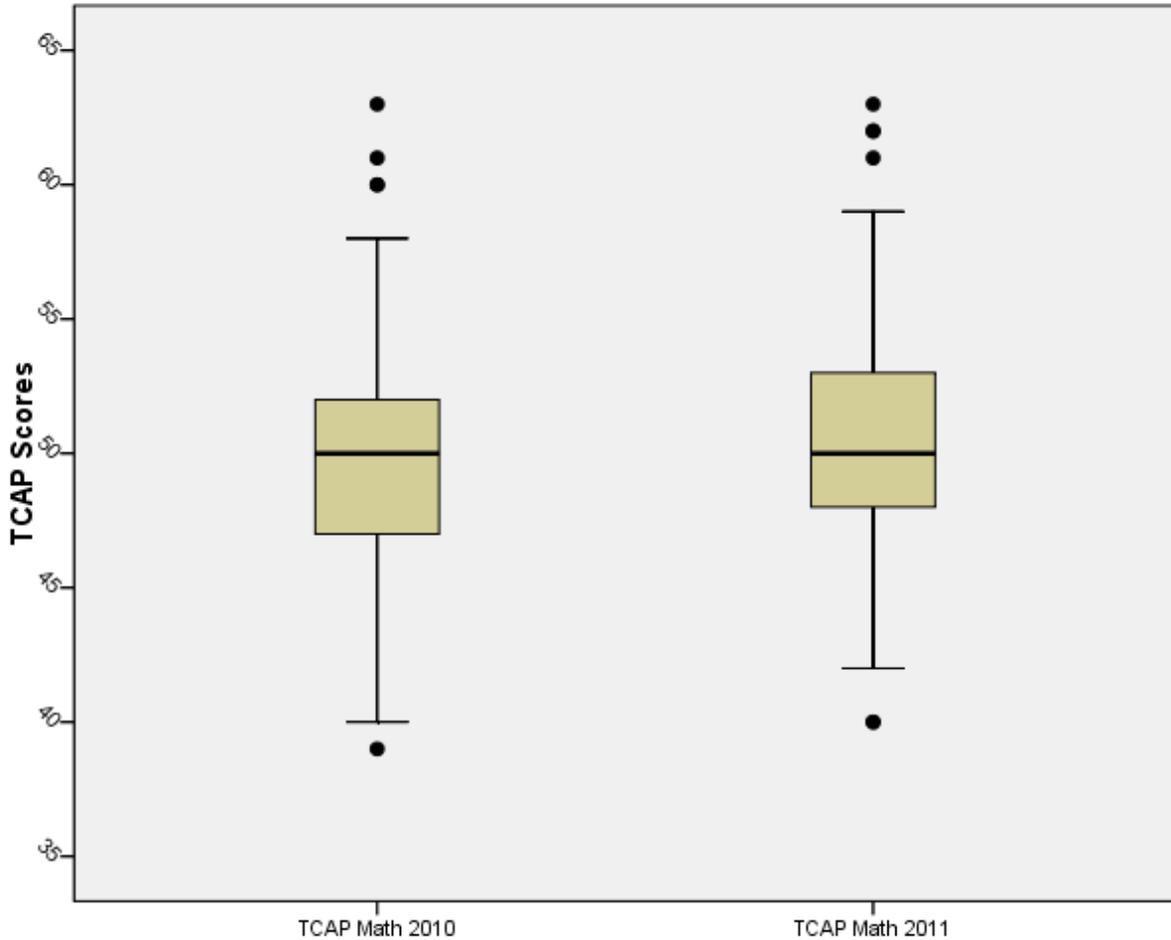
A Pearson correlation coefficient was computed to test the relationship between the changes in PPE and TCAP science scores from 2010 to 2012. The results of the analysis revealed a weak positive relationship between change in PPE ($M = 325.08, SD = 340.83$) and change in TCAP science scores ($M = .77, SD = 1.15$) and a statistically insignificant correlation [$r(134) = .041, p = .637$]. As a result of the analysis the null hypothesis was not rejected. In general the results suggest that an LEA's change in science scores from 2010 to 2012 did not necessarily correspond to its change in PPE for the same time period.

Research Question 4

Is there a significant difference between mean TCAP math scores for grades 3-8 from 2010 to 2012?

H_{04_1} . There is no significant difference between 2010 and 2011 mean TCAP math scores for grades 3-8.

A paired-samples t test was conducted to evaluate whether the mean TCAP math scores in 2010 differed significantly from the mean TCAP math scores in 2011. There was a significant difference in the math scores for 2010 ($M = 49.67$, $SD = 4.46$) and for 2011 ($M = 50.41$, $SD = 4.52$). The test was statistically significant [$t(134) = 8.03$, $p < .001$] in the difference between TCAP math scores for 2010 and 2011; therefore, the null hypothesis was rejected. The difference in means was .74, and the 95% confidence interval for the difference in means was .55 to .92. The η^2 index was .32, which indicated a large effect size. Math scores in 2011 were significantly higher than scores in 2010. Figure 2 shows the distributions for TCAP math scores for 2010 and 2011.



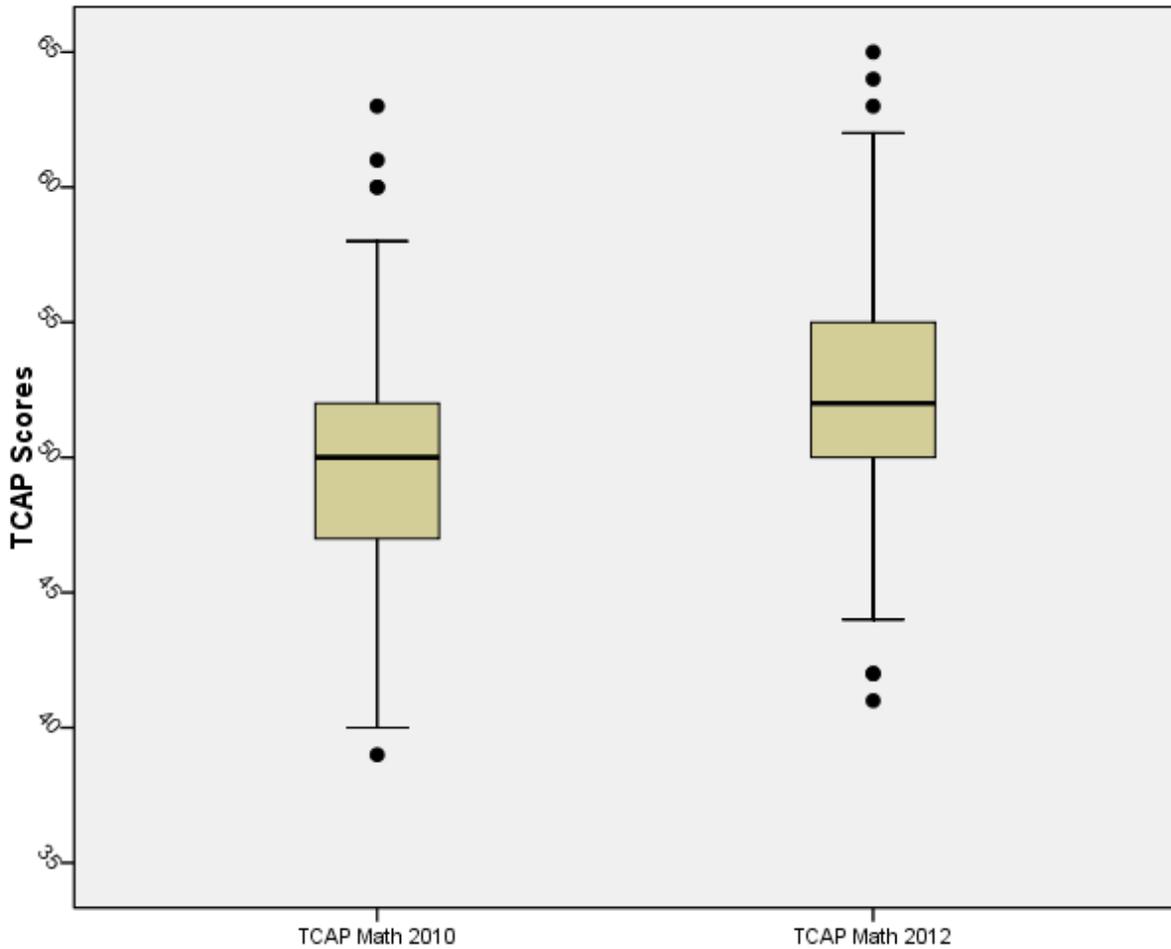
• denotes outlier

Figure 2. Distribution of Scores for TCAP Math 2010 and TCAP Math 2011

H_{04_2} . There is no significant difference between 2010 and 2012 mean TCAP math scores for grades 3-8.

A paired-samples t test was conducted to evaluate whether the mean TCAP math scores in 2010 differed significantly from the mean TCAP math scores in 2012. There was a significant difference in the math scores for 2010 ($M = 49.47$, $SD = 4.46$) and for 2012 ($M = 52.39$, $SD = 4.57$). The test was statistically significant [$t(134) = 15.64$, $p < .001$] in the difference between TCAP math scores for 2010 and 2012; therefore, the null hypothesis was

rejected. The difference in means was 2.72, and the 95% confidence interval for the difference in means was 2.36 to 3.05. The η^2 index was .65, which indicated a large effect size. Math scores in 2012 were significantly higher than scores in 2010. Figure 3 shows the distributions for TCAP math scores for 2010 and 2012.



• denotes outlier

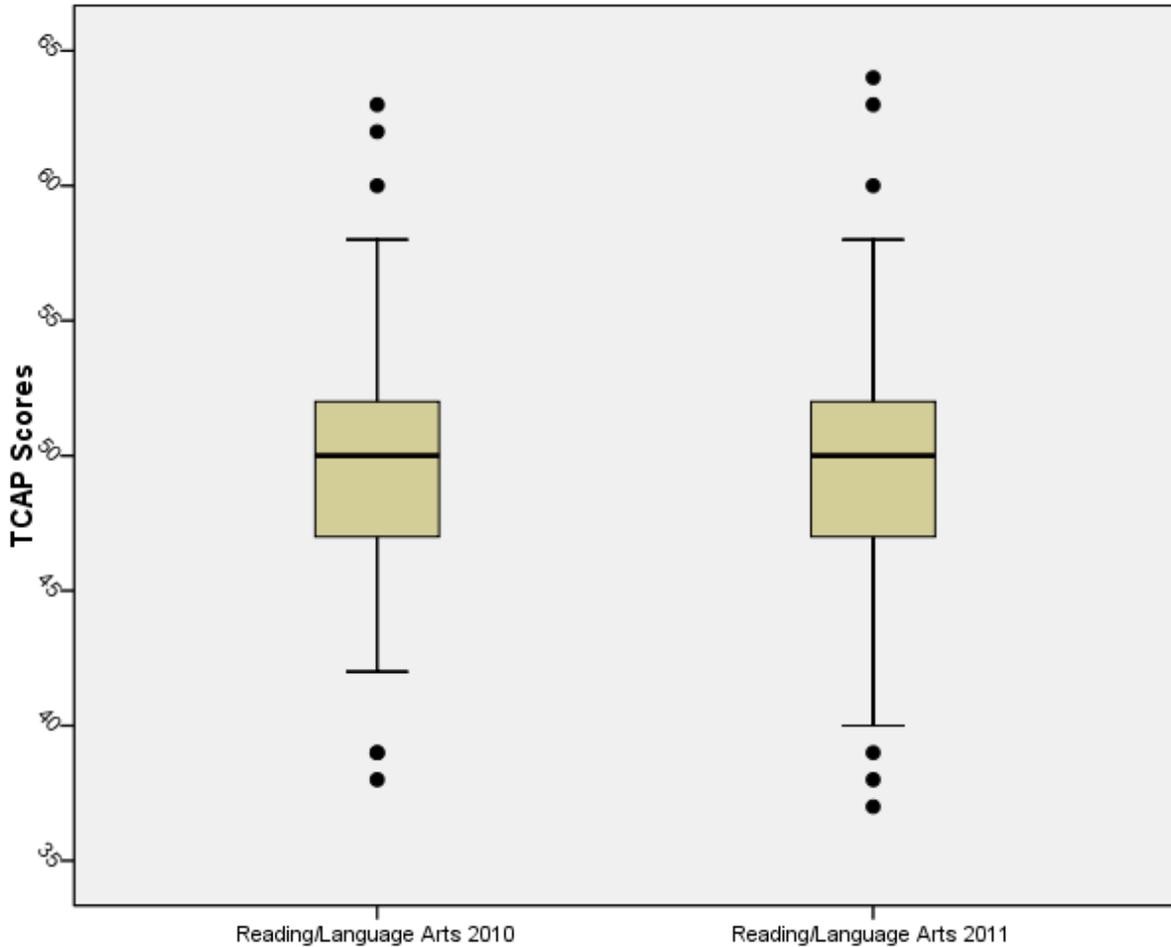
Figure 3. Distribution of Scores for TCAP Math 2010 and TCAP Math 2012

Research Question 5

Is there a significant difference between mean TCAP reading/language arts scores for grades 3-8 from 2010 to 2012?

H_{05_1} . There is no significant difference between 2010 and 2011 mean TCAP reading/language arts scores for grades 3-8.

A paired-samples t test was conducted to evaluate whether the mean TCAP reading/language arts scores in 2010 differed significantly from the mean TCAP reading/language arts scores in 2011. There was not a significant difference in the reading/language arts scores for 2010 ($M = 49.70$, $SD = 4.09$) and for 2011 ($M = 49.74$, $SD = 4.23$). The test was not statistically significant [$t(134) = .60$, $p = .55$]; therefore, the null hypothesis was not rejected. The difference in means was .04, and the 95% confidence interval for the difference in means was .10 to .19. The η^2 index was .003, which indicated a small effect size. Reading/language arts scores in 2011 were not significantly different from scores in 2010. Figure 4 shows the distributions for TCAP reading/language arts scores for 2010 and 2011.



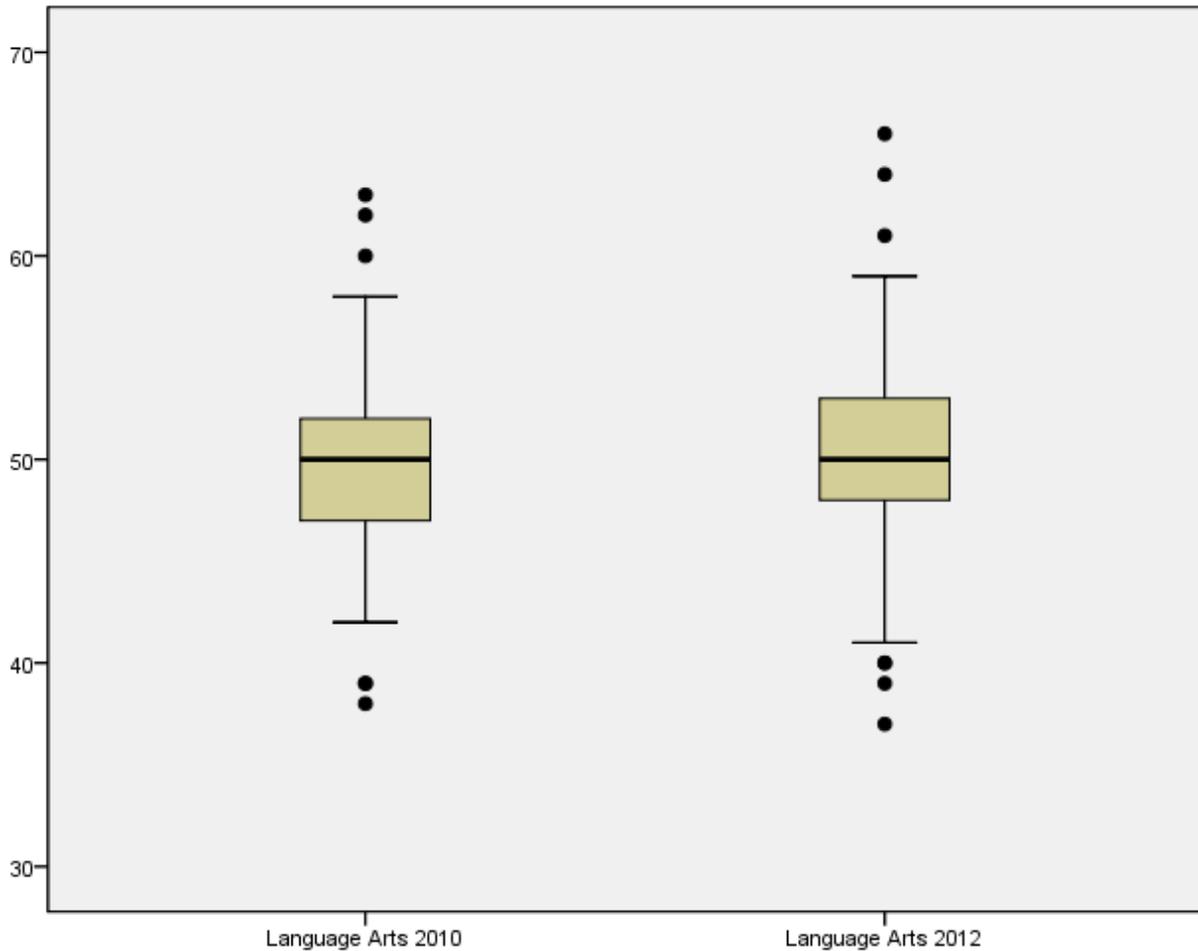
• denotes outlier

Figure 4. Distribution of Scores for TCAP Reading/Language Arts 2010 and TCAP Reading/Language Arts 2011

H_{05_2} . There is no significant difference between 2010 and 2012 mean TCAP reading/language arts scores for grades 3-8.

A paired-samples t test was conducted to evaluate whether the mean TCAP reading/language arts scores in 2010 differed significantly from the mean TCAP reading/language arts scores in 2012. There was a significant difference in the reading/language arts scores for 2010 ($M = 49.70$, $SD = 4.09$) and for 2012 ($M = 50.28$, $SD = 4.50$). The test was statistically significant [$t(134) = .466$, $p < .001$]; therefore, the null hypothesis was rejected. The

difference in means was .58, and the 95% confidence interval for the difference in means was .34 to .83. The η^2 index was .14, which indicated a large effect size. Reading/language arts scores in 2012 were significantly higher than scores in 2010. Figure 5 shows the distributions for TCAP reading/language arts scores for 2010 and 2012.



• denotes outlier

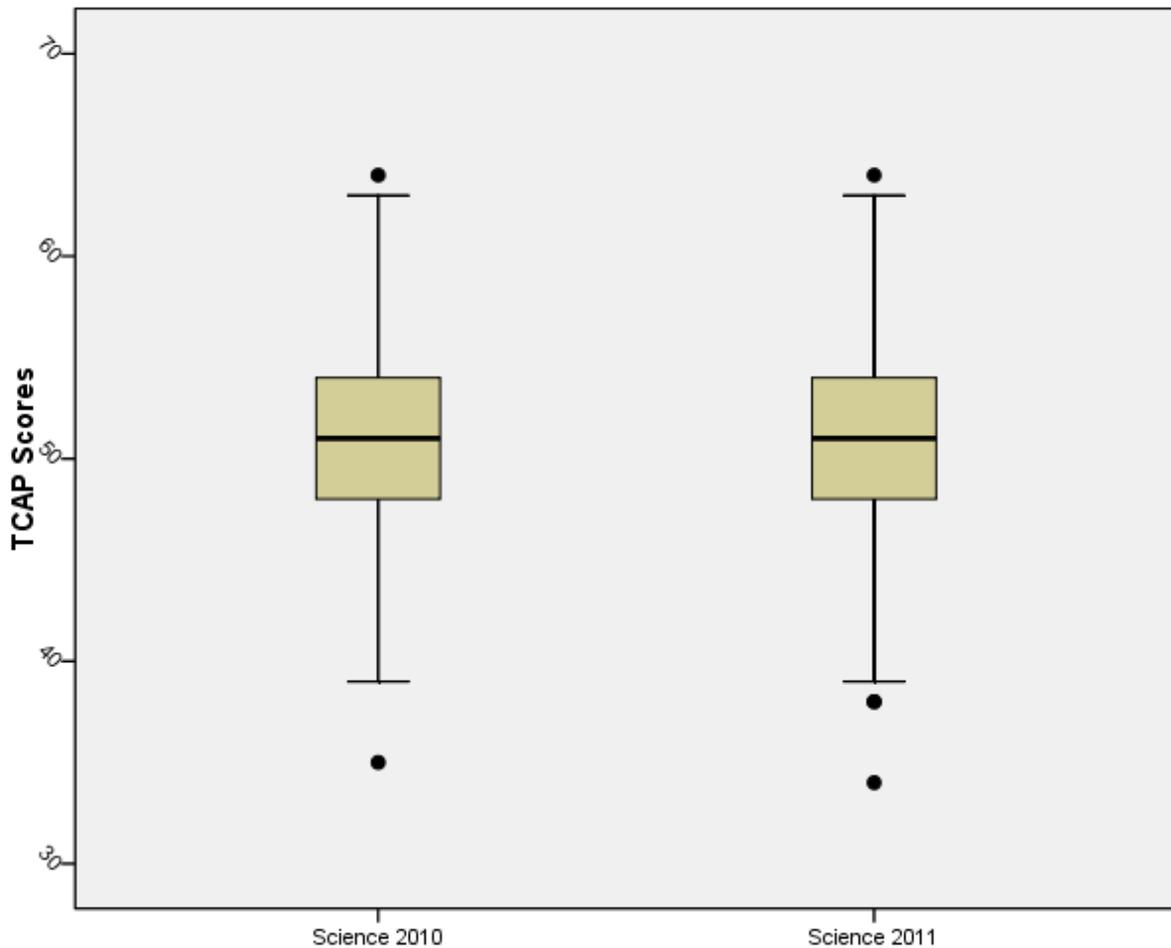
Figure 5. Distribution of Scores for TCAP Reading/Language Arts 2010 and TCAP Reading/Language Arts 2012

Research Question 6

Is there a significant difference between mean TCAP science scores for grades 3-8 from 2010 to 2012?

H_0 . There is no significant difference between 2010 and 2011 mean TCAP science scores for grades 3-8.

A paired-samples t test was conducted to evaluate whether the mean TCAP science scores in 2010 differed significantly from the mean TCAP science scores in 2011. There was a significant difference in the science scores for 2010 ($M = 50.88$, $SD = 4.81$) and for 2011 ($M = 50.67$, $SD = 4.98$). The test was statistically significant [$t(134) = 2.57$, $p = .011$]; therefore, the null hypothesis was rejected. The difference in means was .21, and the 95% confidence interval for the difference in means was .05 to .37. The η^2 index was .05, which indicated a medium effect size. Science scores in 2011 were significantly lower than in 2010. Figure 6 shows the distributions for TCAP science scores for 2010 and 2011.



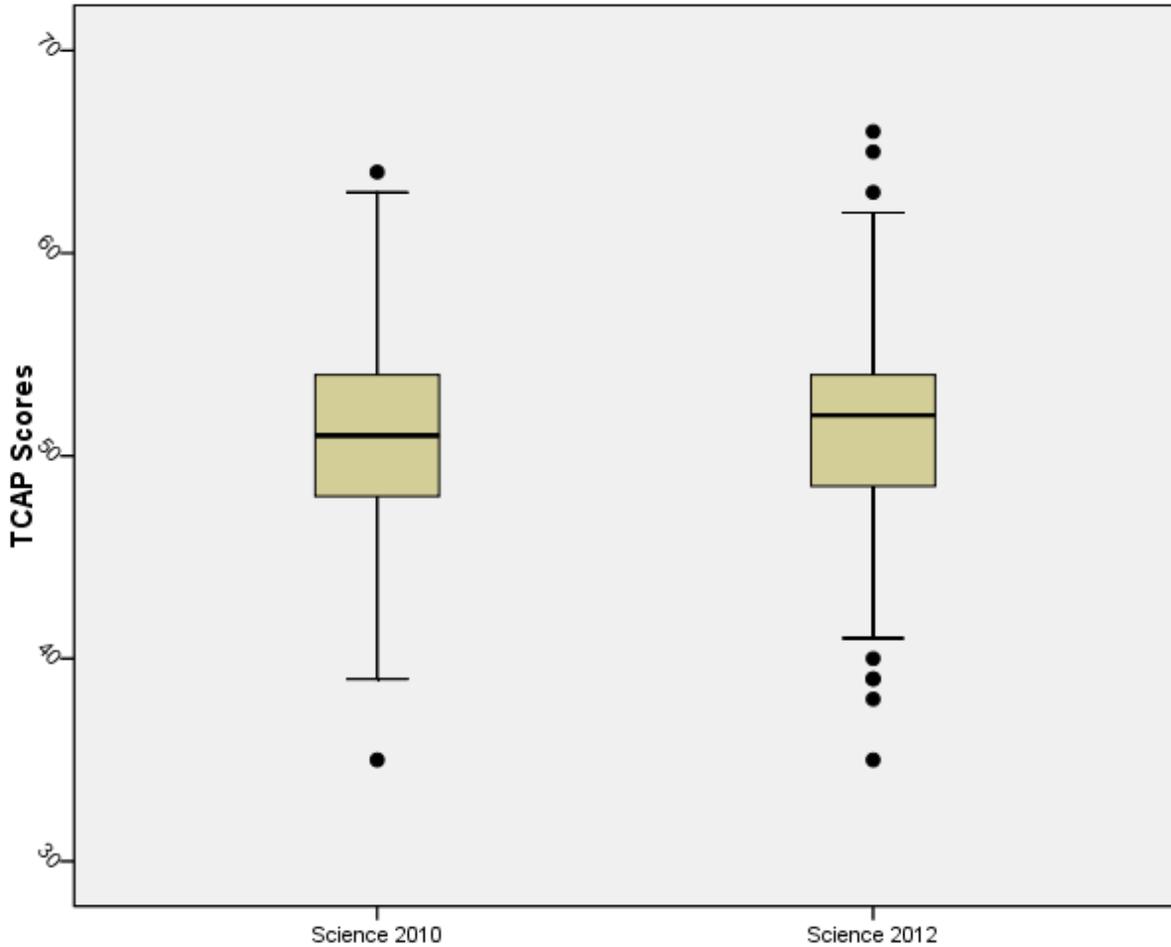
• denotes outlier

Figure 6. Distribution of Scores for TCAP Science 2010 and TCAP Science 2011

H_06_2 . There is no significant difference between 2010 and 2012 mean TCAP science scores for grades 3-8.

A paired-samples t test was conducted to evaluate whether the mean TCAP science scores in 2010 differed significantly from the mean TCAP science scores in 2012. There was a significant difference in the science scores for 2010 ($M = 50.88$, $SD = 4.81$) and for 2011 ($M = 51.44$, $SD = 5.22$). The test was statistically significant [$t(134) = 3.68$, $p < .001$]; therefore, the null hypothesis was rejected. The difference in means was .56, and the 95% confidence interval

for the difference in means was .26 to .87. The η^2 index was .09, which indicated a medium effect size. Science scores in 2012 were significantly higher than scores in 2010. Figure 7 shows the distributions for TCAP science scores for 2010 and 2012.



• denotes outlier

Figure 7. Distribution of Scores for TCAP Science 2010 and TCAP Science 2012

Research Question 7

Is there a significant relationship between each LEA's number of students and PPE?

H_{07_1} . There is no significant relationship between each LEA's number of students and PPE for 2010.

A Pearson correlation coefficient was computed to test the relationship between number of students and PPE for 2010. The results of the analysis revealed a strong positive relationship between number of students ($M = 6,916.36$, $SD = 13,147.71$) and PPE ($M = 8,452.18$, $SD = 909.89$) and a statistically significant correlation [$r(134) = .186$, $p = .031$]. As a result of the analysis the null hypothesis was rejected. In general the results suggest that LEAs with larger student populations also tended to have large PPEs in 2010. Figure 8 shows the distribution of LEA student population and PPE for 2010.

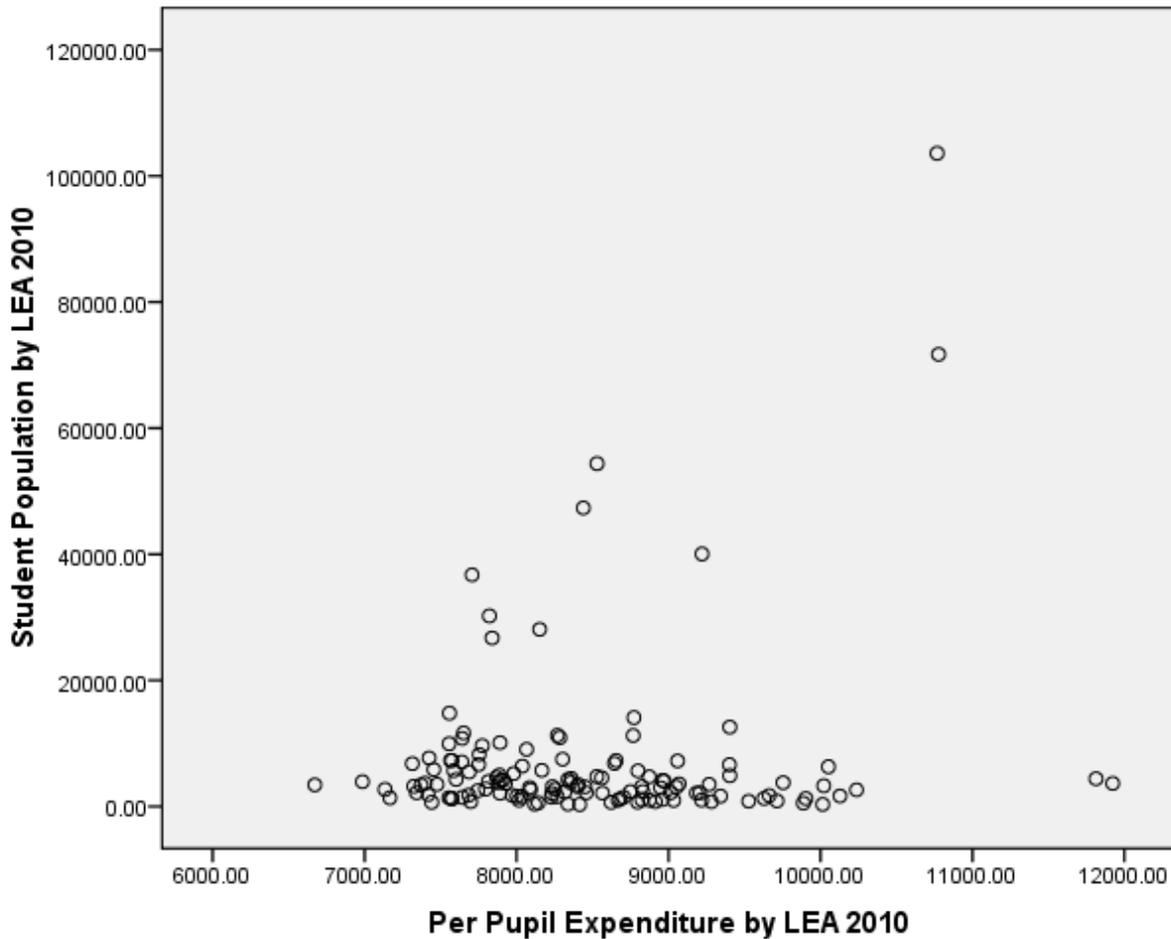


Figure 8. Distribution of Student Population and PPE by LEA for 2010

H_{07_2} . There is no significant relationship between each LEA's number of students and PPE for 2011.

A Pearson correlation coefficient was computed to test the relationship between number of students and PPE for 2011. The results of the analysis revealed a weak positive relationship between number of students ($M = 6,920.38$, $SD = 13,190.22$) and PPE ($M = 8,716.18$, $SD = 925.75$) and a statistically not significant correlation [$r(134) = .21$, $p = .15$]. As a result of the analysis the null hypothesis was not rejected. In general the results suggest that LEAs with larger student populations did not necessarily tend to have large PPEs in 2011. Figure 9 shows the distribution of LEA student population and PPE for 2011.

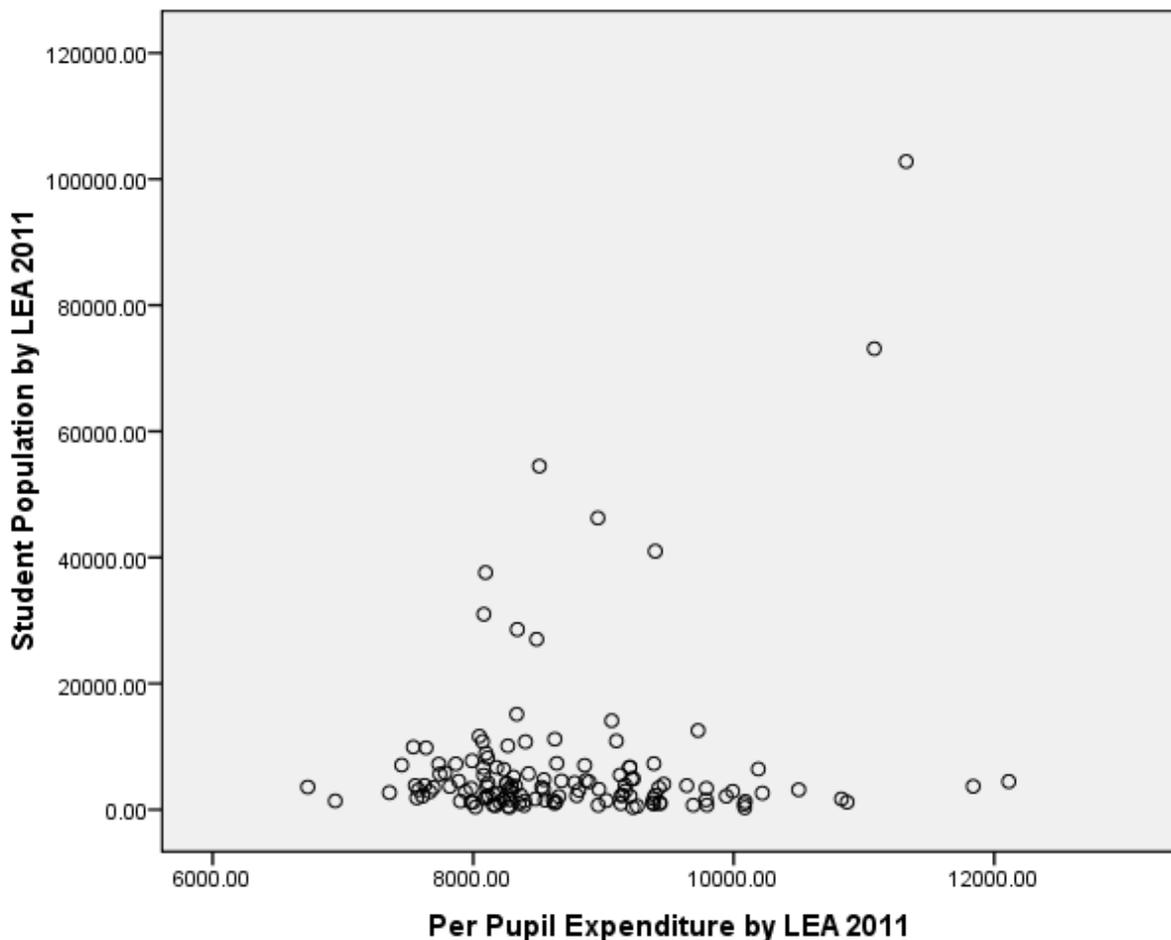


Figure 9. Distribution of Student Population and PPE by LEA for 2011

H_{073} . There is no significant relationship between each LEA's number of students and PPE for 2012.

A Pearson correlation coefficient was computed to test the relationship between number of students and PPE for 2012. The results of the analysis revealed a strong positive relationship between number of students ($M = 6,928.27$, $SD = 13,213.66$) and PPE ($M = 8,777.26$, $SD = 922.17$) and a statistically significant correlation [$r(134) = .197$, $p = .022$]. As a result of the analysis the null hypothesis was rejected. In general the results suggest that LEAs with larger student populations also tended to have large PPEs in 2011. Figure 10 shows the distribution of LEA student population and PPE for 2012.

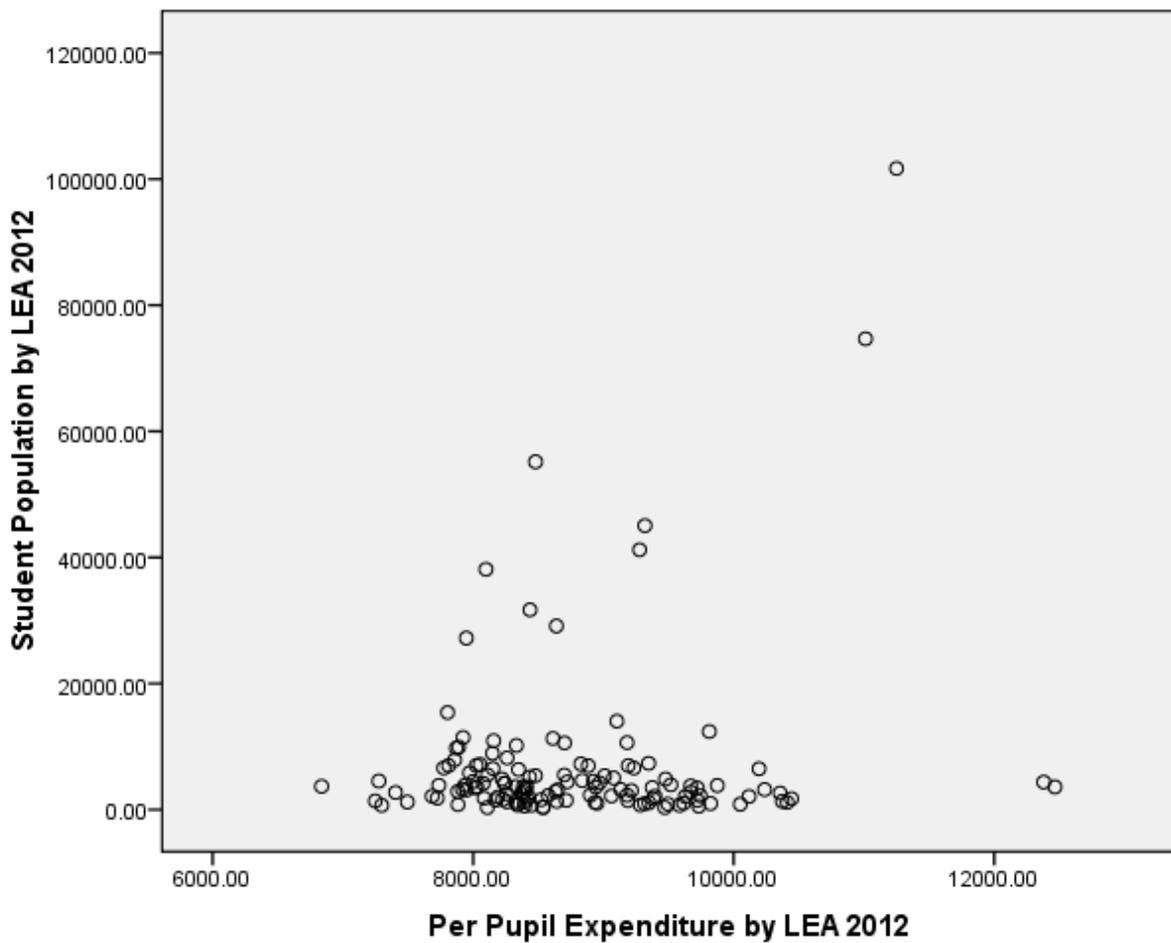


Figure 10. Distribution of Student Population and PPE by LEA for 2012

Summary

The purpose of this study was to examine the relationship changes in TCAP scores in math, reading/language arts, and science after RTTT. *Ex post facto* data from the Tennessee Report Card for 135 LEAs were used to analyze seven research questions and 15 related null hypotheses. Four of the research questions and their null hypotheses were tested by the Pearson correlation coefficient technique to examine relationships between TCAP scores and PPE as well as number of students and PPE. Three research questions and their null hypotheses were tested by use of paired-samples *t* tests.

The first three research questions involved relationships between change in TCAP scores in the three different academic areas and change in PPE. Research Questions 1, 2, and 3 revealed no significant differences between scores and PPE in the areas of math, reading/language arts, and science.

Research Questions 4, 5, and 6 examined differences between TCAP scores in each academic area from 2010 to 2011 and from 2010 to 2012. In the area of math there was a significant difference representing a gain for both time spans. In the area of reading/language arts there was no significant difference from 2010 to 2011, but there was a significant difference representing a gain from 2010 to 2012. In the area of science, there was a significant difference representing a *loss* in mean score from 2010 to 2011, but there was a significant difference representing a *gain* in mean score from 2010 to 2012.

Research Question 7 investigated the relationship between number of students and PPE for 2010, 2011, and 2012. There was a significant difference in 2010 and 2012, indicating that LEAs with higher student populations in those years tended to have higher PPEs. In 2011 there

was not a significant difference between number of students and PPE, indicating that LEAs with higher student populations in that year did not tend to have higher PPEs.

CHAPTER 5

FINDINGS, IMPLICATIONS, AND CONCLUSION

This study was conducted to investigate the relationships between the changes in TCAP scores and Per Pupil Expenditures following Tennessee's *First to the Top Act of 2010* and receipt of federal Race to the Top grant monies. Secondary, *ex post facto* data available from the Tennessee Report Card were analyzed. Data were gathered from 135 school districts. Data used for analysis were in the areas of TCAP scores in math, reading/language arts, and science, Per Pupil Expenditures, and student population sizes. Scores from 2010 represent the last year before rapid changes initiated by FTTT and receipt of RTTT funds. Scores from 2011 represent Year 1 of the grant, and scores from 2012 represent Year 2. The study to investigate the correlation between changes in PPE and student achievement after receipt of the RTTT funds is timely and valuable to discussions of the current initiatives. Chapter 5 summarizes the findings, implications for practice, implications for future research, and conclusion.

Summary of Findings

Research Questions 1 and 4

Is there a significant relationship between the change in PPE and the change in TCAP math scores for grades 3 – 8?

The Pearson correlation coefficient technique was used in Research Question 1 to investigate the relationship in the changes in PPE and TCAP math scores from 2010 to 2011 and from 2010 to 2012. In both cases the findings were not significant, indicating that there was not a significant relationship between the change in spending and the change in math scores.

Research Question 4 used a paired-samples t test to investigate the difference in math scores from 2010 to 2011 and also from 2010 to 2012. Research Question 4 indicated that the upward changes in math scores from 2010 to 2011 and also from 2010 to 2012 were significant. These separate findings indicate that, although math scores rose significantly in both years following RTTT, the increase in score was not significantly related to the overall increase in PPE.

Research Questions 2 and 5

Is there a significant relationship between the change in PPE and the change in TCAP reading/language arts scores for grades 3 – 8?

The Pearson correlation coefficient technique was used in Research Question 2 to investigate the relationship in the changes in PPE and TCAP reading/language arts scores from 2010 to 2011 and from 2010 to 2012. In both cases the findings were not significant, indicating that there was not a significant relationship between the change in spending and the change in reading/language arts scores.

Research Question 5 used a paired-samples t test to investigate the difference in reading/language arts scores from 2010 to 2011 and also from 2010 to 2012. Research Question 5 indicated that the scores in reading/language arts scores from 2010 to 2011 were not significantly different, and that the upward changes in reading/language arts scores from 2010 to 2012 were significantly different. Although the significant rise in reading/language arts scores from 2010 to 2012 may indicate an encouraging trend, the separate findings of Research Questions 2 and 5 indicate that there was no relationship between change in spending and change in TCAP scores.

Research Questions 3 and 6

Is there a significant relationship between the change in PPE and the change in TCAP science scores for grades 3 – 8?

The Pearson correlation coefficient technique was used for Research Question 3 to investigate the relationship between the changes in PPE and TCAP science scores from 2010 to 2011 and from 2010 to 2012. In both cases the findings were not significant, indicating that there was not a significant relationship between the change in spending and the change in science arts scores.

Research Question 6 used a paired-samples *t* test to investigate the difference in science scores from 2010 to 2011 and also from 2010 to 2012. Research Question 6 indicated that the *loss* in science scores from 2010 to 2011 was a significant difference, and also that the *gain* in science scores from 2010 to 2012 was a significant difference. The separate findings of Research Questions 3 and 6 indicate that, fluctuation of scores notwithstanding, there was not a significant relationship between change in spending and change in science scores.

Research Question 7

Is there a significant relationship between each LEA's number of students and PPE for 2010?

Research Question 7 was tested with the Pearson correlation coefficient technique. There were three null hypotheses to represent the three years of the study. There was a statistically significant difference in number of students and PPE for 2010 and for 2012, but the difference in 2011 was not significant. The findings for Research Question 7 highlighted the wide range of population and spending among LEAs. Mean scores were significantly lower than standard

deviations in the category of student population. For 2010, there was a mean of 6,916.36 students with a standard deviation of 13,147.71. This discrepancy is a result of a few very large school districts between 75,000 and 100,000 students and some very small school districts between 300 and 1,000 students. Mean student population rose from 6,916.36 in 2010 to 6,928.27 in 2012 for a total statewide mean gain of only 12 students.

The mean PPE rose each year with a gain over the 3 years of \$325.08, but the standard deviations for each year remained fairly constant, highlighting spending differences from the highest LEAs (spending approximately \$12,000 per pupil) that almost doubled that of the lowest LEAs (spending under \$7,000 per pupil). The extremely high and low outliers in student population and spending may account for the fact that there were significant relationships in 2010 and 2012 but not in 2011.

Implications for Practice

The timeline of action in Tennessee surrounding the 501 million dollar RTTT grant involved fast-paced and sweeping changes with little time for adjustment at the state, LEA, school, and classroom levels. The fact that there were not significant relationships between the change in spending and the change in TCAP scores after the grant begs the question, “Did we get enough bang for our buck?” No reform should be evaluated after only a year or 2, but it is important for educational stakeholders and practitioners to apply the same standard to teachers, schools, and LEAs. The current climate of high stakes accountability has the tendency to communicate success or failure with 1 year of scores for teacher evaluations and school and district report cards. This study suggests that application and actual use of RTTT grant monies be evaluated as much or more than actual performance results. Murray (2011) similarly

investigated the use of one-time ARRA funds for special education and recommended extensive monitoring as a follow-up. As Murray concluded, “The sharing of the overall results of such monitoring may be beneficial in the case of future similar one-time funds” (p. 70). In the review of literature, most sources conclude that *how* money is spent matters more than *how much* money is spent. Some implications for practice are the following:

1. Policy makers at the state and federal levels should use the snapshot data of test scores very judiciously in making rapid judgments about teacher, school, and district performance.
2. Policymakers should undertake and make public an examination of where the RTTT money went and how it was used. While this information is available online, it is not intuitive for the average consumer of information to locate and disaggregate it.
3. Teachers and administrators at the classroom and school levels should examine TCAP and teacher performance data for school improvement purposes. Just as teachers should use their students’ test scores to inform and improve instruction rather than as punishment, so should practitioners use TCAP data formatively rather than summatively.
4. School districts should undertake extensive training in the use of data for their teachers. The intense media scrutiny of scores can change the focus of educators to the dangerous practice of “teaching to the test.” Intensive coaching and training is needed so that teachers feel a safe environment to use test data to inform instruction and improve achievement.

5. Parents and the public should become better consumers of data by studying the background of spending sources and trends. This review of literature details that federal involvement in education traditionally has been as a funding source, and even now represents a relatively small percentage of a district's total PPE. The U.S. Government Accountability Office reported that federal monies in 2009 accounted for 9% of total education spending in the nation (2010, p. 16), and the 2012 Tennessee Report Card reports that federal monies represented 14.3% of statewide education spending (TDOE, n.d.e). Reforms and mandates such as NCLB and more recently RTTT produce media coverage with very shallow yet sensational depth. Parents and the public should seek and be given deeper information about local and state educational responsibilities.
6. Parents and the public might request further information and an evaluation of the state's use of half of the RTTT grant money at the TDOE level. Greater public awareness of use of the funds at both district and state levels might result in increased support from stakeholders.

Recommendations for Future Research

Results of this study can be generalized to the state of Tennessee in grades 3 – 8. This study took place in the time period following the enactment of FTTT and receipt of 501 million dollars from the RTTT grant. Half of the grant was retained by TDOE for grant administration and state-level functions; the other half was distributed to the LEAs based on the Title I formula. Individual LEA grants ranged in size from \$45,000 to \$67 million, but most LEAs received between \$500,000 and \$2 million (Norman-Gordon & Huwieler, 2011,

p 4). Each LEA prepared and submitted an individual a plan for how the district's grant would be spent, known as a Scope of Work. TCAP scores have risen since the enactment of FTTT; however, this study found that there was not a significant relationship between the change in spending and the change in TCAP scores after receipt of RTTT grant monies. The following recommendations could be made for future research.

1. The individual LEA Scopes of Work should be examined and LEA TCAP results compared to individual use of funds and individual grants. In other words, future research should examine *how* money was spent as well as *how much* money was spent.
2. A study that examines PPE and TCAP trends past Year 2 should be conducted. School year 2012-13 presents Year 3, and 2013-14 represents Year 4 of the RTTT grant. A study of 2013 and 2014 data should be conducted and compared to the findings of this study.
3. This study used TCAP achievement data. Tennessee also possesses rich data in the TVAAS system that tracks student, school, and system growth over time, as well as teacher effect over time. This study could be modified to investigate the relationship between change in TVAAS data and change in PPE after RTTT.
4. This study used TCAP data, which involves only Grades 3 – 8. A similar study could be conducted comparing changes in Grades 9 - 12 success indicators such as graduation rate and End-of-Course results to the changes in PPE during the same time period.
5. A study of the Title I formula and distribution of the RTTT grant by that formula could be conducted. Individual LEA grants varied widely according to the Title I

formula, although Title I restrictions did not apply. A study of TCAP scores in relationship to Title I funding might add further information to the discussion of the relationship between TCAP scores and spending after RTTT.

6. Deeper understandings of the relationship between spending and achievement might be achieved by a qualitative study designed to investigate teacher, student, administrator, and other stakeholder perceptions and experiences in the educational climate after the FTTT act. The tense climate that results from fast-paced change and high-stakes, public accountability does not remain in the faculty lounge or superintendent's office. A qualitative study might put faces to the numbers and lend valuable information for future practices.
7. A study of the RTTT budget in relationship to student achievement for the Achievement School District might be undertaken. The ASD accounts for almost 10% of the total use of money from the RTTT grant. Its purpose is to bring the bottom-performing 5% of schools into the top 25% within 5 years. The ASD is specifically mandated by the FTTT grant. Its importance to the discussion of use of RTTT funds could be examined qualitatively or quantitatively.
8. This study could be replicated using the data from another state that received RTTT funds. One suggestion is Delaware, the only other state awarded RTTT grant money in the first round of competition.

Conclusion

The passage of FTTT had the effective result of adding half a billion dollars to Tennessee's educational coffers in the form of one of the first two RTTT grants. The money

came during a nationwide economic downturn, and educational events proceeded at a rapid pace in Tennessee. Pressures on students, teachers, and administrators increased, and many changes were made, including curriculum standards, testing practices, teacher and administrator evaluations, and teacher tenure. The teaching and learning environment reflected the pressures as Tennessee set goals to quickly raise achievement levels and close achievement gaps. Encouraging progress was made and reported to the public in several areas of achievement, growth, and gap closure. This study was designed to investigate the relationships between the changes in PPE and TCAP scores to provide a different perspective on the data by computing not just bottom-line progress, but proportional comparisons between spending and achievement. The study represents a limited period of time and a snapshot of data. Results and findings lend important information to those who would examine these relationships and how they relate to current education reforms and student achievement. As highlighted in the review of literature, education reform does not happen quickly; change takes time and incremental progress is to be celebrated. As Tennessee continues to act on its current initiatives to improve teaching and learning and transition to Common Core State Standards, it is important that decisions are made carefully in the best interests of children. Stakeholders will ultimately decide for themselves “how much bang for the buck” they have received.

REFERENCES

- Achievement School District (2013). Achievement school district [website]. Retrieved May 17, 2013 from <http://www.achievementschooldistrict.org/>
- Adams, J. E, & Ginsberg, R. (2007). Education reform: Overview - reports of historical significance. *Education Encyclopedia*. Retrieved December 7, 2013 from <http://education.stateuniversity.com/pages/1944/Education-Reform.html>
- Atkins, L. (2008). *TCAP achievement transition* [PowerPoint presentation]. Retrieved May 17, 2013 from jc-schools.net/test/TCAP_transition.ppt
- Augenblick, J. G., Myers, J. L., & Anderson, A. B. (1997). Equity and adequacy in school funding. *The Future of Children*, 7(3), 63-78. <http://dx.doi.org/10.2307/1602446>
- Beaton, A., Rogers, A., Gonzalez, E., Hanly, M., Kolstad, A., Rust, K. & Jia, Y. (2011). The NAEP primer. (No. NCES 2011-463). Washington, DC: U. S. Department of Education, National Center for Education Statistics. Retrieved December 13, 2012 from <http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2011463>
- Boers, D. (2007). *History of American education: Primer*. New York, NY: Lang.
- Borman, G. D., & Dowling, M. (2010). Schools and inequality: A multilevel analysis of Coleman's equality of educational opportunity data. *Teachers College Record*, 112, 1201-1246.
- Bourque, M. L. (2009, March). *A history of NAEP achievement levels: Issues, implementation, and impact 1989-2009*. Paper presented to the National Assessment Governing Board. Washington, DC. Retrieved December 13, 2012 from <http://search.proquest.com.ezproxy.etsu.edu:2048/docview/742868957?accountid=10771>
- Bowles, S., & Levin, H. M. (1968). The determinants of scholastic achievement: An appraisal of some recent evidence. *Journal of Human Resources*, 3(1), 3-24.
- Bratton, S. E., Horn, S. P., & Wright, S. P. (n.d.). Using and interpreting Tennessee's value-added assessment system: A primer for teachers and principals. Retrieved April 3, 2013 from <http://www.shearonforschools.com/TVAAS.html>
- Card, D., & Payne, A. A. (2002). School finance reform, the distribution of school spending, and the distribution of student test scores. *Journal of Public Economics*, 83(1), 49-82. doi:10.1016/S0047-2727(00)00177-8
- Coleman, J. S., Campbell, E. Q., Hobson, C. J., McPartland, F., Mood, A. M., Weinfeld, F. D. & York, R. L. (1966). *Equality of educational opportunity*. Washington, DC: U.S. Government Printing Office.

- Cross, C. (2005). The evolving role of the federal government in education. *After Student Standards Alignment*, 1-13. Retrieved December 1, 2013 from http://www.pearsonassessments.com/hai/images/NES_Publications/2005_02Cross_513_1.pdf
- Cross, C. T. (2004). *Political education: National policy comes of age*. [EBSCO eBooks Edition]. Retrieved November 17, 2012 from <http://search.ebscohost.com/login.aspx?direct=true&db=nlebk&AN=136048&site=ehost-live>
- Dayton, J. (2003). Rural children, rural schools, and public school funding litigation: A real problem in search of a real solution. *Nebraska.Law.Review*, 82(1), 99-132. Retrieved April 7, 2013 from <http://www.lexisnexis.com.ezproxy.etsu.edu:2048>
- Downes, T. A., & Shah, M. P. (2006). The effect of school finance reforms on the level and growth of per-pupil expenditures. *Peabody Journal of Education (0161956X)*, 81(3), 1-38. doi:10.1207/s15327930pje8103_1
- Duncan, A. (2012, January 8). After 10 years, it's time for a new NCLB [editorial]. *Washington Post*. Retrieved December 10, 2012 from <http://www.ed.gov/blog/2012/01/after-10-years-it%E2%80%99s-time-for-a-new-nclb>
- Duncan, A. (2012, Feb. 9). [Letter to Kevin Huffman.] Retrieved December 10, 2012 from http://www.tn.gov/education/doc/ESEA_Flexibility_Approval_Letter.pdf
- Engl, M., Permuth, S. B., & Wonder, T. K. (2004). Brown v. Board of Education: A beginning lesson in social justice. *International Journal of Educational Reform*, 13(1), 64-73. Retrieved January 10, 2013 from <http://search.proquest.com.ezproxy.etsu.edu:2048/docview/61852940?accountid=10771>
- Gardner, D. P., Larsen, Y. W., & Baker, W. (1983). *A nation at risk: The imperative for educational reform*. Washington, DC: US Government Printing Office.
- Gordon, N. (2004). Do federal grants boost school spending? Evidence from title I. *Journal of Public Economics*, 88(9-10), 1771-1792. doi:10.1016/j.jpubeco.2003.09.002
- Haladyna, T. M. (2002). *Essentials of standardized achievement testing*. Boston: Allyn & Bacon.
- Hanushek, E. A. (2005, October). *The alchemy of 'costing out' an adequate education*. Paper presented at the Conference on Adequacy Lawsuits, Harvard University, Boston, MA.
- Hanushek, E. A., & Lindseth, A. A. (2009). *Schoolhouses, courthouses, and statehouses: Solving the funding-achievement puzzle in America's public schools*. Princeton, NJ: Princeton University Press.

- Hombo, C. (2003). NAEP and no child left behind: Technical challenges and practical solutions. *Theory into Practice*, 42(1), 59-65. Retrieved April 8, 2013 from <http://search.proquest.com.ezproxy.etsu.edu:2048/docview/218841413?accountid=10771>
- Humphrey, T. (2013, February 17). Some counties give, some take in state funding. *Knoxville News Sentinel*. Retrieved March 7, 2013 from <http://www.knoxnews.com/news/2013/feb/17/some-counties-give-some-take-in-state-funding/>
- Humphrey, T. (2011, August 8). U.S. education secretary: Tennessee deserving of No Child Left Behind waiver. *Knoxville News Sentinel*. Retrieved March 7, 2013 from <http://www.knoxnews.com/news/2011/aug/08/us-education-secretary-tennessee-deserving-of-no/>
- Improving America's Schools Act of 1994, 20 U.S.C.A. § 79, Stat. 27. Retrieved January 11, 2013 from <http://www2.ed.gov/legislation/ESEA/toc.html>
- Joint statement on the education summit with the nation's governors in Charlottesville, Virginia. (1989, September 28). Paper presented at the Charlottesville Education Summit, Charlottesville, VA. Retrieved November 9, 2012 from http://bushlibrary.tamu.edu/research/public_papers.php?id=971&year=1989&month=9
- Kagan, J. (2003). Civics action: Interpreting “adequacy” in state constitutions’ education clauses, A. *New York University Law Review*. 78, 2241-2777. Retrieved November 11, 2012 from <http://heinonline.org/HOL/LandingPage?collection=journals&handle=hein.journals/nylr78&div=56&id=&page=>
- Kelly, P. (2010). Where are the children? Educational neglect across the fifty states. *The Researcher*, 23(1), 41-58. Retrieved December 11, 2012 from <http://www.nrmera.org/PDF/Researcher/Researcherv23n1Kelly.pdf>
- Lips, D., Watkins, S. J., & Fleming, J. (2008, September) *Does spending more on education improve academic achievement?* (No. 2179). Washington, DC: The Heritage Foundation.
- Lonsbury, J., & Apple, M. W. (2012). Understanding the limits and possibilities of school reform. *Educational Policy*, 26, 759-773. doi:10.1177/0895904811425909
- McGuinn, P. J. (2006). *No child left behind and the transformation of federal education policy, 1965-2005*. Lawrence: University Press of Kansas.
- McMillan J. H., & Schumaker, S. (2006). *Research in education: Evidence-based inquiry*. Boston: Pearson.
- Minorini, P.A., & Sugarman, S.D. (1999). Educational adequacy and the courts: The promise and problems of moving to a new paradigm. In H.F. Ladd, R. Chalk, & J.S. Hansen (Eds.) *Equity and adequacy in education finance: Issues and perspectives*. (pp. 175-208).

- Retrieved January 10, 2013 from
<http://search.ebscohost.com.ezproxy.etsu.edu:2048/login.aspx?direct=true&db=nlebk&AN=6649&site=ehost-live>
- Morrill Act of 1862. [An act donating public lands to the several states and territories which may provide colleges for the benefit of agriculture and the mechanic arts]. Retrieved December 13, 2012 from http://www.ourdocuments.gov/document_data/pdf/doc_033.pdf
- Murray, M. (2011). *Initially budgeted stimulus funds for special education by local education agencies in East Tennessee* (Doctoral dissertation). Available from ETSU Electronic Theses and Dissertations database. Accession No. etd-0707111-131557.
- Myhan, L. E. (2011). *An analysis of funding achievement in Tennessee school districts for 2004--2008*. (Doctoral dissertation). Available from ProQuest Dissertations and Theses database. Accession No. 906393265.
- National Governors Association Center for Best Practices, Council of Chief State School Officers. (2010a). In the states. Retrieved May 17, 2013, from <http://www.corestandards.org/in-the-states>
- National Governors Association Center for Best Practices, Council of Chief State School Officers. (2010b). Frequently asked questions. Retrieved May 17, 2013, from <http://www.corestandards.org/resources/frequently-asked-questions>
- No Child Left Behind Act of 2001, 20 U.S.C. § 6319. Retrieved March 17, 2013 from <http://www2.ed.gov/policy/elsec/leg/esea02/index.html>
- Norman-Gordon, N., & Huwieler, C. (2011, September). *Scopes of work: How select districts are using Race to the Top funds* [Legislative Brief]. Tennessee Comptroller of the Treasury, Offices of Research and Accountability. Retrieved July 2, 2013, from <http://www.comptroller.tn.gov/Repository/RE/Scopes%20of%20Work%202011.pdf>
- O'Brien, T.V., & Roberson, T.R. (2012). Not quite “déjà vu all over again”: *No Child Left Behind* meets effective schools research. *The Educational Forum*, 76, 356-371. Doi:101080/00131725.2012.682200
- Peterson, P., & Hess, F. (2008). Few states set world-class standards. *Education Next*, 8(3), 70-73.
- Peterson, P., & Lastra-Anadon, C. (2010). State standards rise in reading, fall in math. *Education Next*, 10(4), 12-16.
- Powell, A. (2007, October 11)). How sputnik changed U.S. education. *Harvard Gazette*. Retrieved February 7, 2013 from <http://news.harvard.edu/gazette/story/2007/10/how-sputnik-changed-u-s-education/>

- Ravitch, D. (2001). *Left back: A century of battles over school reform*. New York, NY: Simon & Schuster.
- Ravitch, D. (2010, Summer). No bad idea left behind. *The American Interest*, 5, 46-52. Retrieved November 22, 2013 from <http://search.proquest.com.ezproxy.etsu.edu:2048/docview/89197513?accountid=10771>
- Sarrio, J. (2010, July 30). More than half of TN students fail state tests under new scores. *The Tennessean*. Retrieved March 7, 2013 from <http://search.proquest.com.ezproxy.etsu.edu:2048/docview/734805337?accountid=10771>
- Servicemen's readjustment act of 1944 (G.I. Bill). Pub .L. 78-346, 58 Stat 284 ch. 268, 58 Stat. 284. Retrieved November 11, 2013 from <http://www.ourdocuments.gov/doc.php?flash=true&doc=76>
- Shepard, L., Hannaway, J., & Baker, E. (2009). *Standards, assessments, and accountability: Education policy white paper*. National Academy of Education: Washington, DC. Retrieved March 8, 2013 from www.eric.ed.gov. ED531138.
- Slavin, R. E. (1999). How can funding equity ensure enhanced achievement? *Journal of Education Finance*, 24(4), 519. Retrieved February 2, 2013 from <http://search.ebscohost.com/login.aspx?direct=true&db=eft&AN=507623862&site=ehost-live>
- Smith, N. (April 2013). *Redefining the school district in Tennessee*. Thomas B. Fordham Institute: Washington, DC. Retrieved April 19, 2013 from <http://www.edexcellence.net/publications/redefining-the-school-district-in-tennessee.html>
- State of Tennessee, Governor's Communication Office. (2010, January 12). *Address to the general assembly - special session on education*. Retrieved April 19, 2013 from <http://news.tn.gov/system/files/011210%20For%20Release%20-%20Bredesen%20Special%20Session%20on%20Education%20Speech.pdf>
- Sundquist, J. (1968). *Politics and policy: The Eisenhower, Kennedy, and Johnson years*. Washington, DC: Brookings Institution.
- Sunderman, G. (2010). Evidence of the impact of school reform on systems governance and educational bureaucracies in the United States. *Review of Research in Education*, 34, 226-253, doi:10.3102/0091732X09349796
- TDOE, (n.d.a). About Tennessee First to the Top. Retrieved May 17, 2013 from <http://www.tn.gov/firsttothetop/about.html>
- TDOE. (n.d.b). Acknowledgement of test security policy. Retrieved May 16, 2013 from <http://www.state.tn.us/education/assessment/doc/ACKTEST.pdf>

- TDOE. (n.d.c). Assessment: Tennessee value-added assessment system. Retrieved April 13, 2013 from http://www.tn.gov/education/assessment/test_results.shtml
- TDOE. (n.d.d). Data definitions. Retrieved February 7, 2013 from <http://www.tn.gov/education/research/doc/DataDefinitionsForm.pdf>
- TDOE. (n.d.e). Report card on Tennessee schools. Retrieved from <http://www.tn.gov/education/reportcard/index.shtml>
- TDOE. (n.d.f). TCAP achievement. Retrieved June 15, 2013 from <http://www.state.tn.us/education/assessment/achievement.shtml>
- TDOE, Tennessee First to the Top. (n.d.g). Decision-making: Tenure. Retrieved February 7, 2013 from http://team-tn.org/assets/educator-resources/Tenure_QandA.pdf
- TDOE. (2010a). *Race to the top: Application for initial funding*. (No. CFDA No. 84.395A). Retrieved February 3, 2012 from http://www.state.tn.us/education/doc/TN_RTTT_Application_2010_01_18.pdf
- TDOE. (2010b, January 20). Tennessee submits race to the top plan - reform proposal seeks \$502 million for volunteer state [Press release]. Retrieved February 3, 2012 from <http://news.tn.gov/node/4452>
- TDOE, Newsroom & Media Center. (2011a, March 29). Tennessee celebrates first year of race to the top [Press release]. Retrieved November 19, 2012 from <http://news.tn.gov/node/6918>
- TDOE. (2011b). The power of using value-added analysis to improve student learning: A guide for educators. Retrieved November 19, 2012 from http://team-tn.org/assets/educator-resources/Power_of_Using_VA.pdf
- TDOE. (2012a, July). Charter schools annual report 2011. Retrieved May 3, 2013 from http://www.tn.gov/education/fedprog/doc/2011_Annual_PerfRep_08-12.pdf
- TDOE. (2012b, January 19). *ESEA flexibility request*. Retrieved December 16, 2012 from http://www.tn.gov/education/doc/Tennessee_ESEAFlexibilityRequest_FINAL.pdf
- TDOE. (2012c, July). Teacher evaluation in Tennessee: A report on year 1 implementation. Retrieved March 5, 2013 from http://www.tn.gov/education/doc/yr_1_tchr_eval_rpt.pdf
- TDOE, Office of Assessment Logistics. (2013). *Guide to test report interpretation TCAP achievement test and modified academic achievement standards (MAAS) assessment: Grades 3 - 8 spring 2013 - form D*. Retrieved May 3, 2013 from http://www.tn.gov/education/assessment/doc/TN00005283_2013TCAP_IG_w01.pdf
- Tennessee Education Association. (n.d.). *Testing 1-2-3: Your questions answered*. Retrieved May 3, 2013 from <http://teateachers.org/sites/default/files/tvaastesting1-2-3.pdf>

Tennessee First to the Top Act of 2010. 9 Tenn. Code. Ann.. § 49-1, 2, 3, 5. Retrieved February 13, 2012 from <http://state.tn.us/sos/acts/106/pub/pc0002EOS.pdf>

Tennessee Small Schools v. McWherter, 851 S.W.2d 139; (1993) ,

Tennessee State Board of Education. (2005). Tennessee student test results 2004 - 2005: Tennessee comprehensive assessment program. Retrieved May 3, 2013 from www.eric.ed.gov. ED493502.

Tennessee State Library and Archives. (2011, June 24). Tennessee department of education report cards. Retrieved June 29, 2013, from http://www.tn.gov/tsla/TN_ed_report_cards.htm

TNCore Common Core Standards. (n.d.). Frequently asked questions. Retrieved June 13, 2013, from <http://www.tncore.org/faqs.aspx>

U. S. Department of Education. (2009). American Recovery and Reinvestment Act of 2009: Saving and creating jobs and reforming education. Retrieved February 8, 2013 from www2.ed.gov/policy/gen/leg/recovery/implementation.html

U. S. Department of Education. (2012a). *ESEA flexibility*. (Policy Document). Washington, DC: United States Department of Education. Retrieved December 11, 2012 from <http://www2.ed.gov/policy/elsec/guid/esea-flexibility/index.html>

U. S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. (2012b). NAEP overview. Retrieved January 8, 2013 from nces.ed.gov/nationsreportcard/about/

U. S. Department of Education. (2012c, January 12). Tennessee report year 1: School year 2010-2011. Retrieved December 11, 2012 from <http://www2.ed.gov/programs/racetothetop/performance/tennessee-year-1.pdf>

U.S. Government Accountability Office. (2011). *Race to the top: Reform efforts are under way and information sharing could be improved*. (No. GAO-11-658). Retrieved December 12, 2012 from <http://purl.fdlp.gov/GPO/gpo11855>

U. S. Government Accountability Office. (2010, January). *Federal education funding: Overview of k-12 and early childhood education programs*. (No. GAO-10-51). Retrieved November 17, 2012 from <http://www.gao.gov/new.items/d1051.pdf>

Vinovskis, M. A. (1998). *Overseeing the nation's report card: The creation and evolution of the national assessment governing board (NAGB)*. University of Michigan, School of Public Policy, Institute for Social Research. Retrieved January 8, 2013 from <http://search.proquest.com.ezproxy.etsu.edu:2048/docview/62261800?accountid=10771>

Wenglinsky, H. (1997). How money matters: The effect of school district spending on academic achievement. *Sociology of Education*, 70, 221-237. Retrieved January 8, 2013 from <http://www.jstor.org/stable/2673210>

Whilden, B. E. (2011, April). *K-12 education reform: Implications and opportunities for public colleges and universities*. Retrieved March 7, 2013 from <http://www.aascu.org/WorkArea/DownloadAsset.aspx?id=5069>

The White House, Office of the Press Secretary. (2011a, September 23). Fact sheet: Bringing flexibility and focus to education law. [Press release]. Retrieved January 17, 2013 from <http://www.whitehouse.gov/the-press-office/2011/09/23/fact-sheet-bringing-flexibility-and-focus-education-law>

The White House, Office of the Press Secretary. (2011b, September 23). *Remarks by the president on no child left behind flexibility* [Press release]. Retrieved January 17, 2013 from <http://www.whitehouse.gov/the-press-office/2011/09/23/remarks-president-no-child-left-behind-flexibility>

VITA

MARTHA ELY CANTRELL

Personal Data: Place of Birth: Knoxville, Tennessee
Date of Birth: December 8, 1962

Education: Public Schools, Gatlinburg, Tennessee
B.S. Elementary Education, David Lipscomb College 1984
M.S. Administration and Supervision, East Tennessee State
University, Johnson City, Tennessee 1990
Ed.S. Administration and Supervision, Lincoln Memorial
University, Harrogate, Tennessee 2002
Ed.D. Educational Leadership, East Tennessee State University,
Johnson City, Tennessee 2013

Professional Experience: Teacher, Sevier County Schools: Pi Beta Phi Elementary, Pittman
Center Elementary, Pigeon Forge Middle 1984-2007
Administrator, Sevier County Schools: Pigeon Forge Middle,
Catlettsburg Elementary, Northview Intermediate
2007 – 2013

Honors and Awards: Future Teacher Medalist, David Lipscomb College 1984
Valedictorian, David Lipscomb College 1984
Middle Grades Teacher of the Year, Sevier County Schools 1993
Level III Educator, Tennessee Career Ladder 1993 to present
Middle Grades Teacher of the Year, Sevier County Schools 2005