

A Comparison of Fourth-Grade Tennessee Comprehensive Assessment Program Scores At A
Selected School District Taught by Highly Qualified Teachers

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Abstract

The purpose of this study was to examine the difference between selected school districts on 4th grade students Tennessee Comprehensive Assessment Program scores when taught by highly qualified teachers. The sample for this study was made up of five elementary schools in northeast Tennessee. Data were collected using the Tennessee State Report card archived data. Using the Tennessee Report Card, data were obtained for each selected school on fourth grade Tennessee Comprehensive Assessment Program as well as the percentage of highly qualified teachers at individual schools. Data were analyzed using qualitative procedures. Schools were ranked in order from highest to lowest percent of highly qualified teachers. Next, schools were ranked using the percent of proficient students in each testing subject. Results indicated that the schools in which the percentages of highly qualified teachers were high, student test scores also increased. Trends included all schools displayed similar Math testing results. Social Studies scores had the highest percentage of students in the advanced category. Similarly, schools with the lowest percentage of highly qualified teachers ranked the lowest in one or more testing categories. Results imply that the qualifications of teachers play a direct role in student learning and testing scores.

Chapter I

Introduction

The No Child Left Behind Act of 2001 has increased the expectations put on teachers to perform and produce acceptable test scores (NCLB, 2002). The world of education has become progressively more dependent on the results of these scores. These scores are used to predict and examine adequate yearly progress and determine if growth has been made in the classroom. Teachers have increasingly high demands to meet these standards and scores. A correlation exists between the students' test scores and whether they were under instruction by teachers who are deemed to be highly qualified. A highly qualified teacher is defined by The No Child Left Behind Act as, "one that holds a full state teacher certification, a minimum bachelor's degree obtained from an accredited institution of higher education, subject matter and teaching skills competency in each of the academic subjects taught and years of teaching experience" (Phillips, 2010, p.465).

Research indicates that highly qualified teachers have a direct impact on testing scores. The quality of a teacher in the classroom has been proven to be the most prevalent factor when predicting student achievement (Klecker, 2010). A recent study revealed that teachers who have more than four years experience would see higher testing scores than those who have less than four years of experience (Klecker, 2010). Comparing these highly qualified individuals with those that do not meet these credentials will serve as research that can predict future outcomes. This information will continue to give us clues as to what instructional practices we need to put in place in order to see progressively increasing TCAP scores.

Much research has been conducted on the comparison of highly qualified teachers and TCAP scores. One study focused on five teacher attributes and the correlation to their findings. The study also looked at how teacher quality, teacher characteristics, teacher practices and teacher effectiveness relate to student test scores. The study concluded that “more refined measures of what teachers know and can do are better predictors of teacher and student performance than more conventional methods (Goe, 2007, p.5). The study also considered how a teacher’s attitude and attributes were linked with student performance. It was found that when a teacher had a higher degree of collaboration with team members that achievement increased. They also concluded that those with advanced degrees in recent empirical studies were found to be of no benefit to student success and often negatively influenced test scores. Betts, Zau, and Rice conducted a study that took an in-depth look into the determinants of student achievement (Betts, Zau, Rice 2003). The study revealed that in some cases a positive relationship existed between highly qualified teachers and testing scores. Overall the test results showed that there was mostly no significant difference in scores between that of a highly qualified teacher and non-highly qualified teacher. Teacher qualification affected achievement gains sporadically so no extreme positive relationship could be stated. The study continued to state that teacher qualification appeared to matter more in middle and secondary grades as opposed to elementary school. Teacher proxy for subject-area knowledge was the best predictor of student achievement.

Studies suggest that an in-depth look at many variables within teacher qualification will benefit all parties. Teachers and educators alike understand the implications and outcomes that come with the presence of a highly qualified teacher.

There are, however, studies such as Carr's that indicate that it is more the quality of the teacher than just teacher education and experience. This is specifically shown in Carr's study when he stated that teacher quality served to be significant in eighteen out of twenty one models, but experience and the benefit of advanced degrees did not factor into increased scoring (Goe, 2007). It would be a disservice to students and teachers to not look into this correlation further to advance studies to increase TCAP scores in all schools.

Statement of the Problem

Resistance has been found in linking the performance of students on standardized test scores and highly qualified teachers. Research has been conducted to show both negative and positive correlation. The problem is that the relationship between student performance and qualification of teachers must be further examined in order to state if there is indeed a correlation. Therefore the problem of this study was to compare fourth-grade TCAP scores at a selected school district taught by highly qualified teachers.

Purpose of the Study

The purpose of the study was to examine the difference between selected school districts on 4th grade students core subject Tennessee Comprehensive Assessment Program scores when taught by highly qualified teachers.

Significance of the Study

This study will provide evidence either for or against the effectiveness of teacher qualification in comparison to student TCAP testing scores in fourth grade. This research could benefit school districts by demonstrating whether highly qualified teachers will

produce increased test scores. This will serve as valuable information since we know that student growth in all capacities is a key objective for education.

Limitations

The following were limitations encountered in this study:

1. The study was conducted with only fourth grade TCAP scores for a particular year.
2. The study did not take into account other factors that could have differentiated scores within districts such as socioeconomic status, availability of resources, and per pupil expenditure.

Definition of Terms

1. Adequate Yearly Progress- measure of year-to-year student achievement on statewide assessments
2. Core Subjects-composed of English, mathematics, social studies and science
3. Fourth grade- fourth school year after kindergarten
4. Highly qualified teacher- teacher that has acquired full state certification, a bachelor's degree from an accredited institution, and subject matter and teaching competency in the academic subjects they teach
5. The No Child Left Behind Act of 2001- United States Act of Congress that is a reauthorization of the Elementary and Secondary Education Act
6. Standardized testing- A particular group of students who take the same test and will be scored and analyzed the same way

7. TCAP- Tennessee Comprehensive Assessment Program

Overview of the Study

This thesis is composed of five chapters. Chapter one consists of an introduction of the study, statement of the problem, statement of purpose, significance, limitations, definitions of terms and concepts important to the study, and an overview of the study. Chapter two contains the review of literature and chapter three includes the methodology and procedures, population, sample, data collection instruments, procedures, research question and related hypotheses. Chapter four refers to the data analysis, which includes the collection of data and research questions and related hypotheses. Chapter five contains the findings, recommendations, implications, and conclusions of the research.

Chapter 2 Review of Literature

Introduction

TCAP is the Tennessee state mandated assessment that all students grade three through eight complete. TCAP stands for the Tennessee Comprehensive Assessment Program. Student test scores are reflective of the teacher's instruction, the student's knowledge, and the school's effectiveness. Test scores demonstrate student growth and material comprehension. Adequate Yearly Progress is measured through the growth and progress of student scores using this measurement. Teacher effectiveness is measured through the TCAP scores of their students. The pendulum of standardized testing swings back and forth. What amount of testing is enough? How much testing is too much? Should we rely only on this measurement to measure teacher effectiveness?

Mandated by No Child Left Behind, all schools must have highly qualified teachers in core subjects. The distribution of these highly qualified teachers is of concern. We see that on average highly qualified teachers work in low poverty schools and those less qualified instruct in high poverty schools. External factors outside of teacher qualification affect student performance. These factors include but are not limited to socioeconomic status, parental education, availability to educational resources, and family structure.

Highly qualified teachers defined by No Child Left Behind states that the teacher holds a bachelor's degree, have full/continuing state certification, and have demonstrated subject-matter competence in the subject taught. This literature review will focus on teacher certification and pathways to licensing, distribution of highly qualified teachers,

external factors linked to achievement, and highly qualified teacher's relationship to student testing outcomes. It is disputed that a direct relationship between teacher qualifications and student test scores exist. Research shows that teacher qualifications make an impact on student testing scores. The current study will help strengthen focused data to address a direct link between highly qualified teachers and TCAP testing scores.

Teacher Certification and Licensing

Teacher certification and licensure requirements have changed drastically since the start of the teaching profession. Licensing provides a direct measure of professional quality. This measurement is meant to represent the minimum standard that one must possess in order to gain teacher licensure. Teacher certification and qualifications have been mandated since the 1800's. In 1834, Pennsylvania was the first state to require teachers to pass exams on basic skill competencies. Following in suit, testing was the main focus of teacher certification within the 20th century. Late in the 20th century states would require that all teacher applicants pass a standardized teacher exam in order to gain licensure (Blackford, Olmstead, & Stegman, 2012). After teacher quality and effectiveness were brought to the forefront, states decided that licensure requirements needed to be made more rigorous. Furthermore, the Praxis II and I were later developed. In most states, a minimum GPA must be upheld for teacher candidates. These candidates are also expected to achieve minimum test scores on basic skills tests, as well as passing a subject matter test. In recent years, a major or minor in the subject area is required for traditional licensure. Teacher education and certification have no direct effect on teacher effectiveness. "There is little evidence that education school course work leads to improved student achievement" (Darling-Hammond & Young, 2002).

There are two routes that teachers may gain certification. These two routes include graduating a nationally accredited teacher preparation program or an alternate route. These alternate routes often require less up front requirements. The alternate route mandates a bachelor's degree and most states require demonstrated subject matter knowledge. These programs also entail both pre-service and in-service requirements. Research states that licensure tests are not directly linked to overall student performance and do not indicate how well a teacher will perform within the classroom (Boyd, Goldhaber, Lankford, & Wyckoff, 2007).

Distribution of Highly Qualified teachers

No Child Left Behind requires that all schools employ "highly-qualified" teachers (Schultz, 2014). The act directly calls for states to "ensure that poor and minority children are not taught at higher rates than that of other children by inexperienced, unqualified, or out-of-field teachers" (Schultz, 2014, pg. 2). Several studies have been conducted concerning the inequity of distribution of highly qualified teachers. High-poverty schools have a lower percentage of teaching assignments filled by highly qualified teachers than do those of low-poverty schools. Higher levels of free or reduced lunch and students of color have less qualified teachers. The difference in percentage of teachers with a master's degree was nearly 14% for free or reduced lunch as well as 13% for students of color. Fewer regularly certified teachers were located in schools with higher levels of students eligible for free or reduced lunch (Schultz, 2014).

One such study was conducted across the state of Illinois. It examined 4,000 public schools and 125,000 public school teachers within a six-year period. The study was conducted to assess change in the level and distribution of Index of Teacher

Academic Capital. School poverty was based on the percentage of each school's students who were eligible for free or reduced-price lunch. The percentage of minority students was detailed by the percentage of non-white students enrolled in each school. Results showed that from 2001 to 2006 the average change in teacher qualifications was relatively small. However, changes by school type showed an increase in highly qualified teachers. Substantial improvement was found within the non-Chicago locales schools. The improvement narrowed the gap in average teacher qualification between Chicago school and schools in non-urban locals in Illinois by 30% during the six-year period. Concerning the poverty level of the school, the greater percentage of low-income students in a school, the lower the average academic qualifications of its teachers. The results state that even though inequity was existent, improvement in schools serving the poorest student populations reduced the gap in teacher qualifications by 26% (DeAngelis, White, & Presley, 2010). Results were also found to provide substantial reduction in the teacher qualifications gap concerning percentage of minority students. In turn, significant academic improvements occurred in the state's most disadvantaged schools.

The Schools and Staffing Survey is used to analyze the distribution of teachers. Researchers found disparities in teacher experience and qualifications between high and low-poverty schools (Imazeki & Goe, 2009). This can be explained by differing phenomena. Research states that many teachers chose to leave high-poverty schools more frequently for other occupations or districts which can explain the distribution of less highly qualified teachers in these schools. This inequity leads to a continuous cycle of under-qualified teachers distributed more frequently in under-privileged schools.

Students in high-poverty schools do not receive the type of assistance or qualifications that they need in order to decrease the achievement gap.

An analysis of state data and distribution of highly qualified teachers was conducted in New York schools. The study compartmentalized results in the categories of rural areas, urban areas, and suburban area schools. It was found that teachers in rural areas are less likely to have advanced degrees or to be qualified to teach advanced courses. 43% of teachers in rural areas held a master's degree in 2003/2004 while 49% of urban teachers and 52% of suburban teachers held a master's degree. The distribution of highly qualified teachers in rural schools is almost identical within high-poverty and low-poverty schools. New York City schools remained lower in percentage of teaching assignments taught by highly qualified teachers in regards to schools with higher poverty. The study concludes that there is indeed an unequal distribution of highly qualified teachers within the context of rural, urban, and suburban schools (Brackett, Mundry, Guckenburg, & Bourexis, 2008).

Schultz concluded that learning differences among students from lower and higher socioeconomic status backgrounds increased during early elementary years (Schultz, 2014). These years are home to student's whose cognitive state is rapidly changing. Placing importance on equal distribution during the Elementary years is critical. In most Elementary schools, teachers instruct all content areas. This in turn can more drastically affect student achievement gains when they are matched with a teacher who is unqualified. The study conducted from 200-2005 in New York's Elementary schools showed that in 2000 high-poverty schools had higher levels of less-qualified teachers than low-poverty schools. Data was re-analyzed in 2005. Discrepancies were

still evident, but they had diminished in size (Boyd, Goldhaber, Lankford, & Wyckoff, 2007). The study concluded that reduced distribution gap had an impact on student achievement. Boyd states that teachers with higher qualifications significantly raised math scores of 4th and 5th grade students. Gaps within proficient achievement were lessened between high-poverty and low-poverty schools during 200-2005. Boyd found that teacher qualification improvement in high-poverty schools increased student achievement by .03 standard deviations (Boyd, Goldhaber, Lankford, & Wyckoff, 2007). Highly qualified teacher distribution holds direct impact on student scores.

External Factors linked to academic achievement

Research shows that many external and out-of-school factors affect student achievement. These factors affect student absences, academic achievement, and standardized testing scores. The National Center for Children in Poverty reported that in 2007, 13.2 million American children were living in poverty. This sobering number also affects school performance. Researchers have found that income level is one of the most powerful predictors of student's academic performance (Romanik, 2010). The limiting effects of poverty form the single greatest factor that limits student achievement. Romanik found that the number of economically disadvantaged students attending a school affects student performance. Other out-of school factors that affect student performance include prenatal disadvantages. Studies show that students who have low birth weights have IQ's ranging from nine to eleven points lower than their peers. Nutritional problems are also associated with achievement and testing. It was found that when high-poverty schools calorie loaded students on the day of the test, schools reported test gains of four to seven points higher. Romanik states that students who lack adult

attention also perform lower on tests (2010). Research states that children from families with the lowest incomes were more likely to live with only one parent. In turn, students who lived in a two-parent household received higher math literacy scores than students who live with only one parent. Lack of educational activities and materials are negatively related to academic success. A recent study showed the differences between opportunities for active academic engagement in the home of families who received public assistance in comparison to families who did not receive assistance. The study showed that almost half of the families receiving public assistance had no alphabet books in the home. The study detailed that families with assistance owned 38 books on average while the other family owned 108 books. Children whose family received public assistance were less likely to be read to and less likely to have a computer in their home (Romanik, 2010).

Lepore and Kliewer conducted a study to investigate the relations between exposure to community violence, peer victimization, sleep disturbance, and academic achievement in a sample of 7th grade youth (2013). The study was conducted using multi-site, multi-wave two group randomized controlled trial. Participants included 498 seventh grade youth from three public middle schools. One middle school was located in Philadelphia and two in greater Richmond, Virginia. The results illustrated that all violence measures were significantly and inversely correlated with GPA. Level of sleep problems at each wave was significantly and positively correlated with level of violence exposure, depressive symptoms, intrusive thoughts, absenteeism, and GPA. A significant negative association was found between sleep problems and negative academic performance (Lepore & Kliewer, 2010).

Duke University conducted a study on the effects of parental substance abuse related convictions and adult drug treatment court participation on children's school performance. The study examined whether parental participation in an adult drug treatment court improved student's school performance. Two samples of public school children were examined. The first group fell into two categories. These categories included those whose biological parents were not convicted of any offense excluding traffic offenses while the other groups were parents who had been convicted of a substance-related charge and not referred to a drug control court during this time. The other population was limited to children whose parents were referred to a drug treatment court during that time period. Student's achievement was measured by North Carolina's uniform statewide assessment that all third through eighth graders took at the end of the school year. The results concluded that children's parents who participated in a DTC program had a 15.1% of a standard deviation higher math scores than children whose parents were referred and did not complete a DTC (Gifford, Sloan, Eldred, & Evans, 2015). Another finding was that children whose parents completed a DTC experienced greater decline in reading scores than children whose parents did not complete a DTC. Overall, there were no significant beneficial changes in test performance that were linked to parental completion of a drug treatment court.

Seymour Sarason once wrote that, "we live in a test-conscious, test-giving culture in which the lives of people are in part determined by their test performance" (Segool, Carlson, Goforth, Embse, & Barterian, 2013, pg. 489). Another study was conducted to examine student test anxiety during high-stake testing. Test anxiety compromises psychological, physiological, and behavioral reactions that occur in association with

concern about the negative outcomes. The study used school children in grades three to five in three Elementary schools in a Midwestern state. 335 children participated in the study. Test anxiety was measured using the Children's Test Anxiety Scale and the Behavior Assessment Scale for Children. Researchers administered the CTAS and the BASC immediately following the completion of the NCLB assessment. Results demonstrated that there were significant differences in test anxiety between the high-stakes test and classroom testing. Students reported significantly more cognitive and physiological symptoms of test anxiety about the NCLB assessment than they did a classroom test. The study also found that girls reported more total test anxiety in comparison to that of what boys reported. (Segool, Carlson, Goforth, Embse, & Barterian, 2013). Test anxiety is a factor that must be considered when analyzing testing scores and looking in-depth at factors that may result in differing performance rates.

Additional studies have been conducted to examine disparities in standardized testing scores. Measurements were analyzed in Virginia schools comparing racial composition and testing. In Virginia, average yearly progress is identified using the results of the SOL; which is Virginia's standardized test. Black students were more likely to fail social studies, science and math SOL tests, but were also just as likely to pass with a proficient score if they did pass the test (Brunn-Bevel & Byrd, 2015). In middle school, the gap widened. These testing scores represent a difference that is concerning. The study details that these lower scores can be related to the lack of cultural connections made by teachers, lack of educational resources available in high-poverty schools, and lack of highly qualified teachers.

Highly qualified teachers and standardized testing scores

The link between highly qualified teachers and student achievement has long been discussed. Studies have been conducted to understand the link between student test performances when taught by highly qualified teachers and when not. One such study was conducted resulting in the conclusion that students of certified teachers outperformed those that were considered non-certified (Marszalek, Odom, LaNasa, & Adler, 2010). Differences in ELA scores were statistically significant but only accounted for 2.5% of a standard deviation. Differences within the two groups declined rapidly and disappeared after year three (Marszalek, Odom, LaNasa, & Adler, 2010). The sample for grade three contained 1034 school buildings in which there were third grade students. Independent variables included percentage of Temporary Authorization Certificate (TAC) and percentage of courses taught by highly qualified teachers. Student effects were found for average years of teacher experience. Overall, the effect of TAC teachers depended on school type. There was a negative impact on student performance in elementary schools but not in mixed schools. Grade 11 communication scores were found to be negatively associated with TAC teachers but also depended on building type. The data suggests that teachers who have only a content degree and work in the classroom without gaining full certification in turn have a negative impact on student achievement (Marszalek, Odom, LaNasa, & Adler, 2010).

Another study examined the links of teacher qualifications to student achievement in preschool. It was found that the education levels of preschool teachers predict teaching quality and children's learning and development (Barnett, 2003). In a study of 521 preschool classrooms the percentage of teachers with a four-year college degree was

related to preschool classroom quality as measured by the Early Childhood Environment Rating Scale. Barnett found that Higher education was associated with better teaching and better language acquisition. A recent study from the National Institute of Child Health and Human Development found that teacher's educational attainment predicted teacher behaviors that in turn predicted children's achievement and social development (Barnett, 2003).

Kimball and Borman studied the relationship between teacher quality and educational equality. Standards-based evaluation rating for 400 teachers and achievement results for 7,000 students grade four to six were used for the purpose of the study. The study was meant to further investigate the distribution and achievement effects of teacher quality in Washoe County, Nevada. Student achievement test results were attained for mathematics and reading in third through sixth grade as well as Comprehensive Test of Basic Skills tests. The results show that better teaching appears to be related to better learning outcomes. Fourth grade teachers with higher evaluation scores made progress in closing the achievement gaps in reading and math. The measure of teacher quality was associated with higher overall classroom achievement and with reduced achievement gaps between student receiving free lunch and those not receiving free lunch. In grade six mathematics, teacher experience and teacher quality measures were not statistically significant predictors of outcomes (Kimball & Borman, 2005).

Macken examined the relationship between highly qualified teachers and student academic achievement. The study examined the relationship between the percentage of highly qualified teachers and standardized measures of student proficiency in core academic subjects. 292 middle schools within Tennessee participated in the study.

Macken found that as the percent of teachers deemed highly qualified increases, suspension and expulsion rates decrease (Macken, 2013). Other findings included significant correlations between TCAP outcomes and percentages of highly qualified teachers. These outcomes were present in both minority groupings and high-poverty student populations. The findings articulate that students in high-poverty schools are in desperate need of highly qualified teachers to ensure academic gains (Macken, 2013). Another study indicates that there is no relationship between the numbers of college math courses a teacher takes and math gains of fourth grade students. Another study depicts that students of teachers with more math courses do have greater gains in high school math (Boyd, Goldhaber, Lankford, & Wyckoff, 2007).

Conclusion

Literature shows that highly qualified teachers impact student achievement gains. External factors contribute to student test scores. These factors include but are not limited to poverty level, socioeconomic status, test anxiety, prenatal weight, educational resources in the home, and family makeup. Past studies show that there are unequal distributions of highly qualified teachers. Teachers that are more highly qualified often are employed in schools that have lower poverty. This inequity is cause for concern because it increases the achievement gap among high and low poverty schools.

Chapter 3

Methods and Procedures

This study presents archival data. Data were gathered using the Tennessee State Report Card. The study consisted of investigating archived data and the performance of students when taught with a highly qualified teacher. The school district data were obtained from East Tennessee.

Population

The data from this research were collected from Bristol Schools using the Tennessee State Report Card. The data consisted of the five Elementary schools in the school district. These schools were made up of grades kindergarten through sixth grade. Holston View Elementary was composed of Pre-Kindergarten through sixth grade. According to the Tennessee Department of Education Report Card in 2012; the combined number of students for the school district was 3,781. The population that I examined was composed of 2,098 students. The other schools utilized in this study included Anderson Elementary, Avoca Elementary, Fairmount Elementary, and Haynesfield Elementary.

The percentage of male and female for this school district was 49% Female and 51% Male. 51.5% of students were deemed economically disadvantaged. Racial demographics were as follows; African Americans-4.3%, Asian/Pacific Islanders- .8%, Hispanic- 2.3%, Native American- .3%, and White 92.3%. As a district highly qualified teachers taught 96.6% of core courses. Highly qualified teachers did not teach 3.4% of core courses. Limited English proficient students made up 1.4% of the population. Students with disabilities were comprised of 15.3% of the district population. 36.7% of the schools were Title I schools. Funding for the system was comprised of 50.1% Local

Funding, 10.3% Federal Funding, and 39.7% State Funding. Per pupil expenditure was \$9,670.

Sample

Schools selected for this research were five Elementary schools in the Bristol school system. All of the information gathered was from the Tennessee Department of Education Report Card in 2012. Anderson Elementary had 49% Female and 51% Male. 366 students attended this school. Racial demographics were as follows; African American- 2.9%, Asian/Pacific Islanders- 1.4%, Hispanic- 2.7%, Native American- .7%, and White- 92.3%. 78.4% of students were economically disadvantaged. Highly qualified teachers taught 97.7% of core classes. Avoca Elementary had 464 students. 45.7% of the populations were Females and 54.3% are Males. The racial demographics for this school were as follows; African Americans-4.7%, Asian/Pacific Islanders- 1.3%, Hispanic- 2.5%, Native American- 0%, and White- 91.5%. 41.5% of students were considered economically disadvantaged. Highly qualified teachers taught 97.9% of core courses. Fairmount Elementary had 468 students. Of these students 47% were Female and 53% were Male. Racial demographics of these students were as follows; African American- 4.3%, Asian/Pacific Islander- 0%, Hispanic-2%, Native American- .2%, and White- 93.5%. 83.8% of students were deemed economically disadvantaged. Highly qualified teachers taught 92.9% of core courses. Haynesfield Elementary was comprised of 425 students. Of these students 49.5% were Female and 50.5% were Male. The racial demographics were as follows; African American- 1.6%, Asian/Pacific Islander- .2%, Hispanic- 2.8%, Native American- 0%, and White 95.3%. 38.7% of these students were categorized as economically disadvantaged. Highly qualified teachers

taught 94.4% of core courses. Holston View was composed of 355 students. Of these students, 50.5% were Female and 49.5% were Male. The racial demographics were as follows; African American- .5%, Asian/Pacific Islander- .5%, Hispanic- 2.6%, Native American- .3%, and White- 96.2%. Of these students 40.3% were economically disadvantaged. Highly qualified teachers taught 97.4% of core classes.

Data Collection Instruments

For data collection I used TCAP score archival data provided by the Tennessee Department of Education Report Card. The data collected were qualitative on the comparison of TCAP scores when highly qualified teachers, as opposed to those who are not highly qualified, teach core classes. The validity of TCAP questions was determined during field-testing of items. In-depth item analysis is completed for each and every field-tested item before it becomes operation on the TCAP test. Items being aligned to curriculum standards show validity and reliability. TCAP measures mastery of standards, skills and concepts. Each content-specified TCAP test must have enough items to satisfy the validity and reliability requirements. TCAP tests must adequately mirror the length of the number of standards in that content area as covered in the Tennessee curriculum.

Procedure

Before the research was conducted permission was sought from the Institutional Review Board (IRB) at Milligan College. Permission was granted and research followed. The researcher used resources that were available to the general public so no permission was needed for data collection. First, was the collection of data. The researcher selected the Bristol school district. This school district was selected because of proximity to the

researcher, the differences in percentage of highly qualified teachers in select schools, and the availability of achievement scores. The researcher then looked at the specific elementary schools within this district to attain further data. Using the Tennessee Department of Education report card, data were gathered concerning the percentage of highly qualified teachers at each individual elementary school selected. Once there data were gathered, TCAP achievement scores for individual schools were collected. These scores included TCAP Math, Reading, Social Studies, and Science from the archived report card in 2012. Scores were then compared to that of the percentage of highly qualified teachers.

Research Question

Does having a highly qualified teacher make a difference in student TCAP scores?

How do the scores of students taught by highly qualified teachers compare to student scores taught by teachers who are not highly qualified?

How do TCAP scores differ within a selected school district when students are taught by highly qualified teacher?

Chapter 4

Data Analysis

The purpose of this study was to examine the difference between selected school districts on 4th grade students core subject Tennessee Comprehensive Assessment Program scores when taught by highly qualified teachers. This study was conducted in order to determine in what way student standardized test scores are affected by teacher qualifications. Data were used to compare the scores of students who were taught by highly qualified teachers as opposed to student test scores who were not taught by highly qualified teachers.

Data Collection

Data were gathered using the Tennessee State Report Card. The study investigated archival data and the performance of student scores when taught by a highly qualified teacher. The school district data obtained were from Bristol School system. Data consisted of five Elementary schools in the school district. The schools included Holston View Elementary, Anderson Elementary, Avoca Elementary, Fairmount Elementary, and Haynesfield Elementary. Bristol School District demographics are displayed in Table 1. Table 2 depicts highly qualified teacher information in regards to each individually selected school within the Bristol School District.

Table 1

Demographic Information for Bristol School System

Ethnicity/Other	Number of Students	% of Students
African American	172	4.30
Asian/Pacific Islander	33	.80
Hispanic	93	2.30
Native American/Alaskan	10	.30
White	3,678	92.30
Limited English Proficient	56	1.40
Students with Disabilities	577	15.30
Economically Disadvantaged	1,930	51.50
Title 1	1,463	36.70
Female	1,955	49.00
Male	2,031	51.00

Table 2

Highly Qualified Teacher Information: By School

Anderson Elementary

% Core Courses Taught by Highly Qualified Teachers	97.7
# Core Courses Taught by Highly Qualified Teachers	128
%Core Courses Taught Not Taught by Highly Qualified Teachers	2.3
#Core Courses Not Taught by Highly Qualified Teachers	3.0

Avoca Elementary

% Core Courses Taught by Highly Qualified Teachers	97.9
# Core Courses Taught by Highly Qualified Teachers	139
%Core Courses Taught Not Taught by Highly Qualified Teachers	2.1
#Core Courses Not Taught by Highly Qualified Teachers	3

Fairmount Elementary

% Core Courses Taught by Highly Qualified Teachers	92.9
# Core Courses Taught by Highly Qualified Teachers	157
%Core Courses Taught Not Taught by Highly Qualified Teachers	7.1
#Core Courses Not Taught by Highly Qualified Teachers	12

Haynesfield Elementary

% Core Courses Taught by Highly Qualified Teachers	94.4
# Core Courses Taught by Highly Qualified Teachers	118
%Core Courses Taught Not Taught by Highly Qualified Teachers	5.6
#Core Courses Not Taught by Highly Qualified Teachers	7

Holston View Elementary

% Core Courses Taught by Highly Qualified Teachers	97
# Core Courses Taught by Highly Qualified Teachers	118
%Core Courses Taught Not Taught by Highly Qualified Teachers	5.6
#Core Courses Not Taught by Highly Qualified Teachers	7

Research Questions

Three research questions were employed for analysis of this study. All of the data from the Bristol School District Elementary schools were employed and compared to student TCAP scores when taught by a highly qualified teacher and when not taught by a highly qualified teacher. Each of the questions has been documented through the use of corresponding graphs of the data.

Research Question #1

Does having a highly qualified teacher make a difference in student TCAP scores?

To answer research question 1, scores were collected from the Tennessee State Report Card. Listed under the individual elementary schools were TCAP scores for Math, Reading, Social Studies, and Science from the archived 2012 report card. Data were then gathered concerning the percentage of highly qualified teachers at each individual elementary school selected. Scores were then compared to that of the percent highly qualified teachers. Figures 1,2,3,4 and 5 presented below are the percentage of students in 4th grade at each individual school who are basic, proficient and advanced. The tables are in order of schools with the highest percentage of highly qualified teachers to the schools with the lowest percentage of highly qualified teachers.

Avoca Elementary

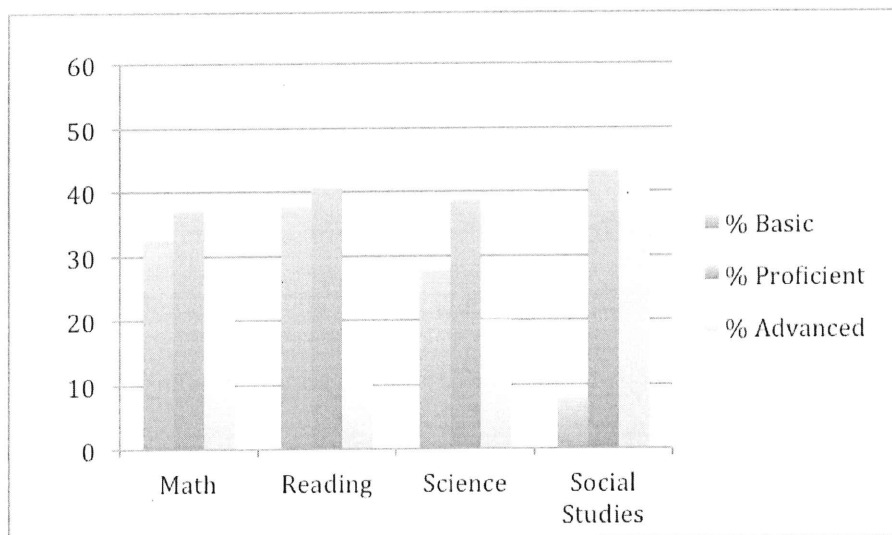


Figure 1

Anderson Elementary

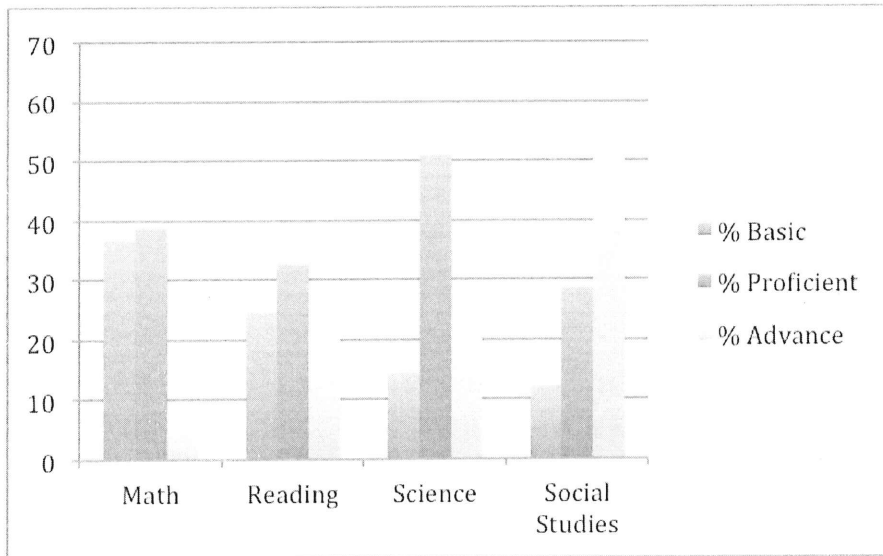


Figure 2

Holston View Elementary

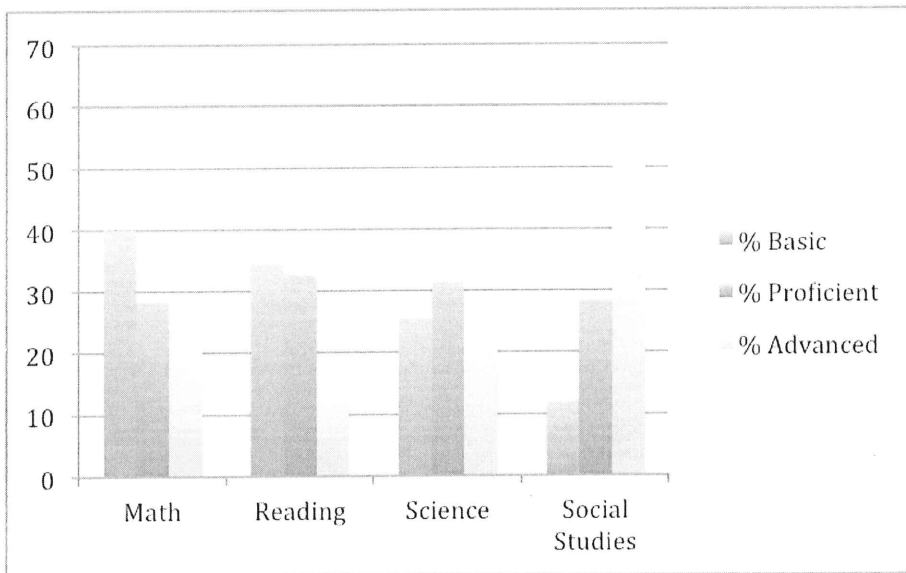


Figure 3

Haynesfield Elementary

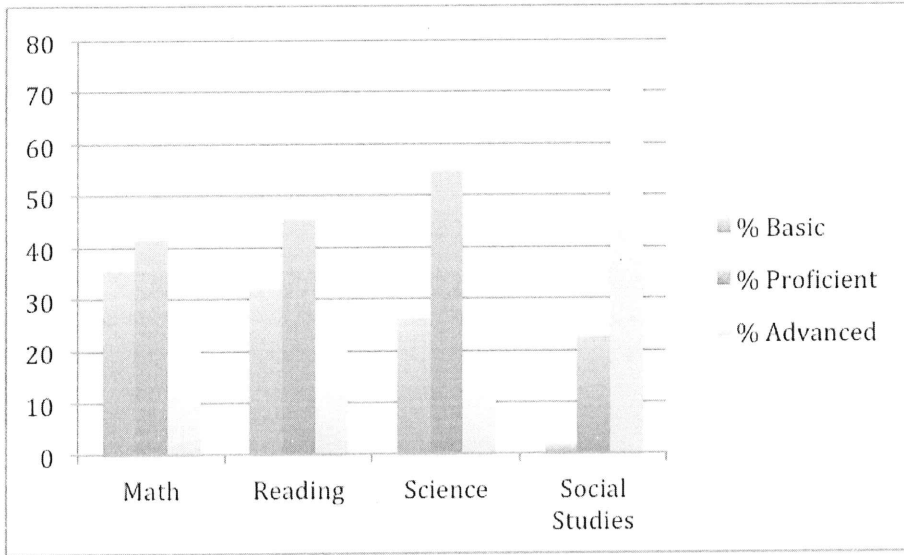


Figure 4

Fairmount Elementary

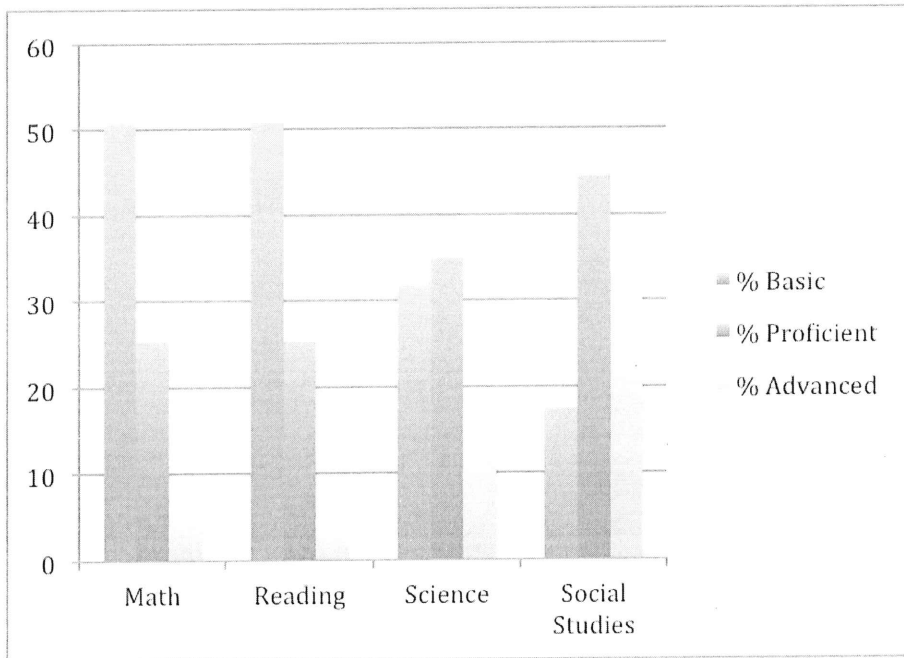


Figure 5

After analyzing the trends using the figures above, it was found that Avoca and Anderson Elementary had similar scoring as well as percentage of highly qualified teachers. The two schools scores and graphs tended to mirror one another. These two schools were grouped as the high-percentage schools while Holston View, Haynesfield, and Fairmount were grouped as lower-percentage scoring schools. All schools had similar scores and percentage of proficient students in the Math testing. Social Studies had the highest percentage of students in all schools scoring advanced. Avoca and Anderson Elementary did not have any testing score categories that ranked fifth among the group of schools chosen. The lower-percentage highly qualified schools all had at least one scoring category in which they ranked fifth. Math and Reading scores stayed consistent with all schools in the study meaning that if Math scores were high then Reading scores followed a similar suit.

Research Question #2

How do TCAP scores differ within a selected school district when a highly qualified teacher teaches students?

In order to answer this research question, ranking of schools took place in order from the school with the highest percentage of highly qualified teachers to the lowest percentage. Using this method, the schools were ranked as follows: Avoca Elementary, Anderson Elementary, Holston View Elementary, Haynesfield Elementary, and Fairmount Elementary. Each school was then ranked according to percentage of school proficiency in each category. The categories included Math, Reading, Science, and Social Studies. Table 4 details the ranking and proficiency of selected individual schools. Trends that

emerged included that Avoca, which had the highest percentage of highly qualified teachers, ranked third overall in Math scores, second in Reading scores, third in Science scores and second in Social Studies Scores. Anderson Elementary, which had the second highest percentage of highly qualified teachers, ranked second in Math, fourth in Reading, second in Science, and third in Social Studies. Holston View, which had the third highest percentage of highly qualified teachers, ranked fourth in Math, third in Reading, fifth in Science, and fourth in Social Studies. Haynesfield, which ranked second to last in percentage of highly qualified teachers ranked first in Math, first in Reading, first in Science, and fifth in Social Studies. Fairmount, which ranked last in percentage of highly qualified teachers, ranked fifth in Math, fifth in Reading, fourth in Science and first in Social Studies. After looking at the data it was found that though Haynesfield had the fourth-lowest percentage of highly qualified teachers, the school still ranked first in Math, Reading, and Science. Another trend that followed was the ranking of the Social Studies scores. Fairmount ranked first in Social Studies but last in percentage of highly qualified teachers. I thought that these scores might be predicted by the schools Reading scores but there was no correlation between test scores. Looking at the data, Avoca and Anderson did not rank lower than fourth in testing scores and these schools had the highest percentage of highly qualified teachers. Following the same suit, Holston View, Haynesfield, and Fairmount all ranked fifth in one or more testing score categories. This correlation could be attributed to the percentage of highly qualified teachers at the school. Examining the data, the Math and Science scores for each school seemed to be related. The rank for Math scores seemed to predict the outcome and rank

for Science scores. The data suggests that students who score well in Math will most likely score similarly in Science.

Table 4

Avoca Elementary (97.9% Highly Qualified)

Subject	% Proficiency	Ranking
Math	36.9	3
Reading	40.6	2
Science	38.5	3
Social Studies	43.1	2

Anderson Elementary (97.7% Highly Qualified)

Subject	% Proficiency	Ranking
Math	38.8	2
Reading	32.7	4
Science	51	2
Social Studies	28.6	3

Holston View Elementary (97.4% Highly Qualified)

Subject	% Proficiency	Ranking
Math	28.4	4
Reading	32.8	3
Science	31.3	5
Social Studies	28.4	4

Haynesfield Elementary (94.4% Highly Qualified)

Subject	% Proficiency	Ranking
Math	41.5	1
Reading	45.3	1
Science	54.7	1
Social Studies	22.6	5

Fairmount Elementary (92.9% Highly Qualified)

Subject	% Proficiency	Ranking
Math	25.4	5
Reading	25.4	5
Science	34.9	4
Social Studies	44.4	1

After comparing testing scores to the percentage of highly qualified teachers at individual schools, no distinct relationship was observed. Observations of the data included Haynesfield Elementary had the most students in proficiency even though it was ranked fourth among percentage of highly qualified teachers in selected schools. Haynesfield also ranked first in the subjects of Reading and Science testing scores. Fairmount Elementary had the highest percentage of students proficient in Social Studies. It appeared that the highest-ranking Avoca ranked well in all areas with the lowest being in Math and Science. The second ranked school, Anderson had the fourth ranked Reading scores but other subjects were ranked second and third. Holston View had three subject scores which included Math, Science and Social Studies that ranked fourth, fifth, and fourth respectively. Looking at trends throughout the data, it appears that the lower the percent of highly qualified teacher correlated with lower testing scores.

Chapter 5

This chapter contains a summary of findings, conclusions, recommendations, and implications of the research done on the comparison of Fourth-Grade Tennessee Comprehensive Assessment Program Scores when taught by highly qualified teachers.

Summary of Findings

In response to research question 1: Does having a highly qualified teacher make a difference in student TCAP scores? The analysis of data indicated that there was a slight correlation between test scores and percentage of highly qualified teachers. Boyd stated that teachers with higher qualifications significantly raised math scores of 4th and 5th grade students. Boyd found that teacher qualification improvement in high-poverty schools increased student achievement by .03 standard deviations (Boyd, Goldhaber, Lankford, & Wyckoff, 2007). This study was congruent to the relationship that I found while analyzing data. High-poverty schools have a lower percentage of teaching assignments filled by highly qualified teachers than do those of low-poverty schools (Schultz, 2014). It was found that improvement in schools serving the poorest student populations reduced the gap in teacher qualifications by 26% in the Chicago school district. This in turn increased academic achievement in the state's most disadvantaged schools (DeAngelis, White, & Presley, 2010). One study conducted resulted in the conclusion that students of certified teachers outperformed those that were considered non-certified. Differences in ELA scores were statistically significant but only accounted for 2.5% of a standard deviation. Data suggested that teachers who have only a content

degree and work in the classroom without gaining full certification in turn have a negative impact on student achievement (Marszalek, Odom, LaNasa, & Adler, 2010). Another study found that education levels of preschool teachers predict teacher quality and children's learning and development. Barnett found that higher education was associated with better teaching and better language acquisition (Barnett, 2003). Macken completed a study in which the results articulated that students in high-poverty schools are in desperate need of highly qualified teachers to ensure academic gains (Macken, 2013). All of these studies are consistent with the trends observed using TCAP scores from the selected Elementary schools. In addition, several external factors could have played a part in this relationship. These include student and family socioeconomic status, student internal motivation, absences, ability level, and prenatal conditions. Research states that these factors contribute to testing scores. All of the factors decrease student's ability to perform well on standardized tests because of the negative outcomes that they possess. These factors were not in direct relation with teacher qualifications.

Researchers have found that income level is one of the most powerful predictors of student's academic performance (Romanik, 2010). The results suggest that teacher qualifications indeed play a profound role in predicting and assessing student testing scores.

In response to research question 2: How do TCAP scores differ within a selected school district when a highly qualified teacher teaches students? Results indicate that student scores tend to be higher with the increase of highly qualified teacher percentage. Trends that emerged included that Avoca, which had the highest percentage of highly qualified teachers, ranked second or third in every testing subject. Anderson Elementary

did not rank lower than fourth in any testing subject. Holston View, Haynesfield, and Fairmount all had testing subjects that ranked fifth. This trend showed that the top ranked schools for highly qualified teachers did not rank last in any subject area. It was also found that rank for Math scores seemed to predict the outcome and rank for Science scores. Delving deeper into the results of testing scores and ranking, other factors play a role in student test scores. Research shows that test anxiety is a factor in determining test scores. One study found that girls reported more total test anxiety in comparison to what boys reported (Segool, Carlson, Goforth, Embse, & Barterian, 2013). Additional studies have examined the disparities in standardized testing scores. The study detailed that lower scores can be related to the lack of cultural connections made by teachers, lack of educational resources available in high-poverty schools, and lack of highly qualified teachers (Brunn-Bevel & Byrd, 2015). These factors play a significant role in predicting student achievement. This research correlates with the relationship I found between teacher qualification and student test scores.

Conclusion

The purpose of this study was to compare fourth-grade Tennessee Comprehensive Assessment Program (TCAP) scores with the percentage of highly qualified teachers. In response to research question 1: Does having a highly qualified teacher make a difference in student TCAP scores? Several research studies support the relationship of teacher qualification and student scores. The examination of data revealed a trend that showed the higher percentage of highly qualified teachers, the better the overall rank of testing scores. This was demonstrated by ranking each elementary school by the percentage of highly qualified teachers then ranking each elementary school testing scores using the

mark of proficient as an indicator. Individual subject testing scores were then ranked in accordance. The TCAP scores examined included Math, Reading, Science, and Social Studies. In response to research question 2: How do TCAP scores differ within a selected school district when a highly qualified teacher teaches students? Avoca and Anderson Elementary, the top ranked schools for highly qualified teachers, had the highest average ranking scores. Holston View, Haynesfield, and Fairmount all ranked fifth in one or more testing score categories.

Recommendations

1. Based on these findings, future research needs to be conducted utilizing a larger sample that will better represent the population.
2. Research in the future should employ other areas of study including external student factors.
3. Additional research is needed to include test scores from several school districts and grade levels.
4. The relationship between student test scores and teacher curriculum alignment must be considered.

Implications

1. Teachers should focus on increasing and employing student practice and test taking strategies in order to successfully increase student TCAP scores.
2. Parents and teachers should employ out-of-school techniques in order to decrease student test anxiety.
3. Schools should hire teachers who meet highly qualified status.

4. Teachers must focus on meeting highly qualified standards in order to see increased testing scores.
5. Parents should choose schools in which there are a higher percentage of highly qualified teachers.

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Institutional Review Board Decision Tree

Based on your responses, you do not need approval from the IRB.

It looks like your study is exempt from IRB approval. You should have your study approved by the highest person in the department or area overseeing the targeted participants. For example, a campus-wide survey should be approved by the President, a student or faculty survey should be approved by the Academic Dean, and a survey specific to a certain major should be approved by the Area Chair.



[Refer to 45 CFR 46.101\(b\)\(5\)](#)

However, you should carefully review all procedures and questions to ensure that anonymity is protected especially in the case of institutional surveys where questions such as age, race and gender could be used to identify participants even if they are not asked for their names.

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