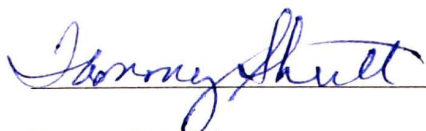# THE IMPACT OF TITLE I PROGRAMS ON THE ACADEMIC ACHIEVEMENT OF ECONOMICALLY DISADVANTAGED CHILDREN
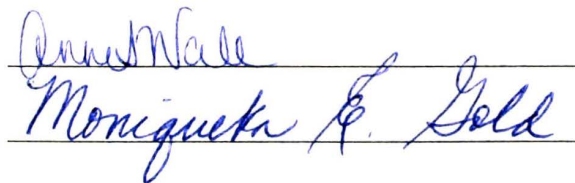

LISA E. COOPER

To the College of Graduate Studies:

I am submitting herewith a field study written by Lisa E. Cooper entitled "The Impact of Title I Programs on the Academic Achievement of Economically Disadvantaged Children." I have examined the final copy of this field study for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Education Specialist with a major in Administration and Supervision.
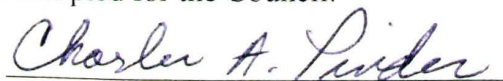
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Research Advisor

We have read this field study and recommend its acceptance:

_____

Moniqueka E. Gold
_____

Accepted for the Council:

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The Impact of Title 1 Programs on the Academic Achievement of
Economically Disadvantaged Children

A Field Study
Presented to
The College of Graduate Studies
Austin Peay State University

In Partial Fulfillment
Of the Requirements for the Degree
Education Specialist
Austin Peay State University

By
Lisa E. Cooper
December, 2007

Abstract

Since the passage of the Elementary and Secondary Education Act (ESEA) in 1964, educators and policy-makers have searched for ways to meet the needs of students who are economically disadvantaged. Historically, attempts to reach these students have come from efforts made through Title I programs.

The purpose of this study was to determine if such one delivery model is more effective than the other. Mean reading and math scores of fifth grade students at three types of schools: a non-Title I school, a targeted assisted school, and a school-wide model, were examined and disaggregated by economic status, gender, and ethnicity.

Data were taken from 2006 TCAP (Tennessee Comprehensive Assessment Program) scores of fifth grade students in middle Tennessee. The ANOVA was used to determine if there were differences among mean NCE (normal curve equivalent) scores among students in the three schools. When differences were found, Tukey's multiple comparison was applied to determine between which pairs differences existed.

Results showed that there were no differences in reading scores. However, math scores indicated that students at the non-Title I school attained higher mean scores in the total fifth grade population. There were no significant differences in scores of students who were economically disadvantaged. The conclusion is that both delivery models of Title I programs are effective in helping students who are economically disadvantaged.

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Chapter 1

Introduction

Title I of the Elementary and Secondary Education Act of 1965 provides federal assistance to students who are economically disadvantaged. Its stated purpose is "to ensure that all children have a fair, equal, and significant opportunity to obtain a high quality education" (U.S. Department of Education [USDE], n.d., "Title I...," p. 1). Officials have funneled money into this program for the last four decades because children who live in poverty have persistently fallen behind their age-level peers in academic achievement (Poliakoff, 2006; Renchler, 1993; National Center for Education Statistics [NCES], 2002). National results of 2005 reading assessments indicated that of the fourth grade children eligible for free or reduced lunch, 84% of them scored at or below basic proficiency (Poliakoff). Research conducted by Policy Studies Associates, Inc., (2001) noted that students who live in poverty score lower on achievement tests than those who live in more affluent conditions. The National Assessment of Education Progress, NAEP, tracked the achievement gap between children attending schools of poverty and their peers (USDE, 1998; USDE, NAEP Data Explorer.). While gains are evident, the gap is still wide, as shown in Table 1. Students suffer for this achievement gap for the rest of their lives in terms of social capital and economic opportunity. The price that children pay can be monumental, because they may be affected by poor health, increased exposure to drugs, increased risk of abuse or neglect, loss of personal income, and fewer social skills than their peers (Carta, 1991; Renchler, 1993).

Table 1

Gap in Achievement Scores for 9-Year-Old Students of Poverty

Subject	1992	1994	1996	2000	2003	2005
Math	28 points	24 points	22 points	27 points	22 points	23 points
Reading	40 points	-	38 points	31 points	28 points	27 points

Note. Datum was not reported.

Sources: U.S. Department of Education. (1998, September). *School poverty and academic performance: NAEP achievement in high-poverty schools – A special evaluation report for the national assessment of Title I.* (National Assessment of Educational Progress). Washington, D.C.; U.S. Department of Education. *NAEP Data Explorer [Data file].* Available from National Center for Education Statistics Web site, http://nces.ed.gov/nationsreportcard/nde/criteria.asp

While Title I was created to address the needs of the disadvantaged, the perception of the value of these programs to that population is mixed. Some researchers conclude that the funds are wasted because academic gains are insignificant (Jendryka, 1993; Krueger, 1984). Others agree that the program was ineffective during its early years, but improvements in programs and policies have rendered more favorable outcomes to students (Borman, 2003; Borman & Hewes, 2002).

Researchers have noted that student gains are evident in specific Title I models (Borman, 2003; Borman & Hewes, 2002; Burnett, 1993; Etheridge, 2001). School-wide programs that have been found to be effective in improving student outcomes include preschool programs, comprehensive school reform, effective staff development,

computers in the classroom, summer school programs, and class-size reduction (Borman & Hewes).

Typically, targeted assisted Title I models operate through a pull-out program. That is, children who are at-risk for failure are pulled out of the classroom during the instructional day to receive focused assistance by a Title I teacher or a para-professional.

Based upon the percentage of economically disadvantaged students in a given school, that school may operate Title I programs using a targeted assisted model or a school-wide model. For high-poverty schools, administrators may choose which model of services to use.

Statement of the Problem

According to the Institute of Education Sciences (NCES, 2002), the United States has a large population of children who live in poverty, evidenced by a rate of 42.5% public school students who are eligible to receive free and reduced-priced lunches. Each year, taxpayers foot the bill for almost 4 billion free and reduced-priced meals through the National School Lunch Program (NSLP) and the School Breakfast Program (Food and Nutrition Service [FNS], 2005). With such a large number of children affected by poverty and such a high cost expended to improve outcomes for this population, educators must find ways to reach these students to offer them hope for a bright future. Title I is the program targeted by the federal government to address this need, and the most effective delivery of this program is vital to the achievement of these students.

Purpose of the Study

The purpose of this study was to determine if there are differences in academic outcomes of students who are economically disadvantaged in three types of schools located in middle Tennessee: a non-Title I school, a targeted assisted school, and a school-wide Title I school. The economically disadvantaged population at each school was 33.7%, 48.0%, and 74.8%, respectively (Department of Education, n.d.).

It was the goal of the researcher to determine if one model of Title I delivery has better academic outcomes for children over the other model. Based upon the findings, more information will be available to administrators when they are selecting their Title I delivery of services.

Research Questions

This study addressed the following four questions:

1. Is there a difference in the academic achievement of fifth grade students as measured by the Tennessee Comprehensive Assessment Program (TCAP) test at a school-wide Title I assisted model school, a targeted Title I assistance model, and a non-Title I school?

2. Is there a difference in the academic achievement of fifth grade students who are economically disadvantaged, as measured by the TCAP test, at a school-wide Title I assisted model school, a targeted Title I assistance model, and a non-Title I School?

3. Is there a difference in the academic achievement of fifth grade students disaggregated by gender, as measured by the TCAP test, at a school-wide Title I

assisted model school, a targeted Title I assistance model, and a non-Title I school?

4. Is there a difference in the academic achievement of fifth grade students disaggregated by ethnicity, as measured by the TCAP test at a school-wide Title I assisted model school, a targeted Title I assistance model, and a non-Title I School?

Hypotheses

Four null hypotheses were tested to address the research questions.

1. There is no statistically significant difference in the academic achievement of fifth grade students, as measured by the TCAP test at a school-wide Title I assisted model school, a targeted Title I assistance model, and a non-Title I school.

2. There is no statistically significant difference in the academic achievement of fifth grade students who are economically disadvantaged, as measured by the TCAP test, at a school-wide Title I assisted model school, a targeted Title I assistance model, and a non-Title I School.

3. There is no statistically significant difference in the academic achievement of fifth grade students disaggregated by gender, as measured by the TCAP test, at a school-wide Title I assisted model school, a targeted Title I assistance model, and a non-Title I School.

4. There is no statistically significant difference in the academic achievement of fifth grade students disaggregated by ethnicity, as measured by the TCAP test at

a school-wide Title I assisted model school, a targeted Title I assistance model, and a non-Title I School.

Limitations

The scope of this research was limited to three schools in one Tennessee school district. While all students in the target group were used in the study, student scores from only three schools were included; therefore, results may not be applicable to other populations and may not be generalized. As with any standardized test, TCAP is an assessment that cannot measure the entire scope of a student's knowledge or ability. There were factors that could not be measured or controlled, such as leadership of each school; teacher education, ability, or attrition; parents' educational levels; and home life.

Definitions

Academic Achievement – Academic achievement is a measure of what students should know and be able to do. For the purposes of this study, academic achievement will be measured by Normal Curve Equivalent (NCE) scores on the TCAP achievement test.

Comprehensive School Reform (CSR) - CSR is grounded in the idea that there is a systematic process to help schools improve. After carefully reflecting on their existing programs, schools engaged in CSR coalesce around a design for change and implement that design to improve students' education. CSR gives educators research-based, replicable strategies for whole-school, rather than piece-meal, change, (Principals' Partnership, n.d.).

Economically Disadvantaged - An *economically disadvantaged* student is a student who is a member of a household that meets the income eligibility guidelines for free or reduced-price meals (less than or equal to 185% of Federal Poverty Guidelines) under the NSLP.

National Assessment of Education Progress (NAEP) - Also known as *The Nation's Report Card*, NAEP is the only nationally representative and continuing assessment of what America's students know and can do in various subject areas. Since 1969, assessments have been conducted periodically in reading, mathematics, science, writing, U.S. history, civics, geography, and the arts (USDA, n.d.).

National School Lunch Program (NSLP) – The NSLP is a federally assisted meal program operating in public and nonprofit private schools and residential child care institutions. It provides nutritionally balanced, low-cost or free lunches to children each school day (Food and Nutrition Service [FNS], n.d.).

Normal Curve Equivalent (NCE) - NCE is a way of measuring where a student falls along the normal curve. The numbers on the NCE line run from 1 to 99, similar to percentile ranks, which indicate an individual student's rank, or how many students out of a hundred had a lower score. NCE scores have a major advantage over percentiles in that they can be averaged (Rochester School Department, n.d.).

School-wide Model - School-wide programs are forms of Title I delivery that address the educational needs of children living in impoverished communities with comprehensive strategies for improving the whole school so every student achieves high levels of academic proficiency.

Targeted Assisted Model – Targeted assisted programs are forms of Title I delivery that focus Title I services on children who are failing, or most at risk of failing, to meet State academic standards.

Tennessee Comprehensive Assessment Program (TCAP) – The TCAP is a timed, multiple choice achievement test that measures skills in reading, language arts, mathematics, science and social studies for Tennessee students in grades 3-8.

Title I - A federal program that provides financial assistance through State educational agencies (SEAs) to local educational agencies (LEAs) and public schools with high numbers or percentages of poor children to help ensure that all children meet challenging State academic content and student academic achievement standards.

Chapter 2

Review of Literature

History of Title 1

In 1964 President Lyndon Johnson appointed commissioner of education Frank Keppel to develop a federal grant plan that was designed to "improve educational opportunity and achievement of students attending schools in areas--both urban slum and rural depressed--marked by high rates of unemployment and low per capital income and educational achievement" (States' Impact on Federal Education Policy, 2005, p. 17). The resulting law became known as the Elementary and Secondary Education Act (ESEA), and Title I of that act focused upon the needs of the poorest students. The intent was to not only improve educational opportunities for these students, but to impact educational outcomes.

Because the poorest students are targeted for federal aid, Title I assistance has historically been closely linked to schools and school systems with high percentages of students in racial minorities. However, early in its history, it became evident that any school system could obtain Title I funds merely by asking for those funds--without proving need. Funds were so misused in the first year after the ESEA was passed, that Congressman Albert Quie proposed that block grants be awarded to states, and permit the states to distribute the monies as need was determined. While this amendment was defeated, the problem surrounding misuse of funds remained in the minds of policy-makers, and in 1968 a study conducted by two policy analysts was released: *Title I of ESEA: Is it Helping Poor Children?* This report marked the beginning of the requirement

that funds must be tied to academic achievement (States Impact on Federal Education Policy, 2005), and resulted in the formation of the National Assessment of Education Progress [NAEP].

In 1974, Congress passed educational amendments to the ESEA that resulted in more federal aid to create programs in low-income areas. The targets of this aid were dropout prevention projects, school health services, gifted programs, arts education, and others, mostly funneled through Title I. Another large portion of funds was channeled through non-English-speaker programs, and funds were made available regardless of poverty status. The result was the greatest change in the Title I program since its inception: the addition of non-poverty criteria as a measure for eligibility.

Another great change for Title I occurred in 1981 with the passage of Ronald Reagan's Educational Consolidation and Improvement Act (ECIA), which was a reauthorization of the ESEA. Although reauthorized, the original law was drastically changed. The name of Title I was changed to Chapter 1, and other programs were reclassified into block grants through Chapter 2. The federal government drastically cut funds to the program with the aim of reducing the federal budget and passing control for running the nation's schools back to the states. Funds for school systems were awarded based upon percentages of low-income, non-English-speaking, and disabled students and blocks of Chapter 2 money were sent to the states to use as the state officials deemed most beneficial.

As a response to American students' poor performance in international assessments, the Reagan administration issued *A Nation at Risk: The Imperative for Educational Reform*. A commitment to excellence was issued with emphasis placed upon

standardized tests, and funding was tied to student performance. Students were required to score well on standardized tests, or Title I funding would be lost. Ironically, if students at Title I schools performed better on standardized tests, their funding would also be lost because the assumption would be made that funds would no longer be needed. So, school officials pondered the conundrum of whether it was better to work toward high scores or low scores, when the result in both cases was that federal funds would be lost.

The Hawkins-Stafford School Improvement Amendments increased federal funding for Title I/Chapter 1 and tied aid to student gains in achievement for economically disadvantaged children. Additionally, the new bill increased funds for school wide programs in order to encourage new instructional techniques. The Hawkins-Stafford amendments had the effect of repealing the Reagan law, ECIA, and returned to the original ESEA law of 1964.

The reauthorization of ESEA during the Clinton administration was known as Improving America's Schools Act (IASA) and had as its cornerstone Goals 2000, a list of goals created by a panel of governors during the George H.W. Bush administration. This act required that students served through Title I must achieve the same standards as other students who were not economically disadvantaged. The name Title I was also restored to the program, and the new law received wide support because of its standards-based forum.

By requiring that standards and accountability be the same for all children, it made Title I funding, the largest single federal funding stream for elementary and secondary education, contingent on state and local decisions around standards,

testing, teacher training, curriculum, and accountability (States' Impact on Federal Education Policy, 2005, p. 67).

Until 1994, most Title I services were delivered through pull-out programs; that is, children were pulled out of their classrooms to receive specialized instruction with a Title I teacher or teaching assistant. With the new IASA, it became even easier to implement school wide programs. More funds were focused on children of poverty, rather than low-performing children, to discourage depression of scores in order to receive more funding.

The final reauthorization of ESEA came in 2001 with George W. Bush's No Child Left Behind Act (NCLB). This act built upon Goals 2000, spearheaded by his father, and required states to post the same standards for all children, have stronger accountability measures for schools, assess annual progress for all students in grades 3-8, and required schools to be accountable for outcomes of both minority and low-income students. Additionally, the law specified that scientifically-based research methods must be the means schools employed to improve student outcomes (Borman, 2003).

Socioeconomic Status and Academic Achievement

Many studies have found that socioeconomic status (or social class) is a stronger predictor of academic achievement than any other factor (Abbott & Joireman, 2001; Gillborn, 1997; McCallum & Demie, 2001). "There is a strong association between social class and achievement; whatever the students' gender and ethnic background, those from higher social class backgrounds achieved higher average results than their counterparts from less economically advantaged households" (Gillborn, 1997, p. 378).

Abbott and Joireman (2001) found that low income accounts for an average of 24% of the variance in reading scores and an average of 21.2% of the variance in math. Depending upon the grade level of the student and the test, low income explains 12 to 29% of the variance in achievement. While the remainder of the variance is unexplained, the researchers claim that these percentages are impressive for a single predictor variable.

Contrary to the findings in many studies, Scott (2005) found no significant difference in reading and math scores in students of economically disadvantaged students, defined by those who attended Title I schools and those who did not. She noted that mean reading scores were 48.20 and 50.66, respectively; math scores were 46.22 and 45.89, respectively.

Ethnicity, Gender, and Academic Achievement

The literature reports mixed results when correlating gender with academic achievement. British researcher Gillborn (1997) found that, depending upon race and education level, one sex might out-perform the other. He noted that, at an intermediate or professional level, African/Caribbean and Asian boys performed better than the girls in those ethnicities. In the white population, however, girls scored better than boys. At the basic level, African/Caribbean girls showed greater achievement than boys.

Dimitrov (1999) analyzed gender differences in science achievement. In this study of 2551 fifth grade students, there were no gender differences in low and middle achieving students. However, in high-ability students, boys showed greater achievement than girls, a difference evident only in open-ended questions.

After analyzing census data and student records, McCallum and Demie (2001) found that in Britain, white boys more often passed end-of-year courses than white girls. However, they also noted that African girls were nearly two times more successful in passing end-of-year courses than African males. When all ethnicities were taken together, 36% of the girls passed five or more end-of-year courses, compared to 25% of the boys.

Holman (1995) conducted a study to determine if gender, ethnicity, and socioeconomic status were predictors of performance on the Texas Assessment of Academic Skills (TAAS). For the purposes of her study, she reported on four ethnic groups: White, African-American, Latino, and Asian-American students. When ethnicity was considered, White students and Asian-American students more frequently passed the TAAS than the other 2 ethnic groups. There were significant differences in the performance of the four targeted ethnic groups when she compared those in lower and higher socioeconomic backgrounds. In both the White and Latino ethnic groups, students from higher socio-economic backgrounds were more likely to pass the TAAS. However, there was no significant difference in the performance of students from higher and lower socio-economic groups in the African-American and Asian-American populations. Holman also noted that gender alone was not a predictor of performance on the achievement test.

In a 35-point exam, Gillborn (1997) noted that Asian girls performed slightly better, an average of .3 points higher at the intermediate level, on exam boards than White females and an average of 7.8 points higher than African/Caribbean girls. Among

the boys, Asian males out-performed their White peers by an average of 4.5 points and African/Caribbean boys by 6.1 points.

Entwisle and Alexander (1992) observed seasonal progress in mathematics for first grade students in Baltimore as they moved through the next two years. A stratified random sample of 790 students was used at the beginning of the study, but because of attrition, the sample was reduced to 430 by the end of the study. Of the children selected, 90% of the African American students in the sample were on free or reduced lunch, compared to 43% of the White students. The researchers found that for both ethnic groups, gains were made during the school year. However, in the summer months, children who were economically disadvantaged showed losses, as shown in Table 2. While net gains were evident across all groups, economically disadvantaged students showed smaller gains that their peers; African American students made fewer gains than White students. Most noteworthy were the significant losses shown during the summer months for poor children.

Table 2

Average Math Gains by Race and Economic Composition of Baltimore Students

| | White | | African American | |
	Economically Advantaged	Economically Disadvantaged	Economically Advantaged	Economically Disadvantaged
Year 1	50.7	48.0	43.0	48.4
Summer 1	2.9	-7.2	8.8	-6.4
Year 2	42.3	46.4	44.2	41.5
Summer 2	1.7	-4.6	2.3	-5.6
24-Month Gain	97.7	85.3	93.8	79.5

Source: Entwisle, D. & Alexander, K. (1992, February 1). Summer setback: Race, poverty, school composition, and mathematics achievement in the first two years of school. [Electronic version]. American Sociological Review, 57(1), 72-84.

Nationally, the gap is evident among student reporting groups. NAEP data on fourth grade students indicate that White students generally perform better in reading on standardized tests than Asian American, Black, or Hispanic students; however, in math, Asian American students score higher than White students, and White students score higher than Black or Hispanic students, as shown in Tables 3 and 4. Reporting data indicate that girls score higher than boys in reading: eight points higher in 1992, seven points higher in 2003, and six points higher in 2005. However, boys score an average of two to three points higher in math than girls, (USDE, NAEP Data Explorer).

Table 3

Mean Reading Scores of 4th Grade Students by Ethnicity

	1992	2000	2003	2005
White	224	224	229	229
Black	192	190	198	200
Hispanic	197	190	200	203
Asian American/Pacific Islander	216	225	226	229

Source: U.S. Department of Education. *NAEP Data Explorer [Data file].* Available from National Center for Education Statistics Web site, http://nces.ed.gov/nationsreportcard/nde/criteria.asp

Table 4

Mean Math Scores of 4th Grade Students by Ethnicity

	1992	2000	2003	2005
White	227	234	243	246
Black	193	203	216	220
Hispanic	202	208	222	226
Asian American/	231	-	246	251
Pacific Islander				

Note. Minimum reporting standards were not met.

Source: U.S. Department of Education. *NAEP Data Explorer [Data file].* Available from National Center for Education Statistics Web site, http://nces.ed.gov/nationsreportcard/nde/criteria.asp

Title I School-wide Services

A meta-analysis of results of federal evaluations from 1966 to 1993 indicate that

students served by Title I clearly would have been worse off academically without

the program and educational inequality can be overcome in a relatively short

period of time when new policies and funding sources are targeted toward

improving education and other services for disadvantaged students" (Borman,

2003, p. 49).

The study also examined the achievement gap and found it to be present when children of high-poverty enter kindergarten. This gap has been addressed by funding preschool programs.

Children from low socio-economic backgrounds, including minority students, score below the national average in math and language, and the gap widens as they go through school (Bowman, 1994). At first glance, the widening of the gap throughout the school years points to a failure in the schools. However, closer examination shows that other factors may have an impact on this trend. The difference, according to Bowman, lies in life experiences between groups. The same ideals are not shared among groups. Parents in lower socio-economic households do not cultivate the same skills in their children as parents in more affluent homes. They have different resources, different life-styles, and different beliefs. As a result, the gap widens as those children progress through school.

Not only parenting practices, but losses during the summer months account for a large portion of the achievement gap. It is estimated that the average child loses 1 month of reading and math achievement during the summer. However, for a low-income student, 2 months are lost. This loss represents the rest of the achievement gap, (Entwisle & Alexander). School districts have established summer school programs to reverse this trend.

The Tennessee Student-Teacher Achievement Ratio Study (STAR) indicated that smaller class size in grades K-3 had a statistically significant, positive effect on achievement (Finn & Achilles, 1999; Mosteller, 1995). This effect was sustained even

after grade 3 when children were assigned to larger classes. Krueger & Whitmore (2001) noted that class-size reduction benefited minority students most of all.

Several Comprehensive School Reform Models have proven to be effective in raising achievement of low-income and at-risk students (Borman, 2003; Fashola & Slavin, 1998). *Success for All, Accelerated Schools,* and *School Development Program* are the most popular effective models. *Success for All* is a program that balances phonics with meaning in a beginning reading program. Cooperative learning is widely utilized. Other components of the program are extensive staff development and one-on-one tutoring in first grade. An extension of *Success for All* is the *Roots and Wings* program, which expands offerings to math, science, and social studies. *Accelerated Schools* has shown mixed results (Fashola & Slavin). It is a school model that focuses on the vision for the school and is implemented through empowerment, building on strengths, and having high expectations for all students. *School Development Program* is delivered through the construction of three teams: planning and management, mental health, and the parent program. It is designed to meet the needs of African American children, yet it has also shown mixed results (Fashola & Slavin, 1998).

Corner's School Development Program, Direct Instruction, Core Knowledge, and *The Edison Project* are other school-wide models that have shown some success. The quality of implementation of the projects has a direct impact upon the success of the school-wide models. "The most important set of interventions are those that affect what happens between children and teachers every day. Improving the quality of classroom instruction is the best and most cost-effective means of improving overall student

achievement and preventing at-risk students from falling behind" (Fashola & Slavin, 1998, p. 377).

Etheridge (2001) examined one school district in South Carolina to determine the effectiveness of school-wide Title I programs. Of 34 schools in the district, 21 operated on a school-wide model. The services provided using the $3.5 million Title I appropriations included health services, summer school, reduced class sizes, staff development, parenting classes, and extended day programs. In 1999, the district administered the Palmetto Achievement Challenge Test to their students. At the Title I schools, 62% of the students were white; 34.6% were African American; 3.4% were of other ethnicities; 50.7% were boys; and 49.3% were girls. The results showed that there was a significant reduction in students who scored below the 25th percentile. Gains were evident for students in the lowest quartile, and that growth was greater for Title I students. Students who scored in the top 2 quartiles made greater gains than students in the non-Title I schools, with the exception of fourth grade students in math. Three of the School-wide Title I schools received South Carolina Department of Education Title I Distinguished School status for student, school, and staff performance.

Scott (2005) examined test scores of fourth grade students at 172 elementary schools in East Tennessee to determine if non-Title I schools performed higher in reading and math than schools that operated under Title I School-wide models. Data was compared by NCLB categories of gender, economic status, and students with disabilities. She found that there were no significant differences in mean scores for economically disadvantaged students in reading and math, no differences in scores for students with disabilities in math, and no differences in scores between males and females at non-Title

I schools in reading. However, there were significant differences noted by gender in the following ways: females at non-Title I schools scored 7-14 points higher in reading than males or females at Title I schools, and females at Title I schools scored 5 points higher than males at Title I schools in reading; males and females at non-Title I schools scored 6-12 points higher than males and females at Title I schools in math. Additionally, in the category *Students with Disabilities*, students at non-Title I schools scored almost 5 points higher than students at Title I schools in reading.

Scott concluded that programs in Title I schools are effective in bridging the gap between economically and non-economically disadvantaged students. Efforts made in special education to bring students up to grade level appear to be working in math, but greater efforts need to be made in reading.

Targeted Assisted Services

Hinojosa (2005) compared the academic achievement of Texas students who were served at a Title I targeted assisted school and students at a school-wide model to determine if economically disadvantaged students served in a school-wide model showed greater academic achievement than economically disadvantaged students in a targeted assisted school. He looked at data from the Texas Assessment of Academic Skills over a four-year period, the Iowa Test of Basic Skills (1998-2000), and the Stanford Achievement Test (2001). Baseline data was obtained from 1998 scores in reading and math for third grade students. Test scores of students who attended their respective schools for the next three years were examined.

Results revealed that at the end of the three-year period, the mean NCE score for economically disadvantaged students in reading was higher at the targeted assisted school (53) than the school-wide model (33). Results for math were somewhat similar, with means of 62 and 51, respectively. Students who were not economically disadvantaged showed mean scores in reading comparable to their economically disadvantaged peers, 56 at the targeted assisted school (compared to 53) and 29 (compared to 33) at the school-wide school. Math results were also similar, at 63 and 51 (compared to 62 and 51). Hinojosa attributed 34.5% of the variance in reading scores to prior achievement in reading and 11.8% of the variance to the type of Title I delivery. In math, he attributed 29% of the variance to prior performance and 26% to type of Title I delivery of services.

Economically disadvantaged students performed better at the targeted assisted school in reading and math than in the school-wide model. Hinojosa concluded that "economically disadvantaged students perform better academically when in an environment with a large number of non-economically disadvantaged students," (Hinojosa, 2005, p. 96).

Chapter 3

Methodology

Before data was gathered, permission to conduct the study was granted from the Director of Schools in the school district where data were obtained. In addition to the approval of the Director, the principals at each of the three schools gave permission for the researcher to analyze data of the students at their schools. After the Field Study proposal was completed, approval to proceed with the study was sought and obtained from the Institutional Review Board. At that time, TCAP test scores were gathered from the Tennessee Department of Education website. The scores were compiled by subgroups; then all identifying information was shredded.

This study compared the academic achievement of fifth grade students in three elementary schools in a rural school district in Tennessee for the year 2006. During the target year, one school received no Title I services; one school was a Title I targeted assisted school; another received school-wide Title I services.

The methodology was a quantitative approach. The research measured the relationship of three independent variables: the Title I models of no services, targeted assisted, and school-wide. The dependent variables were standardized test scores in reading and math for fifth grade students at all three schools. Additional variables that were included in the study were students' economic status, ethnicity and gender.

Because of the small number of elementary schools in the district, a random sample was not possible. Of the eight elementary schools in the district, one school received no Title I services, two were targeted assisted schools, and five were school-

wide models during the 2005-2006 school year. All students in the target population at all three schools were included.

The state achievement test, Tennessee Comprehensive Assessment Program, was administered in 2006 at all three schools. Academic data were examined for grade five, using the normal curve equivalent scores in reading and math.

Analysis of Variance was performed on reading and math scores to determine if there was any significant difference between the three groups of students: those at the non-Title I school, the targeted assisted school, and the school-wide Title I model. An alpha level of .05 was used for all statistical tests.

The purpose for this analysis was to determine if economically disadvantaged students show greater academic gains in a non-Title I school, a targeted assisted school, or a school-wide Title I school. The data was disaggregated by economic status, gender, and ethnicity to determine if any of the variables showed a significant difference among the three groups of students. If differences were determined, Tukey's multiple comparison was used to determine between which pairs differences existed.

Data Analysis

The purpose of this study was to determine if there was a statistically significant difference in academic outcomes of students who are economically disadvantaged in three types of schools: a non-Title I school, a targeted assisted school, and a school-wide Title I model. This study focused on three schools in middle Tennessee and examined data in the following categories: economically disadvantaged, gender, and white students. There were not enough students in any of the other ethnic groups to provide adequate data to examine.

Data for this study were taken from the 2006 fifth grade TCAP math and reading scores, which were converted to NCE scores by the State Department of Education. The ANOVA was used to determine if there was a difference in performance of students among the three schools. If a difference was found, Tukey's multiple comparison was used to determine between which pairs of schools the difference existed. Analyses follow, which correspond with each research question and hypothesis presented.

Research Question #1

Is there a difference in the academic achievement of fifth grade students as measured by the Tennessee Comprehensive Assessment Program (TCAP) test at a school-wide Title I assisted model school, a targeted Title I assistance model, and a non-Title I school?

Hypothesis 1: There is no statistically significant difference in the academic achievement of fifth grade students, as measured by the TCAP test at a school-

wide Title I assisted model school, a targeted Title I assistance model, and a non-Title I school.

A one-way ANOVA was used to determine if there was a difference between scores in the three schools. The ANOVA attempts to discover if the groups have the same mean. The F-ratio tests the null hypothesis that the group means are all equal. When the null hypothesis is true, the F-ratio is expected to have a value of 1. A larger F-ratio indicates that the null hypothesis is rejected and suggests that at least one of the means is statistically different from the others. The associated p-value measures the probability of mistakenly rejecting the null hypothesis. A p-value of .05 or less indicates significance.

If differences were found, Tukey's multiple comparison was used to determine between which pair or pairs differences existed. This measure compares each pair of means to determine if any of the differences are significantly different from zero. Confidence intervals are computed for each paired difference, and if the interval does not contain zero, then the two groups are considered different.

For this study, School 1 represents the non-Title school, School 2 the targeted assisted school, and School 3 the school-wide Title I model. Students at School 1 scored an average of 6.11 points higher (64.7) than students at School 2 (58.59) and an average of 8.84 points higher (55.86) than students at School 3 in math. There was a significant difference found in math scores among all fifth grade students, as indicated by the F-ratio of 5.0432, as shown in Table 5.

Table 5

Math Means for All Students

Source of Variation	Degrees of Freedom	Sums of Square	Mean Square	F-ratio	Probability
Schools	2	2862.31	1431.15	5.0432	0.0071
Error	271	76903.6	283.777		
Total	273	79765.9			

Tukey's multiple comparison was used to determine which of the schools showed a significant difference in math scores. Using a 95% confidence interval, School 1 was found to be significantly different from Schools 2 and 3, as shown in Table 6.

Table 6

Paired Differences for Math Means Among All Students

Category	95% Confidence Level		Significant
	Lower	Upper	
1, 2	-12.18	-0.08	Yes
1, 3	-12.91	-1.26	Yes
2, 3	- 7.15	5.23	No

The same measures and calculations were performed for all fifth grade students in the academic area of reading. School 1 scored a mean of .75 higher (58.43) than School 2 (57.68) and a mean of 2.72 higher than School 3 (55.71). The ANOVA indicated that there was no significant difference in the three schools, indicated by an F-ratio of 0.62244, as shown in Table 7.

Table 7

Reading Means for All Students

Source of Variation	Degrees of Freedom	Sums of Square	Mean Square	F-ratio	Probability
Schools	2	371.524	185.762	0.62244	1.5374
Error	268	79982.8	298.443		
Total	270	80354.3			

Research Question #2

Is there a difference in the academic achievement of fifth grade students who are economically disadvantaged, as measured by the TCAP test, at a school-wide Title I assisted model school, a targeted Title I assistance model, and a non-Title I School?

Hypothesis 2: There is no statistically significant difference in the academic achievement of fifth grade students who are economically disadvantaged, as

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measured by the TCAP test, at a school-wide Title I assisted model school, a targeted Title I assistance model, and a non-Title I School.

The mean score of 55.29 at School 1 was only slightly higher (.15) than the mean score of 55.14 at School 2 and 2.41 higher than the mean score of 52.88 at School 3 among economically disadvantaged students in math. As shown in Table 8, the F-ratio of 0.27888 was not significant.

Table 8

Math Means for Economically Disadvantaged Students

Source of Variation	Degrees of Freedom	Sums of Square	Mean Square	F-ratio	Probability
Schools	2	152.473	76.2363	0.27888	0.7572
Error	112	30617.3	273.369		
Total	114	30769.8			

Reading scores were examined among the group of students who are economically disadvantaged. The mean score for the students at School 1 in this subgroup, 54.21, was slightly lower (1.04) than the mean score for the students at School 2, 55.25. School 2 out-performed School 3 (50.64), as well, showing a higher mean by 4.61 points. Students at School 1 still out-performed School 3 in the area of reading, with a mean that had a greater value by 3.57 points. However, the F-ratio indicated that there

was no significant difference among the economically disadvantaged students at the three schools in reading, as shown in Table 9.

Table 9

Reading Means for Economically Disadvantaged Students

Source of Variation	Degrees of Freedom	Sums of Square	Mean Square	F-ratio	Probability
Schools	2	489.521	244.760	0.79557	0.4539
Error	109	33534.4	307.655		
Total	111	34024.0			

Research Question #3

Is there a difference in the academic achievement of fifth grade students disaggregated by gender, as measured by the TCAP test, at a school-wide Title I assisted model school, a targeted Title I assistance model, and a non-Title I School?

Hypothesis 3: There is no statistically significant difference in the academic achievement of fifth grade students disaggregated by gender, as measured by the TCAP test, at a school-wide Title I assisted model school, a targeted Title I assistance model, and a non-Title I School.

The mean score of male students in math at School 1, 67.43, exceeded the mean of students' scores at School 2 (61.08) and School 3 (59.36). The ANOVA indicated an

F-ratio of 3.0873, which suggests a significant difference in math scores among male students, as seen in Table 10.

Table 10

Math Means for Male Students

Source of Variation	Degrees of Freedom	Sums of Square	Mean Square	F-ratio	Probability
Schools	2	1719.36	859.681	3.0873	0.0490
Error	129	35921.4	278.461		
Total	131	37640.8			

When Tukey's multiple comparison was applied, it was found that there was no significant difference in any of the pairs of schools among male students in math. However, Schools 1 and 3 are very close to showing a significant difference.

Table 11

Paired Differences for Math Means Among Male Students

| Category | At 95% Confidence Levels | | Significance |
	Lower	Upper	
1, 2	-15.01	2.31	No
1, 3	-16.32	0.19	No
2, 3	-10.67	7.23	No

Reading scores for male students were examined. Male students at School 1 scored a mean of 59.75 in reading, a mean that was 4.17 higher than the 55.58 mean at School 2 and 4.11 higher than the 55.64 mean at School 3. An ANOVA summary shows that there is no significant difference in reading scores among the three schools, indicated by the F-ratio of 0.99156, as seen in Table 12.

Table 12

Reading Means for Male Students

Source of Variation	Degrees of Freedom	Sums of Square	Mean Square	F-ratio	Probability
Schools	2	598.663	299.332	0.99156	0.3738
Error	129	38942.6	301.881		
Total	131	39541.3			

Scores for female students in math indicated that the mean score of 62 at School 1 showed a 5.56 higher mean than the 56.44 mean score at School 2 and a 9.35 higher mean of 52.65 at School 3. However, with a p-value of .15, the ANOVA indicates that there is no significant difference in the scores of female students in the area of math, as seen in Table 13.

Table 13

Math Means for Female Students

Source of Variation	Degrees of Freedom	Sums of Square	Mean Square	F-ratio	Probability
Schools	2	1091.46	545.729	1.9181	0.1508
Error	139	39548.5	284.522		
Total	141	40640.0			

Mean scores among females in reading indicate that School 2 out-performed Schools 1 and 3, by 2.58 and 3.91 points, respectively. The differences of means of School 1 (59.68), School 2 (57.1), and School 3 (55.77), however, were not significant, as seen in Table 14.

Table 14

Reading Means for Female Students

Source of Variation	Degrees of Freedom	Sums of Square	Mean Square	F-ratio	Probability
Schools	2	288.213	144.107	0.48374	0.6175
Error	135	40514.5	297.901		
Total	138	40802.7			

Research Question #4

Is there a difference in the academic achievement of fifth grade students disaggregated by ethnicity, as measured by the TCAP test at a school-wide Title I assisted model school, a targeted Title I assistance model, and a non-Title I School?

Hypothesis 4: There is no statistically significant difference in the academic achievement of fifth grade students disaggregated by ethnicity, as measured by the TCAP test at a school-wide Title I assisted model school, a targeted Title I assistance model, and a non-Title I School.

Because the non-white population at two of the schools was so small, there was not a sample large enough to test the hypothesis on any ethnic subgroup except for White. The non-white population in fifth grade at Schools 1 and 2 numbered two. Therefore, only the White populations were compared among the three schools.

The mean score in math among White fifth grade students at School 1 was 64.72; at School 2 the mean score was 58.74, and at School 3 the mean score was 58.79. The F-ratio of 2.9269 suggests differences in the mean scores. However, the p-value of 0.0554 indicates that there is no statistical significant difference in the scores, as shown in the ANOVA Table 15.

Table 15

Math Means for White Students

Source of Variation	Degrees of Freedom	Sums of Square	Mean Square	F-ratio	Probability
Schools	2	1621.19	810.595	2.9269	0.0554
Error	247	68404.8	276.943		
Total	249	70026.0			

Because the p-value was so close to significance, Tukey's multiple comparison was used to test the upper and lower limits of the paired differences. Table 16 illustrates that the mean difference of 5.98 between Schools 1 and 2 is close to significance.

Table 16

Paired Differences for Math Means Among White Students

	At 95% Confidence Levels		
Category	Lower	Upper	Significant
1, 2	-12.02	0.068	No
1, 3	- 9.85	2.52	No
2, 3	- 4.23	8.85	No

Mean scores in reading among White students were 58.76, 58.17, and 58.15. The ANOVA indicated that there were no significant differences in scores at the three schools, as shown in Table 17.

Table 17

Reading Means for White Students

Source of Variation	Degrees of Freedom	Sums of Square	Mean Square	F-ratio	Probability
Schools	2	21.7802	10.8901	0.03763	0.9631
Error	247	71488.4	289.427		
Total	249	71510.2			

In summary, there was no significant difference in mean TCAP scores between the non-Title I school, the targeted assisted school, and the school-wide model school in reading from any subgroup. The non-Title I school performed significantly better than Title I schools overall in math. The non-Title I school male students out-performed the male students at the school-wide model, and the non-Title I school White students out-performed the targeted assisted school in math, though not at statistically significant levels.

Chapter 5

Discussion of Findings and Recommendations

The stated purpose of this study was to determine if there are differences in the academic outcomes of students who are economically disadvantaged in three types of schools: a non-Title I school, a targeted assisted school, and a school-wide Title I school. This study focused on three schools in Middle Tennessee and analyzed data from reading and math scores of fifth grade students. The categories of gender, economically disadvantaged, and white students were compared from school to school.

Limitations

This study was limited in scope to three elementary schools in middle Tennessee. The intent was to observe differences in the academic achievement of economically disadvantaged students – not to determine the cause of the differences. The findings must be cautiously applied to similar populations in studies that replicate the parameters found here. Further research is needed to determine if generalizations may be made to other schools.

Summary

It is well-documented that there is a gap in academic achievement between students who are economically disadvantaged and their more advantaged peers. Although there is steady progress in closing the gap, more progress is needed. When President Lyndon Johnson authorized the ESEA in 1964, steps were taken to focus resources on this segment of the population, resulting in the creation of Title I programs. The

programs designed to address this section of the ESEA bill seem to be effective, since students who receive these services achieve at levels not significantly different from their peers. The data gained from the tested hypotheses bear this out.

1. Is there a difference in the academic achievement of fifth grade students as measured by the Tennessee Comprehensive Assessment Program (TCAP) test at a school-wide Title I assisted model school, a targeted Title I assistance model, and a non-Title I school?

The null hypothesis was accepted in the area of reading but rejected in the area of math. Fifth grade students at School 1, the non-Title I school, out-performed all fifth grade students at Schools 2 and 3 in math.

NAEP reports that children from low socio-economic backgrounds, including minority students, score below the national average in math and language (Bowman, 1994). This gap widens as they go through school. With this history, it is not surprising that students at School 1 out-performed their peers at Schools 2 and 3 in math. What is exceptional is that they did not show significant gains in reading over students at schools with a high percentage of students who are economically disadvantaged.

Because there is extensive evidence of the achievement gap between socio-economic groups, it is very encouraging to find that the three schools showed no significant difference in reading scores. This would suggest that Title I programs are succeeding in closing the gap in achievement. The result in math is expected, since nation-wide there is a wide discrepancy in mean scores between students in schools with high poverty rates and those who are more affluent.

2. Is there a difference in the academic achievement of fifth grade students who are economically disadvantaged, as measured by the TCAP test, at a school-wide Title I assisted model school, a targeted Title I assistance model, and a non-Title I School?

The null hypothesis was accepted in both academic areas of reading and math for economically disadvantaged students. This finding suggests that Title I programs are effective in closing the gap between economically disadvantaged students and their peers. However, there are other factors which could influence this result, such as experience and effectiveness of teachers, school leadership, school climate, parenting styles, and attitudes toward education. It is noteworthy that in the area of reading, the students at the targeted assisted school performed slightly higher than the students in the non-Title I school among economically disadvantaged students.

3. Is there a difference in the academic achievement of fifth grade students disaggregated by gender, as measured by the TCAP test, at a school-wide Title I assisted model school, a targeted Title I assistance model, and a non-Title I school?

The null hypothesis is accepted for the male population in the areas of reading and math. However, male students at School 1, the non-Title I school, scored higher than male students at the school-wide model at levels that were almost significant.

In the subgroup of gender, the null hypothesis is accepted for the female population in both reading and math. It is interesting to note, however, that females at the targeted assisted school out-performed females at both the non-Title I school and the school-wide model in reading. This is further support for the positive effect of Title I programs on academic achievement.

4. Is there a difference in the academic achievement of fifth grade students disaggregated by ethnicity, as measured by the TCAP test at a school-wide Title I assisted model school, a targeted Title I assistance model, and a non-Title I School?

The only ethnicity with an N-count large enough to study was in the subgroup *White*. Therefore, only that group was considered when examining ethnicity. The null hypothesis was accepted in both areas of math and reading among White students. White students at School 1 scored higher in math than White students at Schools 2 and 3 at levels that were almost significant.

The math means of all fifth grade students at each of the three schools were very close to the math means of the subgroup *White*. Since Schools 1 and 2 each had only 2 fifth grade students in other ethnicities, this is not surprising. School 3, the school-wide model, had a 2.93 difference in means between the White student mean in math (58.79) and the total fifth grade mean in math (55.86). This indicates a lower mean for students of other ethnicities at School 3.

The difference in the *White* subgroup is between Schools 1 and 2. From the results of Research Questions #1 and #4, it can be concluded that the *White* population accounts for much of   the difference in the total math means at the targeted assisted school, while other ethnicities account for the difference in the school-wide model.

Discussion

It is always a professional challenge to reach all students in the educational setting. Since the inception of ESEA, administrators and teachers have searched for ways to reach special populations, such as the economically disadvantaged.

Bill Clinton's reauthorization of ESEA in 1994 provided more accountability from school systems by requiring that all children show greater achievement. This expansion of the bill caused school districts to look more closely at how they were serving their students in special populations, including economically disadvantaged students (States' Impact on Federal Education Policy, 2005). Based upon the result of this study that there is no difference in reading scores of students who attend a non-Title I school, a targeted assisted school, and a school-wide model, it seems that Title I programs do have a positive impact upon student achievement.

The three schools studied showed no significant differences in reading means in any subgroup. Other factors play a role in student achievement, such as: education level of parents, parenting styles, attitudes toward education, teacher experience and effectiveness, school climate, and school leadership. However, the results found in this study are encouraging and suggest that Title I programs are effective.

These findings showed that there is a significant difference in math test scores between the three schools; however, that difference is not evident among economically disadvantaged students. This indicates that one delivery of Title I may be as effective as another.

This study was conducted to determine if one model of Title I delivery was more effective than the other in affecting student achievement. The results shown from the data indicate that one model is not preferred over the other. Both schools show similar means to the non-Title I school in reading; the targeted assisted school even scored slightly higher than the non-Title I school. Both models show significantly lower means in math scores among fifth grade students. School 2, the targeted assisted school, scored lower

than School 3, the school-wide model, among the *White* population in math. School 3 scored lower than School 2 among male students in math.

The reasons for these differences cannot be obtained from the data presented. Other factors may be studied to determine the cause and provide the explanation for the differences.

Recommendations

With greater accountability for all schools and because of the impact education has upon the lives of all people, it is vital that students reach higher achievement levels. Title I funds have been effectively funneled to areas such as pre-school programs, reduced class sizes, after-school programs, teacher training, Success for All, Accelerated Schools, School Development Program, Reading Recovery, and Early Success (Fashola & Slavin, 1998; Krueger & Whitmore, 2001; Finn & Achiles, 1999; Mosteller, 1995). Because most of these programs require additional staff members, it is evident that more funds are needed to expand effective programs. Title I funds should continue to be used to close the gap between students who are economically disadvantaged and those who are not.

It is recommended that this study be replicated in similar populations; the study should also be conducted using data from different grades, other subjects, and other subgroups. Other factors that might affect student achievement should be examined, such as:

1. How Title I funds are used in schools.

2. Teacher experience, attrition, and effectiveness.

3. Student mobility.

4. Quality of standardized tests.

5. School leadership.

6. Education emphasis in the home and education level of parents.

7. Parenting styles.

8. School climate.

Conclusion

Based upon the results of this study, it seems that Title I shows promise for economically disadvantaged students. The success of these programs must be continually assessed and improvements to delivery of service must be made.

It is incumbent upon society to ensure that its citizens are educated in order to prepare them for the future. Schools will always be populated with diverse students, including children of poverty, varied cultures, and those with special needs. Parents, teachers, administrators, and policy-makers must continuously search for effective ways to reach these students so that they can achieve at high academic levels.

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Vita

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Ms. Cooper received her Bachelor of Music degree from Middle Tennessee State University and her Master of Arts degree from Austin Peay State University. She has continued her studies at Belmont University and Peabody College of Vanderbilt University.

Ms. Cooper devotes her spare time to her three daughters and to volunteer efforts. She has served as President of the Dickson Chapter of Associated Ladies for Lipscomb, an organization dedicated to raising scholarship funds for college students; and as alto section leader in the Nashville Symphony Chorus, of which she has been a member for 15 years.