Differences in Suburban Student Reading and Mathematics Growth Between Schools Receiving and Not Receiving Title I Funds

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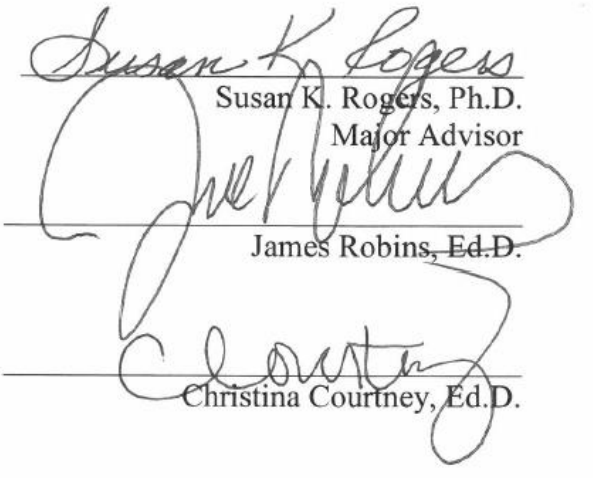

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Abstract

The purpose of this study was to determine if there is a difference in third-, fourth-, and fifth-grade student fall to spring growth on the reading and mathematics sections of the NWEA MAP assessment between schools receiving Title I funds and schools not receiving Title I funds. The second purpose was to determine to what extent student growth on the NWEA MAP assessment in reading and mathematics is affected by student socioeconomic status (SES) (free and reduced-price lunch, non-free and reduced-price lunch) in schools receiving Title I funds and schools not receiving Title I funds. A purposive sample of 2,743 third-, fourth-, and fifth-grade students enrolled in a suburban Missouri public school district during the 2017-2018 school year was included in the study. The findings from the study indicated mathematics growth was higher for fourth-grade students not receiving free and reduced-price lunch and enrolled in a school receiving Title I funds than for fourth-grade students receiving free and reduced-price lunch and enrolled in schools not receiving Title I funds. Additionally, fourth-grade students not receiving free and reduced-price lunch and enrolled in a school not receiving Title I funds had higher growth than students receiving free and reduced-price lunch and enrolled in a building not receiving Title I funds. Fifth-grade reading growth was significantly higher for students enrolled in schools receiving Title I funds than for students enrolled in schools not receiving Title I funds. Mathematics growth was significantly lower for fifth-grade students enrolled in schools receiving Title I funds than for fifth-grade students enrolled in schools not receiving Title I funds. As school districts consider resource allocation and Title I funding distribution, a closer look at student academic needs and equal access to education opportunities need to be considered

through funding structures that support mathematics instruction in addition to reading instruction.

Dedication

This dissertation is dedicated to my family. Your daily love, support, and encouragement have helped me through this journey. To my mom and dad, growing up, you encouraged me to dream big, work hard, and pursue my passions. You were my first teachers. From nights at the kitchen table working through math problems, sitting in bed editing a paper alongside you, and picking up the phone to call Grammy to pull out an encyclopedia for a research report, I learned the value of education. You continued to foster my drive and excitement for learning through high school and college. As I presented my action research for my master's degree, you were there, front and center, smiling and proud. As I started this journey, you were excited for me and provided the reassurance that I could do it. Your love, support, and commitment to my education opened doors for me and enabled me to dream bigger. I am who I am today because of you. I love you both; thank you.

To my husband, my partner in life, I could not have completed this journey without you. You have been by my side each step of the way. Your unfaltering patience, support, and encouragement have been what I needed. You were selfless; my aspirations and goals became your aspirations and goals. You did everything you could to support me, which was a sacrifice. As I juggled late nights of class and homework, work and life responsibilities, nights, and weekends at the library researching and writing, you helped me stay focused and power through. Not only were you my sounding board in times of frustration and stress, but also my rock and support system, even a study buddy for date nights spent at the library. You have encouraged me to continue pursuing my

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Table of Contents

List of Tables

Chapter 1

Introduction

The mission of the U.S. Department of Education "is to promote student achievement and preparation for global competitiveness by fostering educational excellence and ensuring equal access" (U.S. Department of Education, 2019). In 1954, the Supreme Court Justice Earl Warren delivered the ruling from the Brown v. Board of Education Topeka case in which the justices on the court "unanimously agreed that segregated schools are inherently unequal and must be abolished" (History.com Editors, 2009, para 1). The debate of equal access to education in the United States continues today. The school system in the United States has residential patterns within school districts and school boundaries in which race and ethnicity are vastly different from school to school (History.com Editors, 2009). The residential patterns create significant differences in resources and educational opportunities among students enrolled in schools across the county (History.com Editors, 2009). The public school system has been scrutinized and undergone reform efforts to provide equal access to educational opportunities and to increase the educational excellence of all students through increases in educational funding and achievement expectations.

In 1965, Congress enacted the Elementary and Secondary Education Act (ESEA) (U.S. Department of Education, 2017). Since 1965, Congress has reauthorized ESEA eight times. Each reauthorization has led to changes that impact public education. In 2002, ESEA was reauthorized as No Child Left Behind (NCLB). The intent for NCLB was to hold public schools accountable for student academic performance, which meant a closer look at academic achievement data disaggregated by student characteristics such as

race, socioeconomic status, and gender (Ansell, 2011). All federally funded schools were expected to show adequate yearly progress (AYP) (U.S. Department of Education, 2009). Particularly economically disadvantaged, limited-English proficient, and special education students were expected to meet or make gains each year toward a state's proficient and advanced levels of performance. NCLB set the expectation for public schools that all students, by the end of 2014, should have 100% of students performing proficient or advanced on state end-of-year assessments (U.S. Department of Education, 2009).

In 2012, states were granted flexibility by the Obama administration on specific requirements of NCLB; however, this flexibility was paired with the expectation of more "rigorous and comprehensive state-developed plans designed to close achievement gaps, increase equity, improve the quality of instruction, and increase outcomes for all students" (U.S. Department of Education, 2015a, para. 13). In 2015, NCLB was reauthorized with revisions. The Every Student Succeeds Act (ESSA) was written to increase equity among students, establish high academic standards that lead students to be college and career ready upon graduation, continue annual statewide assessments measuring student progress, and maintain accountability for all schools in which groups of students are not making academic gains or graduation rates remain low over extended periods of time (U.S. Department of Education, 2015a).

In the state of Missouri, the Department of Elementary and Secondary Education (DESE) maintains report cards for each district and school in the state (Strange, 2015). The report cards outline annual performance and serve as a component of the Missouri School Improvement Plan. Detailed in the report cards are student enrollment,

attendance, eligibility for free and reduced-price lunch, and graduation and dropout rates (Strange, 2015). District A, a public school district in the state of Missouri, utilizes the state report cards each year to analyze the current academic performance of students and work toward closing the achievement gap through addressing the needs of all students regardless of socioeconomic status (District A elementary principal, personal communication, September 6, 2017).

Through allocating Title I funding in the form of additional staff and resources to schools with higher percentages of free and reduced-price lunch rates, District A targets lower-performing student subgroups (District A director of elementary education, personal communication, July 20, 2018). District A expects students in schools receiving Title I funds to be growing at the same rate, if not a higher rate, as their peers in schools not receiving additional funding, support services, and resources. District A uses data to inform decisions and uses the Northwest Evaluation Association Measures of Academic Progress (NWEA MAP) assessment to measure student academic growth (District A elementary principal, personal communication, September 6, 2017).

Background

District A is a suburban public school district in the state of Missouri comprised of 10 elementary schools with students enrolled in kindergarten through fifth grade. In 2017-2018, the total enrollment of elementary students in the district was 5,244. Included in Table 1 are the number of students enrolled at each elementary school in District A, whether the school received Title I funding during the 2017-2018 school year, and the percentage of students receiving free and reduced-price lunches (Missouri Department of Elementary and Secondary Education, 2018).

Table 1

School Enrollments and Socioeconomic Statuses 2017-2018

School	Enrollment	Title I[a]	F/R[b]
A	481	Yes	36.9%
B	498	Yes	31.9%
C	561	No	23.0%
D	540	No	21.4%
E	563	Yes	37.7%
F	473	No	29.2%
G	443	Yes	37.4%
H	502	Yes	35.8%
I	656	Yes	32.2%
J	527	No	18.9%

Note. Adapted from "DESE School Report Card," by Missouri Department of Elementary and Secondary Education Comprehensive Data System, 2018. Retrieved from https://mcds.dese.mo.gov/guidedinquiry/School%20Report%20Card/School%20Report%20Card.aspx

[a]Title I = Schools receiving Title I funding. [b]F/R = Free and Reduced Priced Lunch Status

In response to the State of Missouri administering state standardized tests annually to provide evidence of student learning and academic performance, District A implemented districtwide common interim assessments to track student academic growth (District A elementary principal, personal communication, September 6, 2017). The NWEA MAP assessment is a nationally-normed interim assessment in which student growth is measured rather than proficiency (NWEA, 2018a). Interim assessment data has enabled District A to analyze the academic growth of students, student subgroups, as well

as inform the identification of students for reading intervention services (District A elementary principal, personal communication, September 6, 2017).

DESE allocates Title I funding through the measurement of socioeconomic status (SES). District A determines the Title I funding allocation to elementary schools through a weighted system and provides an additional full-time reading interventionist at each building in addition to the half-time instructional coach in each elementary building (District A director of elementary education, personal communication, July 20, 2018). The additional funding allocated to each building is used for professional development and instructional materials that go above and beyond what the district already provides all students (District A director of elementary education, personal communication, July 20, 2018).

In 2013, District A developed a five-year Comprehensive School Improvement Plan in which all stakeholders outlined goals for the district. One goal was to close the college and career readiness gap between socioeconomic groups as measured by each student's College and Career Readiness Index (District A, 2013). Additionally, District A had a well-establish mathematics curriculum, which had been implemented from 2013 to 2018 and was tightly aligned districtwide through pacing guides, priority standards, common assessments, and ongoing teacher professional development (District A elementary principal, personal communication, September 6, 2017). The reading curriculum had been implemented from 2015 to 2018 and was tightly aligned districtwide through pacing guides, priority standards, engaging experiences with outlined teaching points, common assessments, and extensive ongoing professional development (District A elementary principal, personal communication, May 24, 2018).

Through ESEA, Title I funding provides financial assistance to school districts to meet the needs of educationally at-risk students. District A (2018a) "strategically utilizes this funding in order to provide the opportunity for all children to reach academic proficiency" (para. 1). District A uses Title I funds to hire additional teachers, instructional coaches, and aides in Title I buildings. Title I instructional coaches in buildings work with teachers regularly in grade-level meetings, during coaching cycles, and through district professional development opportunities. The principals of buildings receiving Title I funds determine the use of the funding each year. Funding is used for supplementary teacher materials and professional development (District A, 2017). To address the education needs of the increasing numbers of educationally at-risk students in the district during the 10 years before the study, District A implemented a weighting system to allocate resources to schools. Table 2 shows the change in student populations over 10 years by student ethnicity.

Table 2

District Enrollment and Student Population Change over 10 Years

Ethnicity	2008-2009	2017-2018
African-American	1,082	1,380
Asian	440	401
Hispanic	621	1,113
Multi-Racial	N/A[a]	583
Native American	84	40
Pacific Islander	N/A[a]	91
White	7,879	7,850

Note. Adapted from *Demographic Profile*, by District A, 2018. Retrieved from http://boepublic.[redacted]/attachments/c074097f-1bd1-4f8c-8529-051c411069c9.pdf

[a]Suppressed percentage due to small sample size

Table 3 shows the change in district free and reduced-price lunch populations over the last 10 years. Official counts of free and reduced-price lunch rates are based on January membership counts annually.

Table 3

District Free and Reduced-Price Lunch Population Change over 10 Years

School Year	Percentage
2008-2009	22.0
2009-2010	23.8
2010-2011	25.1
2011-2012	27.2
2012-2013	28.6
2013-2014	29.1
2014-2015	29.7
2015-2016	28.9
2016-2017	27.9
2017-2018	27.3

Note. Adapted from *Demographic Profile*, by District A, 2018. Retrieved from http://boepublic.[redacted]/attachments/c074097f-1bd1-4f8c-8529-051c411069c9.pdf

Statement of the Problem

With a strong national emphasis on standardized testing and student academic achievement, most school districts are focused on showing growth and closing the academic achievement gap. District A is no exception. Title I funding, additional resources, and personnel are devoted to helping close the achievement gap between low SES student subgroups and general education students. SES is a strong indicator of academic achievement (Reardon, 2013). District A identified an achievement gap in reading and mathematics between free and reduced-price lunch students and non-free and reduced-price lunch students (District A, 2017). Although District A is allocating

funding and resources among all elementary schools in the district to target and help support economically disadvantaged students, the district wants to know if there is a difference in student academic growth in relation to Title I resource allocation based on student socioeconomic status (SES) in each school (District A executive director of quality and evaluation, personal communication, May 19, 2017).

Purpose of the Study

District A allocates Title I funding for academically at-risk students through additional staff and resources. The first purpose of this study was to determine if there is a difference in third-, fourth-, and fifth-grade student fall to spring growth on the reading and mathematics sections of the NWEA MAP assessment between schools receiving Title I funds and schools not receiving Title I funds. The second purpose of this study was to determine to what extent the difference in third-, fourth-, and fifth-grade student growth from fall to spring on the NWEA MAP reading and mathematics assessments between students enrolled in a school receiving Title I funds and students enrolled in a school not receiving Title I funds is affected by student SES.

Significance of the Study

The results of this study could extend the literature on student academic performance as characterized by SES and academic growth. Results from this study can be used by district administrators to guide decisions about the allocation of Title I funding for additional staff and resources based on student growth. Additionally, results of this study could help District A analyze changes in the achievement gap through a growth lens across a continuum of learning standards, instead of a summative score as measured by the end of year state assessments in reading and mathematics. Current

research focuses predominately on academic proficiency and growth of low SES students in high-poverty school districts in urban areas (Christie, 2009; Hirn, Hollo, & Scott, 2018), while the current study would further this research with a focus on low SES students in a suburban school district.

Delimitations

"Delimitations are self-imposed boundaries set by the researcher on the purpose and scope of the study" (Lunenburg & Irby, 2008, p. 134). The following delimitations were used in the current study:

- Participants in this study were limited to students enrolled in third-, fourth-, and fifth-grades of a single suburban public-school district in the state of Missouri; however, data from students enrolled in District A's behavior school were not used due to the home school not being identified in the data set.
- Assessment data used in the study was from the 2017-2018 school year in the content areas of reading and mathematics.
- Students with both fall and spring NWEA MAP assessment data were included in the sample; this may impact transient populations being represented accurately in the study.
- Data for the current study were disaggregated by student SES and school status of receiving Title I funding.

Assumptions

Assumptions outline variables in which the current study assumes to be true as research is conducted. The following assumptions were made in the current study:

- The NWEA MAP is a valid and reliable assessment for measuring student academic growth in reading and mathematics.
- Data collected by the district were accurate.
- Students gave their best effort when completing each assessment to ensure accurate achievement data.

Research Questions

Research questions are a critical component because they provide a clear structure for the study (Lunenburg & Irby, 2008). The following six research questions guided this study.

RQ1. To what extent is there a difference in third-grade student growth from fall to spring on the NWEA MAP reading and mathematics assessments between students enrolled in a school receiving Title I funds and students enrolled in a school not receiving Title I funds?

RQ2. To what extent is the difference in third-grade student growth from fall to spring on the NWEA MAP reading and mathematics assessments between students enrolled in a school receiving Title I funds and students enrolled in a school not receiving Title I funds affected by student SES?

RQ3. To what extent is there a difference in fourth-grade student growth from fall to spring on the NWEA MAP reading and mathematics assessments between students enrolled in a school receiving Title I funds and students enrolled in a school not receiving Title I funds?

RQ4. To what extent is the difference in fourth-grade student growth from fall to spring on the NWEA MAP reading and mathematics assessments between students

enrolled in a school receiving Title I funds and students enrolled in a school not receiving Title I funds affected by student SES?

RQ5. To what extent is there a difference in fifth-grade student growth from fall to spring on the NWEA MAP reading and mathematics assessments between students enrolled in a school receiving Title I funds and students enrolled in a school not receiving Title I funds?

RQ6. To what extent is the difference in fifth-grade student growth from fall to spring on the NWEA MAP reading and mathematics assessments between students enrolled in a school receiving Title I funds and students enrolled in a school not receiving Title I funds affected by student SES?

Definition of Terms

According to Lunenburg and Irby (2008), clearly defining all terms central to the study is important. This section includes the definitions of terms to help the reader understand the elements of the study.

Achievement gap. According to Ansell (2011), the achievement gap can be described as the disparity in academic performance between student subgroups on standardized-test scores, course selection, dropout rates, and graduation rates.

NWEA MAP assessment. According to the NWEA (2018), NWEA MAP Growth is a computer-adaptive assessment aligned to the Missouri Learning Standards. The adaptive functionality allows the test to "begin with a question appropriate for the student's grade level, then dynamically adapt throughout the test in response to student performance" (NWEA, 2018, para. 8). Each question is calibrated to the Rasch Unit (RIT) scale, which provides an equal-interval measure which "is continuous across

grades" (NWEA, 2018, para. 7). NWEA MAP Growth allows teachers and schools to measure student growth between testing windows and, when compared to national norms, shows student projected proficiency.

Title I. The Elementary and Secondary Education Act (ESEA) was passed to provide "financial assistance to local education agencies (LEAs) and schools with high numbers or high percentages of children from low-income families to help ensure that all children meet challenging state academic standards" (U.S. Department of Education, 2015b, para. 1). Currently, federal funding is allocated through four formulas to determine basic grants, concentration grants, targeted assistance grants, and education finance incentive grants. Data for each formula is derived from census poverty estimates as well as the cost of education in each state.

Organization of the Study

The current study is organized into five chapters. Chapter 1 served as an introduction to the study and included the background, statement of the problem, the purpose of the study, the significance of the study, delimitations, assumptions, research questions, and definition of terms. Chapter 2 provides the foundation of the study through a review of the existing research and literature on the academic achievement gap, Title I, socioeconomic status effect on academic achievement, and academic achievement of students in Title I versus non-Title I schools. Chapter 3 includes the methodology of the study, research design, selection of participants, measurement, data collection, hypothesis testing procedures, and the limitations of the study. The results of the data analysis are presented in Chapter 4. Included in Chapter 5 are the study summary, the findings related to the literature, and the conclusions.

Chapter 2

Review of the Literature

The purpose of this study was to determine if there is a difference in third-, fourth-, and fifth-grade student fall to spring academic growth on the NWEA MAP assessment between schools receiving Title I funding and schools not receiving additional funding through Title I. An additional purpose of the study was to determine the difference between third-, fourth-, and fifth-grade student academic growth is affected by SES. This review of the literature includes a context for the academic achievement gap, Title I, socioeconomic status effect on academic achievement, and academic achievement of students in Title I versus non-Title I schools.

Academic Achievement Gap

Coleman et al. (1966) was the landmark study of educational resources and their impact on student achievement. The study involved 600,000 students and 60,000 teachers from 4,000 United States public schools (Coleman et al., 1966). The researchers created a questionnaire for study participants to complete. At that time in history, public school funding and resource distribution had not been analyzed, and state standardized tests did not exist (Oxford University Press, 2019). Through the passing of the Civil Rights Act of 1964, Congress commissioned the research. The study was controversial as school quality was analyzed in relation to the academic achievement of students, and student family background was analyzed in relation to academic achievement. The results of the study informed later school desegregation policy (Oxford University Press, 2019).

The research conducted by Coleman et al. (1966) indicated that neither the physical amenities of a school nor the funding were the most important factor in a child's academic achievement. Coleman et al. (1966) analyzed a student's family background, which indicated the socioeconomic makeup of a classroom was the largest determinant of a child's academic achievement. The results of the study became the foundation for what has become known as the achievement gap. Subsequent studies conducted by Coleman were focused on identifying significant relationships between school characteristics and student academic achievement that could impact a student's academic achievement more than that of family background (Oxford University Press, 2019).

The achievement gap is a term used in education to refer to the disproportionate difference in the academic performance between groups of students (Great Schools Partnership, 2013). Historically, the academic achievement gap has been studied in regard to minority students compared to White students as well as the academic performance of boys compared to girls. According to Nelson (2006), the academic achievement gap of students from low-income families and student readiness for school starting in kindergarten and compounding through senior year is related to the reading readiness gap starting in kindergarten. Our country is facing an increasing income achievement gap in which economic inequality now exceeds racial "inequality in education outcomes" (Reardon, 2013, p. 2). Additionally, Reardon (2013), found that the income achievement gap changes little throughout a student's K-12 school experience.

The United States has made efforts to close the achievement gap, and between 1970 and 1988, the achievement gap between African-American and White students decreased by one half (Haycock, 2001). Although equal access to education has

decreased the achievement gap, it has not led to equal achievement over time (Barton, 2004). During the 1990s, the trends seen in the 1970s and 1980s reversed, and the Black-White achievement gap began to widen (Haycock, 2001). The National Assessment of Educational Progress report showed that although the achievement gap in eighth-grade reading achievement has fluctuated over the years, it was the same in 2007 as it was in 1998. A slight decrease has been shown in the eighth-grade mathematics achievement gap (Boykin & Noguera, 2011).

The results of a study conducted by Jencks and Phillips (1998) showed that the achievement gap starts before students enter elementary school and can be observed within the vocabulary of a child. No Child Left Behind Act coincides with this fluctuation and stagnation of the achievement gap even though there was an increased focus placed on raising standards for all students and accountability placed on schools through high-stakes assessments (Boykin & Noguera, 2011). In 2003, the National Assessment of Educational Progress reported: "that the average eighth grade minority student performs at about the level of the average fourth-grade white student" (Barton, 2004).

The results of Chatterji (2006) research indicated that the achievement gap in reading and mathematics is noticeable at the beginning of kindergarten and continues to widen throughout the year. Additionally, those same gaps seen in kindergarten continue to grow wider and become more pronounced in the area of critical thinking, drawing inferences, and understanding measurement (Murnane, Willett, Bub, & McCartney, 2006). Boykin and Noguera (2011) argue that the academic achievement gap is multidimensional and is seen across subject areas and academic skills. The achievement

gaps are seen in preschool and continue through college (Ryan & Ryan, 2005). The gap is observable through grade point averages, national test proficiency measures, enrollment in rigorous high school courses, and student placement in special education or gifted education. Additionally, the gap is seen through behavior referrals, school suspension, and dropout rates of students (Boykin & Noguera, 2011). Reardon (2013) analyzed a study conducted by Kornrich and Furstenberg (2013) in which the correlation between family income and family resources was explored. Reardon (2013) reported, "high income families now spend nearly 7 times as much on their children's development as low-income families, up from a ratio of 4 times as much in 1972" (para. 20).

Boykin and Noguera (2011) argued that our goal, as a society, should not only be to raise the achievement of African-American and Hispanic students to the current achievement levels of White peers but instead raise the achievement for all students in order to close the achievement gap between the U.S. students and students around the world. To do this, African-American and Hispanic student academics would need to rise at a steeper rate. Barton (2004) reported the existence of 14 factors that impact student academic achievement, and low-income or minority children are at a disadvantage in almost all factors. Some factors include child birthweight, malnourishment, access to literature, mobility, active parent participation, the rigor of the curriculum, teacher experience, and school safety (Barton, 2004).

Title I

The federal Title I program was established in 1965 and is the largest federally funded K-12 program (U.S. Department of Education Institute for Education Science, 2016). Title I was developed to address the academic achievement gap between

disadvantaged and advantaged students through additional funding to help equalize educational programs and opportunities for low-income students (Grant & Arnold, 2015). Title I funds target low-achieving children, such as "English Learners, children of migrant workers, children with disabilities, Indian children, children who are neglected or delinquent, and young children and their parents who are in need of family-literacy services" (U.S. Department of Education Institute for Education Science, 2016, p. 3).

Title I funding is "allocated to eligible school districts based on the percentage of poor children in local school districts and the per-pupil cost of education in each state" (Grant & Arnold, 2015, p. 364). The Title I federal program provides guidelines for expenditures, but local school districts have much flexibility in deciding where and how Title I funds are spent (Sousa & Armor, 2013). Some school districts spend Title I funds on supplies and resources such as technology, computer labs, reading materials, and supplies for parental involvement activities (Grant & Arnold, 2015). In addition to supplemental resources, students of low SES need targeted interventions that require additional staff and time. Burney and Beilke (2008) argued that in addition to the regular curriculum, students of low SES need consistent support in the form of sustained intervention to develop skills for long-term success. Many school districts identify academically disadvantaged students for special pullout classes for targeted intervention instruction or tutoring (Burney & Beilke, 2008). Also, school leaders spend Title I funds to hire additional personnel in buildings to address the need of decreasing class sizes or increasing the number of interventionists, instructional coaches, or paraprofessionals in the building (Burney & Beilke, 2008).

> Because the bulk of education funding comes from states and local school districts, federal Title I funds, while helpful, do little to counterbalance the inequities due to state and local funding inequities. But Title I funding is insufficient to affect class sizes and teacher salaries in poor school districts. (Grant & Arnold, 2015, p. 368)

In 2010, the federal government spent about $15 billion on Title I (Grant & Arnold, 2015, p. 364).

In an attempt to further analyze the effect of school resources on student achievement, Greenwald, Hedges, and Laine (1996) conducted a meta-analysis of 60 studies to investigate the relationship between educational inputs and student academic achievement. Educational inputs included school size, teacher to pupil ratio, teacher ability, teacher education, and teacher experience. The results of the research conducted by Greenwald et al. (1996) indicated moderate increases in spending were linked to significant increases in the academic achievement of students as measured by student achievement in secondary grades. Positively related to student academic achievement were small school and class sizes of students; the inputs of teacher ability, teacher education, and teacher experience showed very strong positive relationships with student achievement (Greenwald et al., 1996).

Betts, Reuben, and Danenberg (2000) focused on three critical questions about school resources in a study to determine how resources vary among schools and how each resource impacts student academic achievement as measured by the Renaissance Learning STAR Test. The researchers questioned the variation of resources among K-12 public school districts in California, focusing on class size, curriculum, and teachers'

education, credentials, and experiences. Additionally, Betts et al. (2000) analyzed the socioeconomic status of student populations in relation to the resources available to and in each district as well as how resource inequalities correlated to student academic achievement. The results of the study indicated that among the variables of resources and socioeconomic status of student populations, the socioeconomic status of students had the highest correlation with academic achievement.

Jefferson (2005) compiled the findings of researchers and academics in a review of the literature to explore the relationship between school spending and student performance. The results of the research indicated that how school funding is allocated impacts student academic achievement. Teacher hiring and decreased class size were examples of allocation of funding decisions and directly related to student academic achievement (Jefferson, 2005).

Jimenez-Castellanos (2010) stated the importance of analyzing personnel resources, facilities resources, and fiscal resources when examining resource allocation with educational opportunity and academic achievement in schools. To study the relationship between educational opportunity and academic achievement with intra-district resource allocation, Jimenez-Castellanos used the Intra-district Multi-dimensional Resource Allocation (IMRA) framework. The IMRA framework was used to study a large urban/suburban elementary school district with students enrolled in kindergarten through sixth grade. Quantitative data included demographics (Hispanic/Latino, White, and ELL), student outcomes (academic achievement in reading and mathematics), fiscal resources, personnel, and facilities data by the school building. Additionally, a comparison study was conducted between two Title I schools and two non-Title I schools

in the district. Non-Title I school status was determined by having a below-average expenditure per pupil compared to the district average. Jimenez-Castellanos (2010) concluded that resource allocation could both promote and hinder high-quality achievement by using the funding for personnel and resources.

Krumpe (2012) studied how Title I funds were used by schools in California from 2009 to 2011, and the extent to which funding expenditures improved student academic achievement. Krumpe found 37.9% of the funding was spent on professional development, while 44.2% was spent on strategies for at-risk learners. Professional development funds were used to train teachers on effective instructional strategies as well as facilitate common teacher collaboration time centered on the instructional needs of individual students and student groups. The funding devoted to strategies for at-risk learners was used to provide intervention and tutoring for struggling students (Krumpe, 2012). Most of this funding was used during the regular school day while a small portion was used for before and after as well as during summer school programs. The results of the study showed a strong positive correlation between teacher professional development and student academic achievement as well as Title I intervention services to at-risk learners during the school day in the area of reading (Krumpe, 2012). Math intervention during the school day, as well as summer school interventions, showed a negative correlation to academic achievement. The results of the study focused on the need for reading intervention and teacher collaboration time with a focus on effective instructional strategies as well as on-going instructional coaching cycles for maximum benefit (Krumpe, 2012).

Examining the effects of Title I school status on one urban school district, Matsudaira, Hosek, and Walash (2012) analyzed school behavior, resources, and academic performance of students enrolled in a Title I school compared to students not enrolled in a Title I school. Title I schools in the district received additional funds to address the academic needs of student subgroups, while non-Title I schools were not receiving additional funds to address student subgroups enrolled in the school. Matsudaira et al. analyzed the average achievement scores of students targeted with academic services in Title I schools compared to those of similar eligibility enrolled in non-Title I schools and found that there was no impact on overall school test scores.

Rainwater (2015) also investigated the effect of additional funding on student academic achievement. In the state of Texas, additional per-pupil funding grants were awarded to schools to address school improvement efforts. Forty-nine Texas Title I Priority Schools (TTIPS), including urban, suburban, and rural, were granted TTIPS funding in 2010-2011. Rainwater utilized the Texas Assessment of Knowledge and Skills (TAKS) state assessment to determine whether there was a correlation between the additional funding and attendance as well as a correlation between the additional funding and student academic achievement in the areas of math, English, science, and social studies. Rainwater found no significant correlation between academic achievement and total TTIPS funding.

In 2018, the Education Trust funded a study analyzing school funding equity across the United States. State and local revenues per student, the percentage of children in poverty, and the percentage of students of color were variables considered in the study. Morgan and Amerikaner (2018) noted inequitable school funding formulas. For

example, school districts with large populations of White, more affluent students received more funding than school districts with large populations of students of color or students from low-income families.

Socioeconomic Status Effect on Academic Achievement

Socioeconomic status is a term applied to an individual or group in which education, income, and occupation are considered to determine social standing or class (American Psychological Association, 2018). Hart and Risely (1995) conducted a study of children from different SES backgrounds to analyze academic achievement and disparity in linguistics. The researchers observed seven-month-old children from 42 families for two and a half years and tracked monthly growth in the vocabulary and grammatical structures used by the children. Hart and Risely (1995) found that at the age of three, children from professional families had a vocabulary double the size as children from families receiving welfare.

Hurley (1995) investigated the effect of a student's quality of school life on their academic achievement. The study involved 10,146 eighth-grade Newfoundland students. Each student's scores on the Canadian Test of Basic Skills and the Bulcock Attitudinal Inventory (BAI) were analyzed. BAI is a test that measures a student's attitude toward school. Hurley (1995) found a student's language score was indicative of a student's reading and mathematics achievement. Additionally, the higher the SES of a student, the higher the mathematics achievement of a student (Hurley, 1995).

Duncan, Yeung, Brooks-Gunn, and Smith (1998) studied the effect of childhood poverty on life chances of children. Data for the analysis were pulled from the Panel Study of Income Dynamics. The participants in the study were 1,323 individuals in their

20s who were born between 1967 and 1973. The researchers found that SES had the largest correlation with a child's academic ability and achievement, specifically for early and middle childhood age children.

In 2005, Chiu and Khoo conducted a study to investigate how resources and distribution inequality, combined with biases toward privileged students, affected academic achievement. The study participants included 15-year-old students from 41 countries. Academic achievement scores were gathered for mathematics, reading, and science in addition to responses from a self-completed student questionnaire. The researchers conducted multilevel regression analyses to analyze the data. Results showed the resources in a student's country, family, or school related to the academic achievement for the student; the greater the number of resources, the higher the academic achievement (Chiu & Khoo, 2005). Additionally, parent SES affected student academic achievement. "Students averaged 4 points higher per extra 10% in highest parent job status rating and 2 points higher per 10% increase in years of education among students' mothers" (Chiu & Khoo, 2005, p. 587). Although the number of years of parent schooling for mothers significantly impacted student academic achievement, the number of years of parent schooling for fathers did not significantly impact student academic achievement.

Byrnes and Ruby (2007) conducted a study of the academic achievement of students enrolled in traditional middle schools compared to students enrolled in K-8 schools. The researchers analyzed achievement data from 40,883 eighth-grade students enrolled in 95 schools and grouped students by cohort. One conclusion drawn from the study was students of low SES displayed lower academic achievement due to a lack of

resources in school, less stable home lives, and disadvantaged neighborhoods. According to the National Center for Children in Poverty (2019),

> About 15 million children in the U.S.—21% of all children—live in families with incomes below the federal poverty threshold, a measurement that has been shown to underestimate the needs of families. Research shows that, on average, families need an income of about twice that level to cover basic expenses. Using this standard, 43% of children live in low-income families. (para. 1)

Commonly, a student's free and reduced-price lunch status is used by schools as a way to denote a student's SES. Students who are designated as receiving free and reduced-price lunch reflect the participation of a family in the program as opposed to the eligibility of a family in the program (Dickinson & Adelson, 2014). Free and reduced-price lunch designation reflects one element of SES, family income (Dickinson & Adelson, 2014).

Hackman and Farah (2009) found in a metanalysis of neuroscience studies that "childhood socioeconomic status is associated with cognitive achievement throughout life and is an important predictor of neurocognitive performance, particularly in language and executive function" (para. 1). SES predicts differences in a child's health, physical, mental, and life stress. Additionally, SES predicts a child's cognitive ability (Hackman & Farah, 2009). Cognition is a person's ability to think, reason, understand, learn, and remember (LearningRx, 2003). The brain uses each of these abilities to process new information and carry out daily tasks (LearningRx, 2003). Hackman and Farah (2009) received grants from the Office of Naval Research and National Institutes of Health and participated in a fellowship through the American-Scandinavian Foundation to explore the effect of SES on developing brains. Hackman & Farah found the SES of children

greatly impacts their language ability and affects a child's vocabulary, phonological awareness, and syntax. "Early poverty is a better predictor of later cognitive achievement than poverty in middle- or late- childhood" (Hackman & Farah, 2009, para. 20) because of its impact on brain development and function.

Misewicz (2014) sought to investigate the effects of supplemental educational services on student academic achievement in reading and mathematics. The study involved the incorporation of reading and mathematics scores of third-, fourth-, and fifth-grade students from the Title I elementary schools that failed to meet AYP in a South Florida school district during the 2011-2012 school year. Of the 20,000 students eligible to receive supplemental educational services through their free and reduced-price lunch status, the experimental group consisted of 2,811 elementary students who opted to receive the services, while the control group consisted of students eligible for services but opted out of receiving them. Misewicz examined student reading and mathematics performance on the Florida Comprehensive Assessment Test (FCAT) and found no statistical difference in fourth- and fifth-grade student performance between those receiving supplemental educational services and those who were not. However, third-grade student reading and mathematics performance on the FCAT for students receiving supplemental education services was significantly lower than the reading and mathematics performance on the FCAT for students not receiving supplemental education services. Misewicz (2014) concluded that supplemental education services provided through the school are not enough to address the academic achievement gap between students from poverty and students from affluent families.

Wright and Slate (2015) conducted a study of middle school students in Texas in which they examined critical-thinking skills among students who were or were not economically disadvantaged. The data included the TAKS Reading assessment results from over one million students in sixth-, seventh-, and eighth-grade to measure academic achievement. Wright and Slate found students who were economically disadvantaged significantly underperformed students who were not. "Students who are raised in upper income families have parents that are increasingly focusing their resources – their money, time and knowledge of what it takes to be successful in school – on their children's cognitive development and educational success" (Wright & Slate, 2015, p. 354).

Nonoyama-Tarumi, Hughes, and Willms (2015) investigated the effects of family background and school resources on the academic achievement of fourth-grade students. The researchers included in the study fourth-grade students from 50 countries and utilized data from the 2011 Trends in International Mathematics and Science Study. The results of the study indicated the achievement gap between low and high SES families is smaller in low-income countries while greater in higher-income countries. Low-income countries had overall lower student academic achievement than higher-income countries. Additionally, the researchers noticed that regardless of a country's income level, the effects of family background were stronger than the effects of school resources and teacher quality on student academic achievement. Family background included parental education and parental occupation.

Basque and Bouchamma (2016) sought to explore the impact a student's prior achievement, SES, and school practices had on eighth-grade mathematics achievement. They used 1,977 eighth-grade MATH8 assessments administered in New Brunswick,

New Jersey, and found that prior achievement was significant in explaining eighth-grade student achievement in mathematics. Basque and Bouchamma explained that content knowledge acquired by the students before eighth-grade was strongly associated with how easily they learned new content. Prior mathematics achievement highlights the importance of timely differentiated interventions for struggling students. Providing intervention support for students is a factor in overcoming negative mathematics achievement outcomes over time (Basque & Bouchamma, 2016). The researchers also found SES was a significant variable in connection with mathematics achievement; however, it was less significant than prior achievement. The researchers stated these findings were promising because they confirmed the need for school leaders and teachers to identify struggling mathematics learners and implement targeted interventions at an earlier age for students to further their academic development and achievement (Basque & Bouchamma, 2016). Schools must address the readiness gap of high and low SES students to close the achievement gap between these groups of students. The findings of Basque and Bouchamma's study confirmed Fullan's (2003) ideas that schools need to develop new strategies for early identification of student need and develop early interventions ultimately to reduce the gap between high and low performers. Fullan encouraged a focus on the system to alter and improve the learning conditions in schools.

Academic Achievement: Title I vs Non-Title I

Studies have been conducted to explore the relationship between student academic achievement and money allocated to disadvantaged or at-risk students as well as the performance levels of Title I and non-Title I schools in states across the country (McCorvey-Watson, 2012). Jones (1979) investigated the effects of ESEA Title I

supplementary services provided to educationally disadvantaged students enrolled in the San Juan Unified School District. From 1975 to 1979, Jones studied the districtwide Iowa Test of Basic Skills (ITBS) scores in the areas of vocabulary, reading comprehension, mathematics conceptualization, and mathematics computation. Each year, an analysis of the scores was completed. Over the three-year period, there was a significant difference in the achievement trends of students receiving supplementary Title I services. Title I students showed gradual upward academic performance trends, 40% of Title I students raised their comprehension scores to about the 40th percentile after exposure to the supplementary Title I services. Non-Title I students showed a decline or remained in a lower academic performance trend, 30% of students not receiving supplementary Title I services were able to reach above the 40th percentile in reading comprehension (Jones, 1979).

Several years later, Gates (1982) conducted a study comparing the academic gains in reading compared to mathematics made by fourth-, fifth-, and sixth-grade students enrolled in a Title I school over a two-year period. School districts were identified for participation by the Pennsylvania Department of Education Title I Office. Gates found that students who received Title I services showed significant growth in reading during year two of the study. However, during the two-year study, mathematics growth was greater overall than reading growth for students receiving Title I services. Additionally, the results of the study indicated that student scores showed the most growth during the fifth-grade year (Gates, 1982).

Carter (1983) investigated factors such as the nature of an elementary student's home environment, the amount and kind of instructional services available at each school

type, the instructional settings in the elementary schools, characteristics of elementary teachers, and how effective compensatory education is for the students receiving those additional services. Carter studied these variables through a longitudinal study assessing the academic achievement of students enrolled in high-poverty schools for three consecutive years and compared student SES, educational needs, and instructional services received. Additionally, Carter analyzed the cost-effectiveness of resources and services students received in the area of reading and mathematics, as well as the effectiveness of summer school. Carter used regression analysis and causal modeling and found that the relationships were not statistically significant and were not strong enough to clearly guide policy, but suggested the variables examined in the study were strong indicators of student academic achievement.

Rose (1984) analyzed and compared the reading and mathematics scaled scores from the California Achievement Test (CAT). Teachers reported reading and mathematics grades and instructional levels in reading and mathematics for 50 sixth-grade students enrolled in a Title I inner-urban school, and 50 sixth-grade students enrolled in a non-Title I inner-urban school. All participants from the Title I school had participated in a Title I program for two years, while the sample of non-Title I students were randomly selected from the schools. Rose found the non-Title I students performed significantly better on the CAT reading as well as in teacher-reported reading and mathematics instructional levels. However, there were no significant differences in teacher-reported grades in reading and mathematics between both sample populations. Title I students had significantly higher scores on the CAT mathematics assessment. Rose concluded from the test results that Title I students did demonstrate gain, although

not at the level of their non-Title I peers, and that other factors may have influenced the achievement of Title I students. Rose referenced Carter (1983) to detail the factors that may influence Title I student achievement.

Academic achievement and supplemental or compensatory instructional services continued to be researched and analyzed, specifically in relation to school use of Title I funds. In 2005, Scott sought to determine if there was a significant difference between Title I and non-Title I East Tennessee schools in the areas of reading and mathematics by using fourth-grade TerraNova reading/language and mathematics scores. Fourth-grade student data was disaggregated by gender, SES, and student disability. Scott found that students enrolled in non-Title I schools scored higher than students enrolled in Title I schools in both reading and mathematics. Interestingly, female students enrolled in Title I schools scored higher than their male counterparts enrolled in Title I schools in reading. However, there was no significant difference in the mathematics scores by gender. Additionally, students with disabilities attending non-Title I schools out-performed students with disabilities attending Title I schools in the area of reading (Scott, 2005).

The Criterion Reference Competency Test (CRCT) was used by Bland-Washington (2010) to determine if there was a difference in fourth-grade scores for students enrolled in Title I and Non-Title I schools in a West Georgia school district. Bland-Washington analyzed the 2009 CRCT reading and mathematics scores and found that students enrolled in non-Title I schools outperformed their counterparts in Title I schools in both reading and mathematics. However, upon disaggregating the data by SES, economically disadvantaged students enrolled in Title I schools performed relatively similar to economically disadvantaged students enrolled in non-Title I schools

"despite the additional funding and resources given to the Title I funded school" (Bland-Washington, 2010, p. 4). The additional resources given to the Title I funded schools included supportive services. Supportive services assisted students with academic subjects in which they were deficient.

Heier (2011) conducted a study similar to that of Bland-Washington. Heier investigated whether federal funding spent on Title I programs were having the anticipated positive impact on student academic achievement. Heier utilized the 2008-2009 TAKS reading and mathematics scores from 1,639 students enrolled in fourth-grade across 21 elementary schools in a suburban North Texas school district. Of the 1,639 fourth-grade students, 872 or 53.2% were participants in the federal free and reduced-price lunch program and were considered economically disadvantaged in this study. Fifteen schools in the district were Title I schools, while six were non-Title I schools. The analysis of the academic performance data showed a significant difference between fourth-grade students enrolled in Title I schools and fourth-grade students enrolled in non-Title I schools. The mean scores in both reading and mathematics of Title I schools were less than those of non-Title I schools by 5.4 percentage points in reading and 5.3 percentage points in mathematics. Heier also compared the performance of economically disadvantaged fourth-grade students enrolled in both school types and found there was not a significant difference in academic performance between this student subgroup. Heier questioned the effectiveness of Title I funding in addressing the academic needs of economically disadvantaged students in Title I schools compared to non-Title I schools.

Graham (2011) analyzed the impact of Title I targeted assistance and schoolwide Title I model on academic achievement of third-, fourth-, and fifth-grade students

enrolled in eight elementary schools in South Carolina. Four of the eight schools implemented a Title I targeted assistance model, while four schools implemented a Title I schoolwide model. Graham further disaggregated the data by race and gender in both school types. Graham concluded there was a significant difference in the academic achievement in third-grade reading and fifth-grade math in which the targeted assistance model schools performed better than the school-wide model schools. Additionally, Graham found third- and fifth-grade females outperformed their male counterparts. Race also significantly affected student achievement. White students enrolled in both school types outperformed their African-American and Hispanic counterparts (Graham, 2011).

Title I funding is allocated to provide equity for schools with high populations of educationally disadvantaged students (Snyder & Dinkes, 2019). Herrin (2011) conducted a study to measure the impact of school eligibility for Title I funding on student academic achievement growth. The two schools selected for the study had similar numbers and percentages of students who were English language learners, received free and reduced-price lunch, and were ethnic minorities. Although both schools qualified for Title I funding, Herrin (2011) analyzed the difference between the academic growth of students enrolled in both schools while one school continued receiving Title I funding, and the other did not. The results of the study indicated there were no significant differences in the mean scores of students at both schools in the area of English language arts and mathematics by the end of year three of the study. In addition to studying the overall academic growth between students enrolled in both school types, Herrin analyzed the achievement gap between student populations within each school. The achievement gap between student populations at the school who continued to receive Title I funds

narrowed in both English language arts and mathematics but was not statistically significant when compared to the achievement gap between student populations at the school not receiving Title I funds (Herrin, 2011).

Studies have also been conducted at middle schools to examine Title I and non-Title I student academic achievement. Palk (2011) investigated the effectiveness of Title I funds in improving the academic achievement of middle school students in the state of Tennessee over two years, 2008-2009 and 2009-2010. Tennessee Comprehensive Assessment Program (TCAP) scores in the area of reading and mathematics were used to compare the academic achievement of students enrolled in 20 Title I schools and students enrolled in 20 non-Title I schools. Palk also analyzed the variables of gender and SES of students within the study. The results showed there was no significant difference in student TCAP scores in reading and mathematics between students enrolled in a Title I school, and students not enrolled in a Title I school. Also, there was no significant difference between the academic achievement of students based on gender and SES in both school types.

McCorvey-Watson (2012) conducted a study to measure the difference in academic achievement between Title I and non-Title I fourth-grade students enrolled in 57 schools in three Central Mississippi school districts. The school districts were ones in which the teachers had received professional development in the area of differentiated instruction before the study began. The results of McCorvey-Watson's (2012) study showed no significant difference between the academic achievement scores of fourth-grade students enrolled in Title I versus students enrolled in non-Title I schools. McCorvey-Watson utilized the results of this study to launch a larger project in which she

also researched, planned, and delivered professional development to teachers in the area of differentiated instruction as a means to address the academic achievement gap of socioeconomically disadvantaged students.

Headen (2014) conducted a study from 2004 to 2013 to analyze the difference, over time, of fourth-grade reading and mathematics standardized test scores. Fourth graders involved in the study attended Title I and non-Title I schools in District 8 of North Alabama. The results of the study showed that the academic achievement of students enrolled in non-Title I schools during 2004, 2008, and 2013 outperformed their Title I peers. Although White students outperformed African-American students, the achievement gap between these two student groups decreased over time and each year of the study. Between the years 2008 and 2012, African-American students had the "sharpest increase in performance" (Headen, 2014, p. ii). Additionally, the researcher determined that female students consistently outperformed male students in both reading and mathematics, regardless of Title-I school status (Headen, 2014).

A majority of the research focuses on Title I versus non-Title I schools and SES of students in relation to academic achievement. Ervins (2016) studied whether there was a correlation between school type, the State of Texas Assessments of Academic Readiness (STAAR) mathematics students' scaled scores, and student race or ethnicity. Through studying seventh- and eighth-grade students enrolled in 75 Title I and non-Title I schools in Texas, Ervins found consistent results with other studies; if a school is classified as Title I, male students have a lower average mathematics scaled score on the STAAR test. Additionally, Ervins found that regardless of school classification, the higher the percentage of male students on campus, the lower the average mathematics

score on the STAAR test. Finally, Ervins found the higher the Hispanic and African-American student percentage on campus, the lower the average STAAR mathematics score. These findings supported Brown-Jeffy's (2008) findings that "schools with larger percentages of Black and Hispanic students also are more likely to be urban public institutions having a higher percentage of students that are from socioeconomically disadvantaged background" (p. 391) and "are likely to possess a weaker academic climate, have lower expectations of their students, and offer fewer advanced courses" (p. 391).

The federal Title I program was established to provide monetary support to schools that had high rates of children from disadvantaged homes. The purpose of the monetary support was to ensure that students in Title I schools would have comparable academic outcomes to children enrolled in non-Title I schools (Ross, 2016). A study was conducted by Ross (2016) in which he analyzed the extent the type of school, Title I or non-Title I, influenced 2,929 third-grade students' reading and mathematics scores in a Georgia suburban school district during the 2013-2014 school year. Additionally, he disaggregated the data by gender, race, and SES to determine if there was a correlation with reading and mathematics proficiency scores. The results of the study indicated non-Title I schools had significantly higher reading and mathematics scores than Title I schools. In the study, Asian students performed significantly higher in mathematics than all other racial groups. Independent of school type, both Asian and White students performed significantly higher in reading than African-American students. All students enrolled in the non-Title I schools performed higher than students of their same race enrolled in Title I schools (Ross, 2016).

In efforts to investigate the impact Title I funding and resources had on schoolwide Title I schools in South Dakota, Cronin (2017) compared the reading and mathematics standardized testing data of students from 48 elementary schools, each school year, from 2008-2009 through 2012-2013. Cronin (2017) found there was no significant difference over time on student standardized test scores in the area of reading. However, there was a significant difference in the increase in student standardized test scores in the area of mathematics.

Anderson (2017) completed a study of third- and fifth-grade urban African-American students who attended different types of schools. School classifications were science, technology, engineering, and mathematics (STEM), non-STEM, and Title I science and mathematics theme schools. Anderson tested the impact of SES percent, using free and reduced-price lunch rates, on academic success in the areas of science and mathematics. Anderson used third-grade and fifth-grade science and mathematics scores from the Georgia Milestones Assessment to compare the academic performance of low SES students. The researcher observed a positive correlation between the smaller the population of students receiving free and reduced-price lunch with an overall higher academic achievement in the areas of mathematics and science for students enrolled in the school. Additionally, Anderson (2017) observed the larger the population of students receiving free and reduced-price lunch, the lower the overall academic achievement of students enrolled in the school in the areas of mathematics and science.

Slamowitz (2018) further studied the academic achievement gap of students enrolled in elementary and middle school. Data were gathered from 10,564 third- through eighth-grade students enrolled in a suburban southwest school district in Arizona.

The reading and mathematics proficiency scores from the 2017 Arizona's Measurement of Educational Readiness to Inform Teaching scores were analyzed in the study. Results were interesting as they did not remain consistent from elementary to middle school. At the elementary level, there was a significant difference in the proficiency scores of low SES students in both English language arts and mathematics between Title I and non-Title I schools. There were no significant differences between students' scores in both English language arts and mathematics between Title I and non-Title I middle schools; however, there was a significant difference when looking specifically at the low SES student subgroup. The low SES student subgroup showed a significant achievement gap in English language arts between those enrolled in Title I schools and those enrolled in non-Title I schools (Slamowitz, 2018).

The learning gap between students of different SES in connection with the purpose of Title I funding and programming was analyzed by Simmons (2018). To determine if there was a significant difference between student reading success and the type of school, Title I or non-Title I, a student attended, Simmons used aggregated reading scores from state-mandated assessments from schools in the South-Central United States. The study consisted of 73 Title I and 73 non-Title I schools. Simmons found there was a relationship between the school type and student reading proficiency for low SES students. Specifically, Simmons found that low SES students attending non-Title I schools performed significantly higher than low SES students attending Title I schools (Simmons, 2018).

Anderson (2019) studied a specific racial and gender group and their academic achievement in Title I versus non-Title I schools. Participants in the study were third-,

fourth-, and fifth-grade African-American male students enrolled in Title I and non-Title I schools within a large suburban school district in the Southeastern United States during the 2016-2017 school year. Student scores in the areas of reading comprehension and mathematics from end of grade assessments were used in the study to determine whether the school type was helping to close the achievement gap for African-American males. The researcher found there were twice as many African-American male students enrolled in Title I schools as opposed to non-Title I schools. Additionally, there was a statistically significant difference in the academic achievement of African-American males enrolled in Title I and non-Title I schools. African-American males enrolled in the Title I elementary schools performed lower on both reading comprehension and mathematics than African-American males enrolled in non-Title I schools (Anderson, 2019).

In a study conducted by Darden (2019), the relationship between school performance and the receipt of Title I funding was examined as well as to what extent a district's allocation of Title I funds served as a predictor of school performance. Title I elementary and secondary schools from two school districts in Georgia with similar demographics were included in the study. Student scores on the Criterion-Referenced Competency Test and Georgia High School Graduation Test from 2009, 2010, and 2011 were analyzed. The researcher found that the variable, Title I categorical funds, did not have a significant impact on school performance and could not predict a school's performance. The researcher also conducted interviews with leaders at the building and district level as to the impact of Title I funding on a school's performance and whether a school met or did not meet AYP. The researcher found that all school leaders felt Title I funding was essential and helped with the improvement of instruction and parental

engagement. The impact of these funds on school performance was not statistically significant (Darden, 2019).

Summary

Researchers have analyzed the academic achievement of students attending Title I and non-Title I schools to determine whether funding and programming are helping to close the achievement gap among students. The review of literature has detailed the existence of the academic achievement gap and the response from the federal government and local school districts to closing the gap. Additionally, research has shown inconsistent findings related to the academic achievement of low SES students in relation to their enrollment in Title I and non-Title I schools. Chapter 3 includes the research methods utilized in this study.

Chapter 3

Methods

The first purpose of this study was to determine whether there is a difference in third-, fourth-, and fifth-grade student fall to spring growth in reading and mathematics between students enrolled in a school receiving Title I funds and students enrolled in a school not receiving Title I funds. The second purpose of this study was to determine whether the difference between third-, fourth-, and fifth-grade student fall to spring growth in reading and mathematics between students enrolled in a school receiving Title I funds and students enrolled in a school not receiving Title I funds is affected by student SES. Chapter 3 includes the research design, selection of participants, and measurement. The measurement section addresses the instrumentation and the reliability and validity of the measurement tools. Also, this chapter includes a description of the data collection procedures, hypothesis testing and data analysis, and the limitations of the study.

Research Design

The current study involved the use of a causal-comparative design to compare the academic growth in reading and mathematics of third-, fourth-, and fifth-grade students enrolled in a school receiving Title I funds and students enrolled in a school not receiving Title I funds in the same public school district. A causal-comparative design was the best research method to use in the current study to determine if there is a relationship between the independent and dependent variables after the testing windows had already occurred (Salkind, 2010). The schools in the study were disaggregated by school type (receiving Title I funds, not receiving Title I funds). Students were disaggregated by SES (student receiving free and reduced-price lunch, student not receiving free and reduced-price

lunch). The dependent variables in the study were academic growth in reading and mathematics RIT scores, as measured by the difference between the NWEA MAP RIT fall and spring scores. To determine a difference between student academic growth at non-Title and Title I schools based on SES, the independent variables used were SES (free and reduced-price lunch, non-free and reduced-price lunch) and type of elementary school (Title I and non-Title I).

Selection of Participants

The population for this study was upper elementary students in the state of Missouri attending suburban public schools. A purposive sample of all third-, fourth-, and fifth-grade students enrolled in District A during the 2017-2018 school year was selected. The criteria to be included in the sample were being an upper elementary student in District A and having both a fall and spring RIT score on the reading and mathematics sections of the NWEA MAP. Any student who did not have a fall and spring NWEA MAP score was not included in the analysis for that particular content area.

Measurement

The NWEA MAP assessment is a nationally norm-referenced assessment that focuses on student growth (NWEA, 2017). The assessment measures student academic growth by using the fall assessment score as a baseline. The RIT score is the scale used to measure student progress (NWEA, 2017). Each RIT score provides a specific point in which a child is on the continuum of learning, which aligns with the Missouri Learning Standards across all grade levels. The RIT score details what standards students are ready to learn and which standards they need to continue developing to progress towards

mastery, regardless of their grade level or age. Student RIT scores determine academic achievement based on the continuum of Missouri Learning Standards (NWEA, 2017).

The NWEA MAP reading and mathematics assessment RIT scores were used for this study. All students in the sample completed each assessment within the district assessment periods. Since this study was conducted to examine student growth during one school year, the fall assessment window RIT scores were used as the beginning of year scores, and the spring assessment window RIT scores were used as the end of year assessment scores. The NWEA MAP is a computer-adaptive assessment in which the difficulty level of each subsequent question on the test is adjusted based on the student response (NWEA, 2017). Student responses also determine the number of questions they are required to answer to complete the assessment. Valid NWEA MAP RIT scores range between a minimum of 100 to a maximum of 350 (NWEA, 2017). Student growth scores are determined by subtracting the fall RIT score from the spring RIT score.

The NWEA MAP assessments were tested for validity by aligning questions to the state content standards and using the Pearson correlation coefficient (*r*) to measure the concurrent validity of tests administered within three weeks of each other (NWEA, 2018b). An acceptable concurrent validity measurement is a correlation coefficient of .80 or higher, and 1.00 is a perfect correlation. Table 4 shows the concurrent validity measures of how closely the scores from the NWEA MAP assessment correspond to the scores obtained from the Stanford Achievement Test 9th Edition for students in Grades 3, 4, and 5 (NWEA, 2018b). The correlation coefficient ranges between .85 and .87, showing strong evidence for the validity of the NWEA MAP assessment.

Table 4

Concurrent Validity of Stanford Achievement Test, 9th Edition

	Reading		Mathematics	
	r	*n*	*r*	*n*
Grade 3	.87	7,840	.85	7,878
Grade 4	.87	7,771	.85	7,929
Grade 5	.86	7,724	.87	7,794

Note. Adapted from *NWEA Reliability and Validity Estimates: Achievement Level Tests and Measures of Academic Progress*, by NWEA, 2018b. Retrieved from http://www.nwea.org/assets/research/NWEA%20Reliability%20&%20Validity.pdf

The reliability of the NWEA MAP assessment was tested using test-retest. A Pearson correlation coefficient of .85 is acceptable when measuring reliability (NWEA, 2004). The reliability of each assessment is above .85 for the NWEA MAP reading and mathematics assessments. Table 5 shows the test-retest measures of third-, fourth-, and fifth-grade students taking the reading and mathematics sections of the NWEA MAP assessment.

Table 5

Test-Retest NWEA Norms Study 1999

		Grade Level		
Content Area		3	4	5
Reading	*r*	.89	.90	.91
	N	50,241	50,782	52,507
Mathematics	*r*	.87	.90	.91
	N	50,536	51,322	53,357

Note. Adapted from *NWEA Reliability and Validity Estimates: Achievement Level Tests and Measures of Academic Progress,* by NWEA, 2018b. Retrieved from http://www.nwea.org/assets/research/NWEA%20Reliability%20&%20Validity.pdf

The determination for schools to receive Title I funding from the district was based on the percentage of low SES students enrolled in each school, as determined by the number of students receiving free and reduced-price lunch. A building with a percentage of students receiving free and reduced-price lunch above the district average of 27.1% (District A director of elementary education, personal communication, July 20, 2018) was designated as Title I for this study. Student SES (free and reduced-price lunch, non-free and reduced-price lunch rates) was determined by the school lunch application families complete each year. SES information is kept by the district.

Data Collection Procedures

A research checklist and approval application was submitted to the District A executive director of quality and evaluation and was approved on July 19, 2018, pending Baker Institutional Review Board (IRB) approval (see Appendix A). Then, a proposal for research was submitted to the Baker University IRB and was approved on April 9,

2019 (see Appendix B). District A received the Baker IRB approval and authorized the request for data on August 7, 2019 (see Appendix C).

District A's executive director of quality and evaluation provided fall and spring RIT scores of all third-, fourth-, and fifth-grade students enrolled in District A during the 2017-2018 school year. The data were disaggregated by the elementary school in which the student was enrolled, student grade level, and student socioeconomic status. SES information kept by the district was matched to NWEA MAP scores to identify student subgroups. Once the data were compiled in Microsoft Excel, the data were studied for accurateness. The data were then imported into IBM SPSS Statistics Faculty pack 25 for PC for data analysis.

Data Analysis and Hypothesis Testing

Quantitative methods of data analysis were used in the current study. The six research questions, corresponding hypotheses, and methods for statistical analysis are provided below.

RQ1. To what extent is there a difference in third-grade student growth from fall to spring on the NWEA MAP reading and mathematics assessments between students enrolled in a school receiving Title I funds and students enrolled in a school not receiving Title I funds?

***H1*.** There is a statistically significant difference in third-grade student growth from fall to spring on the NWEA MAP reading assessment between students enrolled in a school receiving Title I funds and students enrolled in a school not receiving Title I funds.

A two-factor analysis of variance (ANOVA) was conducted to test H1 and H3. The two categorical variables used to group the dependent variable, fall to spring growth on the reading section of the NWEA MAP assessment, were school funding status (Title I, non-Title I) and SES (free and reduced-price lunch, non-free and reduced-price lunch). The results of the two-factor ANOVA can be used to test for differences in the means for a numerical variable among three or more groups, including a main effect for school funding status, a main effect for SES, and a two-way interaction effect (School Funding Status x SES). The main effect for school funding status by SES was used to test H1. The level of significance was set at .05. When appropriate, an effect size, as indexed by *eta squared*, is reported.

***H2*.** There is a statistically significant difference in third-grade student growth from fall to spring on the NWEA MAP mathematics assessment between students enrolled in a school receiving Title I funds and students enrolled in a school not receiving Title I funds.

A second two-factor ANOVA was conducted to test H2 and H4. The two categorical variables used to group the dependent variable, fall to spring growth on the mathematics section of the NWEA MAP assessment, were school funding status (Title I, non-Title I) and SES (free and reduced-price lunch, non-free and reduced-price lunch). The results of the two-factor ANOVA can be used to test differences in the means for a numerical variable among three or more groups, including a main effect for school funding status, a main effect for SES, and a two-way interaction effect (School Funding Status x SES). The main effect for school funding status by SES was used to test H2.

The level of significance was set at .05. When appropriate, an effect size, as indexed by *eta squared,* is reported.

RQ2. To what extent is the difference in third-grade student growth from fall to spring on the NWEA MAP reading and mathematics assessments between students enrolled in a school receiving Title I funds and students enrolled in a school not receiving Title I funds affected by student SES?

H3. The difference between third-grade student growth from fall to spring on the NWEA MAP reading assessment between students enrolled in a school receiving Title I funds and students enrolled in a school not receiving Title I funds is affected by student SES.

The interaction between school funding status and SES from the first ANOVA was used to test H3. The level of significance was set at .05. When appropriate, an effect size, as indexed by *eta squared,* is reported.

H4. The difference between third-grade student growth from fall to spring on the NWEA MAP mathematics assessment between students enrolled in a school receiving Title I funds and students enrolled in a school not receiving Title I funds is affected by student SES.

The interaction between school funding status and SES from the second ANOVA was used to test H4. The level of significance was set at .05. When appropriate, an effect size, as indexed by *eta squared,* is reported.

RQ3. To what extent is there a difference in fourth-grade student growth from fall to spring on the NWEA MAP reading and mathematics assessments between students

enrolled in a school receiving Title I funds and students enrolled in a school not receiving Title I funds?

H5. There is a statistically significant difference in fourth-grade student growth fall to spring on the NWEA MAP reading assessment between students enrolled in a school receiving Title I funds and students enrolled in a school not receiving Title I funds.

A third two-factor ANOVA was conducted to test H5 and H7. The two categorical variables used to group the dependent variable, fall to spring growth on the reading section of the NWEA MAP assessment, were school funding status (Title I, non-Title I) and SES (free and reduced-price lunch, non-free and reduced-price lunch). The results of the two-factor ANOVA can be used to test for differences in the means for a numerical variable among three or more groups, including a main effect for school funding status, a main effect for SES, and a two-way interaction effect (School Funding Status x SES). The main effect for school funding status by SES was used to test H5. The level of significance was set at .05. When appropriate, an effect size, as indexed by *eta squared*, is reported.

H6. There is a statistically significant difference in fourth-grade student growth from fall to spring on the NWEA MAP mathematics assessment between students enrolled in a school receiving Title I funds and students enrolled in a school not receiving Title I funds.

A fourth two-factor ANOVA was conducted to test H6 and H8. The two categorical variables used to group the dependent variable, fall to spring growth on the math section of the NWEA MAP assessment, were school funding status (Title I, non-

Title I) and SES (free and reduced-price lunch, non-free and reduced-price lunch). The results of the two-factor ANOVA can be used to test for differences in the means for a numerical variable among three or more groups, including a main effect for school funding status, a main effect for SES, and a two-way interaction effect (School Funding Status x SES). The main effect for school funding status by SES was used to test H6. The level of significance was set at .05. When appropriate, an effect size, as indexed by *eta squared*, is reported.

RQ4. To what extent is the difference in fourth-grade student growth from fall to spring on the NWEA MAP reading and mathematics assessments between students enrolled in a school receiving Title I funds and students enrolled in a school not receiving Title I funds affected by student SES?

H7. The difference between fourth-grade student growth from fall to spring on the NWEA MAP reading assessment between students enrolled in a school receiving Title I funds and students enrolled in a school not receiving Title I funds is affected by student SES.

The interaction between school funding status and SES from the third ANOVA was used to test H7. The level of significance was set at .05. When appropriate, an effect size, as indexed by *eta squared*, is reported.

H8. The difference between fourth-grade student growth from fall to spring on the NWEA MAP mathematics assessment between students enrolled in a school receiving Title I funds and students enrolled in a school not receiving Title I funds is affected by student SES.

The interaction between school funding status and SES from the fourth ANOVA was used to test H8. The level of significance was set at .05. When appropriate, an effect size, as indexed by *eta squared*, is reported.

RQ5. To what extent is there a difference in fifth-grade student growth from fall to spring on the NWEA MAP reading and mathematics assessments between students enrolled in a school receiving Title I funds and students enrolled in a school not receiving Title I funds?

***H9*.** There is a statistically significant difference in fifth-grade student growth from fall to spring on the NWEA MAP reading assessment between students enrolled in a school receiving Title I funds and students enrolled in a school not receiving Title I funds.

A fifth two-factor ANOVA was conducted to test H9 and H11. The two categorical variables used to group the dependent variable, fall to spring growth on the reading section of the NWEA MAP assessment, were school funding status (Title I, non-Title I) and SES (free and reduced-price lunch, non-free and reduced-price lunch). The results of the two-factor ANOVA can be used to test for differences in the means for a numerical variable among three or more groups, including a main effect for school funding status, a main effect for SES, and a two-way interaction effect (School Funding x SES). The main effect for school funding status by SES was used to test H9. The level of significance was set at .05. When appropriate, an effect size, as indexed by *eta squared*, is reported.

***H10*.** There is a statistically significant difference in fifth-grade student growth from fall to spring growth on the NWEA MAP mathematics assessment between students

enrolled in a school receiving Title I funds and students enrolled in a school not receiving Title I funds.

A sixth two-factor ANOVA was conducted to test H10 and H12. The two categorical variables used to group the dependent variable, fall to spring growth on the mathematics section of the NWEA MAP assessment, were school funding status (Title I and non-Title I) and SES (free and reduced-price lunch, non-free and reduced-price lunch). The results of the two-factor ANOVA can be used to test for differences in the means for a numerical variable among three or more groups, including a main effect for school funding status, a main effect for SES, and a two-way interaction effect (School Funding x SES). The main effect for school funding status by SES was used to test H10. The level of significance was set at .05. When appropriate, an effect size, as indexed by *eta squared*, is reported.

RQ6. To what extent is the difference in fifth-grade student growth from fall to spring on the NWEA MAP reading and mathematics assessments between students enrolled in a school receiving Title I funds and students enrolled in a school not receiving Title I funds affected by student SES?

H11. The difference between fifth-grade student growth from fall to spring on the NWEA MAP reading assessment between students enrolled in a school receiving Title I funds and students enrolled in a school not receiving Title I funds is affected by student SES.

The interaction between school funding status and SES from the fifth ANOVA was used to test H11. The level of significance was set at .05. When appropriate, an effect size, as indexed by *eta squared*, is reported.

H12. The difference between fifth-grade student growth from fall to spring on the NWEA MAP mathematics assessment between students enrolled in a school receiving Title I funds and students enrolled in a school not receiving Title I funds is affected by student SES.

The interaction between school funding status and SES from the sixth ANOVA was used to test H12. The level of significance was set at .05. When appropriate, an effect size, as indexed by *eta squared*, is reported.

Limitations

Limitations of a study are factors that the researcher has no control over in the study (Lunenburg & Irby, 2008). The following limitations must be considered regarding this study partially because the 2017-2018 school year was the first year of NWEA MAP administration in District A:

- Although District A provided all teachers with professional development on specific procedures for administering the NWEA MAP assessment, administration of each assessment may have varied depending on the student's school and teacher.
- Students identified to receive a read-aloud accommodation on the mathematics section may not have received it during all assessment windows due to technical issues with the assessment working with Read&Write literacy software used to provide the read-aloud accommodation (District A elementary principal, personal communication, December 12, 2017).
- The NWEA MAP data reports available include access to a continuum of learning skills that correspond to the RIT score of each student. The current

study did not survey teachers as to whether the assessment data was used to inform classroom instruction.

- Students with both fall and spring assessment data were included in the sample; this may impact transient populations being represented accurately in the study.

Summary

Methodology for the current study was addressed in this chapter through the research design, selection of participants, measurement, data collection procedures, data analysis and hypothesis testing, and limitations of the current study. Data were then analyzed using SPSS to conduct two-factor ANOVAs. In Chapter 4, a discussion of the results of the data analysis is provided.

Chapter 4

Results

The purpose of the study was to determine if there is a difference in third-, fourth-, and fifth-grade students fall to spring growth on the reading and mathematics sections of the NWEA MAP assessment between schools in District A receiving Title I funds and schools not receiving Title I funds. The second purpose of the study was to determine, to what extent, the different in third-, fourth-, and fifth-grade student growth from fall to spring on the NWEA MAP reading and mathematics assessments between students enrolled in a school receiving Title I funds and students enrolled in a school not receiving Title I funds is affected by student SES. Chapter 4 includes descriptive statistics and the results of the hypothesis testing.

Descriptive Statistics

The study sample consisted of 2,743 elementary students. All of the students took the NWEA MAP reading and mathematics fall and spring assessments during the 2017-2018 school year. Students were enrolled in one of two school types, schools receiving Title I funding and schools not receiving Title I funding. The frequencies of these students, school type attended, and SES can be found in Table 6.

Table 6

Frequencies and Percentages of Student SES by School Funding Status

School Funding Status	*f*	*%*
Receiving Title I funds		
Students receive free and reduced-price lunch	511	19.2
Students do not receive free and reduced-price lunch	1,052	39.5
Not receiving Title 1 funds		
Students receive free and reduced-price lunch	262	9.8
Students do not receive free and reduced-price lunch	841	31.5

District A has testing windows in the fall and spring for all students. Students in the study attended third- through fifth-grades. Table 7 shows the frequency of students by grade level in the district.

Table 7

Frequencies and Percentages of Students by Grade Level

Grade	*f*	*%*
Grade 3	903	33.8
Grade 4	873	32.6
Grade 5	899	33.6

Hypothesis Testing

Quantitative methods of data analysis were used in the current study. The six research questions and corresponding hypotheses are listed. The methods for statistical analysis and results of the tests are provided below.

RQ1. To what extent is there a difference in third-grade student growth from fall to spring on the NWEA MAP reading and mathematics assessments between students enrolled in a school receiving Title I funds and students enrolled in a school not receiving Title I funds?

***H1*.** There is a statistically significant difference in third-grade student growth from fall to spring on the NWEA MAP reading assessment between students enrolled in a school receiving Title I funds and students enrolled in a school not receiving Title I funds.

A two-factor analysis of variance (ANOVA) was conducted to test H1 and H3. The two categorical variables used to group the dependent variable, fall to spring growth on the reading section of the NWEA MAP assessment, were school funding status (Title I, non-Title I) and student SES (free and reduced-price lunch, non-free and reduced-price lunch). The results of the two-factor ANOVA can be used to test for differences in the means for a numerical variable among three or more groups, including a main effect for school funding status, a main effect for SES, and a two-way interaction effect (School Funding Status x SES). The main effect for school funding status by SES was used to test H1. The level of significance was set at .05. When appropriate an effect size, as indexed by *eta squared*, is reported.

The results of the analysis indicated there was not a statistically significant difference between the means, $F(1, 835) = 0.017$, $p = .896$. See Table 8 for the means and standard deviations for this analysis. No follow-up post hoc was warranted. H1 was not supported.

Table 8

Descriptive Statistics for the Results of the Test for H1

School Funding Status	*M*	*SD*	*N*
Receiving Title I funds	7.16	8.88	513
Not receiving Title I funds	7.12	8.38	326

H2. There is a statistically significant difference in third-grade student growth from fall to spring on the NWEA MAP mathematics assessment between students enrolled in a school receiving Title I funds and students enrolled in a school not receiving Title I funds.

A second two-factor ANOVA was conducted to test H2 and H4. The two categorical variables used to group the dependent variable, fall to spring growth on the mathematics section of the NWEA MAP assessment, were school funding status (Title I, non-Title I) and student SES (free and reduced-price lunch, non-free and reduced-price lunch). The results of the two-factor ANOVA can be used to test differences in the means for a numerical variable among three or more groups, including a main effect for school funding status, a main effect for SES, and a two-way interaction effect (School Funding Status x SES). The main effect for school funding status by SES was used to test H2. The level of significance was set at .05. When appropriate, an effect size, as indexed by *eta squared*, is reported.

The results of the analysis indicated there was not a statistically significant difference between the means, $F(1, 835) = 2.464$, $p = .117$. See Table 9 for the means and standard deviations for this analysis. No follow-up post hoc was warranted. H2 was not supported.

Table 9

Descriptive Statistics for the Results of the Test for H2

School Funding Status	*M*	*SD*	*N*
Receiving Title I funds	8.61	6.29	511
Not receiving Title I funds	8.99	6.23	328

RQ2. To what extent is the difference in third-grade student growth from fall to spring on the NWEA MAP reading and mathematics assessments between students enrolled in a school receiving Title I funds and students enrolled in a school not receiving Title I funds affected by student SES?

H3. The difference between third-grade student growth from fall to spring on the NWEA MAP reading assessment between students enrolled in a school receiving Title I funds and students enrolled in a school not receiving Title I funds is affected by student SES.

The interaction between school funding status and SES from the first ANOVA was used to test H3. The level of significance was set at .05. When appropriate, an effect size, as indexed by *eta squared*, is reported.

The results of the analysis indicated there was not a statistically significant difference between the means, $F(1, 835) = 0.132$, $p = .716$. See Table 10 for the means and standard deviations for this analysis. No follow-up post hoc was warranted. H3 was not supported.

Table 10

Descriptive Statistics for the Results of the Test for H3

School Funding Status	*M*	*SD*	*N*
Receiving Title I funds			
Students receive free and reduced-price lunch	7.19	9.14	147
Students do not receive free and reduced-price lunch	7.14	8.67	366
Not receiving Title I funds			
Students receive free and reduced-price lunch	7.54	8.78	82
Students do not receive free and reduced-price lunch	6.98	8.26	244

H4. The difference between third-grade student growth from fall to spring on the NWEA MAP mathematics assessment between students enrolled in a school receiving Title I funds and students enrolled in a school not receiving Title I funds is affected by student SES.

The interaction between school funding status and SES from the second ANOVA was used to test H4. The level of significance was set at .05. When appropriate, an effect size, as indexed by *eta squared*, is reported.

The results of the analysis indicated there was a marginally significant difference between at least two of the means, $F(1, 835) = 3.103$, $p = .079$. See Table 11 for the means and standard deviations for this analysis. Although the difference is not statistically significant, growth from fall to spring on the NWEA MAP mathematics assessment ($M = 8.04$) for third-grade students, who receive free and reduced-price lunch and are enrolled in a school that is receiving Title I funds, is lower than growth from fall to spring on the NWEA MAP mathematics assessment ($M = 9.71$) for third-grade

students, who receive free and reduced-price lunch and are enrolled in a school not receiving Title I funds. H4 was supported.

Table 11

Descriptive Statistics for the Results of the Test for H4

School Funding Status	*M*	*SD*	*N*
Receiving Title I funds			
Students receive free and reduced-price lunch	8.04	6.50	148
Students do not receive free and reduced-price lunch	8.84	6.20	363
Not receiving Title I funds			
Students receive free and reduced-price lunch	9.71	6.56	83
Students do not receive free and reduced-price lunch	8.75	6.11	245

RQ3. To what extent is there a difference in fourth-grade student growth from fall to spring on the NWEA MAP reading and mathematics assessments between students enrolled in a school receiving Title I funds and students enrolled in a school not receiving Title I funds?

***H5*.** There is a statistically significant difference in fourth-grade student growth fall to spring on the NWEA MAP reading assessment between students enrolled in a school receiving Title I funds and students enrolled in a school not receiving Title I funds.

A third two-factor ANOVA was conducted to test H5 and H7. The two categorical variables used to group the dependent variable, fall to spring growth on the reading section of the NWEA MAP assessment, were school funding status (Title I, non-Title I) and student SES (free and reduced-price lunch, non-free and reduced-price

lunch). The results of the two-factor ANOVA can be used to test for differences in the means for a numerical variable among three or more groups, including a main effect for school funding status, a main effect for SES, and a two-way interaction effect (School Funding Status x SES). The main effect for school funding status by SES was used to test H5. The level of significance was set at .05. When appropriate, an effect size, as indexed by *eta squared*, is reported.

The results of the analysis indicated there was not a statistically significant difference between the means, $F(1, 812) = 1.286$, $p = .257$. See Table 12 for the means and standard deviations for this analysis. No follow-up post hoc was warranted. H5 was not supported.

Table 12

Descriptive Statistics for the Results of the Test for H5

School Funding Status	*M*	*SD*	*N*
Receiving Title I funds	5.50	8.43	454
Not receiving Title I funds	5.02	8.15	362

H6. There is a statistically significant difference in fourth-grade student growth from fall to spring on the NWEA MAP mathematics assessment between students enrolled in a school receiving Title I funds and students enrolled in a school not receiving Title I funds.

A fourth two-factor ANOVA was conducted to test H6 and H8. The two categorical variables used to group the dependent variable, fall to spring growth on the math section of the NWEA MAP assessment, were school funding status (Title I, non-Title I) and student SES (free and reduced-price lunch, non-free and reduced-price

lunch). The results of the two-factor ANOVA can be used to test for differences in the means for a numerical variable among three or more groups, including a main effect for school funding status, a main effect for SES, and a two-way interaction effect (School Funding Status x SES). The main effect for school funding status by SES was used to test H6. The level of significance was set at .05. When appropriate, an effect size, as indexed by *eta squared*, is reported.

The results of the analysis indicated there was not a statistically significant difference between the means, $F(1, 809) = 1.384$, $p = .240$. See Table 13 for the means and standard deviations for this analysis. No follow-up post hoc was warranted. H6 was not supported.

Table 13

Descriptive Statistics for the Results of the Test for H6

School Funding Status	*M*	*SD*	*N*
Receiving Title I funds	7.08	6.21	456
Not receiving Title I funds	7.08	6.15	357

RQ4. To what extent is the difference in fourth-grade student growth from fall to spring on the NWEA MAP reading and mathematics assessments between students enrolled in a school receiving Title I funds and students enrolled in a school not receiving Title I funds affected by student SES?

H7. The difference between fourth-grade student growth from fall to spring on the NWEA MAP reading assessment between students enrolled in a school receiving Title I funds and students enrolled in a school not receiving Title I funds is affected by student SES.

The interaction between school funding status and SES from the third ANOVA was used to test H7. The level of significance was set at .05. When appropriate, an effect size, as indexed by *eta squared*, is reported.

The results of the analysis indicated there was not a statistically significant difference between the means, $F(1, 812) = 1.066$, $p = .302$. See Table 14 for the means and standard deviations for this analysis. No follow-up post hoc was warranted. H7 was not supported.

Table 14

Descriptive Statistics for the Results of the Test for H7

School Funding Status	*M*	*SD*	*N*
Receiving Title I funds			
Students receive free and reduced-price lunch	6.11	10.06	152
Students do not receive free and reduced-price lunch	5.19	7.47	302
Not receiving Title I funds			
Students receive free and reduced-price lunch	4.66	8.75	80
Students do not receive free and reduced-price lunch	5.12	7.99	282

H8. The difference between fourth-grade student growth from fall to spring on the NWEA MAP mathematics assessment between students enrolled in a school receiving Title I funds and students enrolled in a school not receiving Title I funds is affected by student SES.

The interaction between school funding status and SES from the fourth ANOVA was used to test H8. The level of significance was set at .05. When appropriate, an effect size, as indexed by *eta squared*, is reported.

The results of the analysis indicated there was a statistically significant difference between at least two of the means, $F(1, 809) = 4.092$, $p = .043$, $\eta^2 = .005$. See Table 15 for the means and standard deviations for this analysis. A follow-up post hoc was conducted to determine which pairs of means were different. The Tukey's Honestly Significant Difference (HSD) post hoc was conducted at $\alpha = .05$. Two of the differences were significant. Growth from fall to spring on the NWEA MAP mathematics assessment ($M = 7.16$) for fourth-grade students, who do not receive free and reduced-price lunch and are enrolled in a school that is receiving Title I funds, is higher than growth from fall to spring on the NWEA MAP mathematics assessment ($M = 5.31$) for fourth-grade students, who receive free and reduced-price lunch and are enrolled in a school that is not receiving Title 1 funds. Growth from fall to spring on the NWEA MAP mathematics assessment ($M = 7.58$) for fourth-grade students, who do not receive free and reduced-price lunch and are enrolled in a school that is not receiving Title I funds, is higher than growth from fall to spring on the NWEA MAP mathematics assessment ($M = 5.31$) for fourth-grade students, who receive free and reduced-price lunch and are enrolled in a school not receiving Title 1 funds. The effect size, as indexed by *eta squared*, is small. H8 was supported.

Table 15

Descriptive Statistics for the Results of the Test for H8

School Funding Status	*M*	*SD*	*N*
Receiving Title I funds			
Students receive free and reduced-price lunch	6.90	6.09	152
Students do not receive free and reduced-price lunch	7.16	6.28	304
Not receiving Title I funds			
Students receive free and reduced-price lunch	5.31	6.26	80
Students do not receive free and reduced-price lunch	7.58	6.04	277

RQ5. To what extent is there a difference in fifth-grade student growth from fall to spring on the NWEA MAP reading and mathematics assessments between students enrolled in a school receiving Title I funds and students enrolled in a school not receiving Title I funds?

***H9*.** There is a statistically significant difference in fifth-grade student growth from fall to spring on the NWEA MAP reading assessment between students enrolled in a school receiving Title I funds and students enrolled in a school not receiving Title I funds.

A fifth two-factor ANOVA was conducted to test H9 and H11. The two categorical variables used to group the dependent variable, fall to spring growth on the reading section of the NWEA MAP assessment, were school funding status (Title I, non-Title I) and student SES (free and reduced-price lunch, non-free and reduced-price lunch). The results of the two-factor ANOVA can be used to test for differences in the means for a numerical variable among three or more groups, including a main effect for

school funding status, a main effect for SES, and a two-way interaction effect (School Funding x SES). The main effect for school funding status by SES was used to test H9. The level of significance was set at .05. When appropriate, an effect size, as indexed by *eta squared*, is reported.

The results of the analysis indicated there was a statistically significant difference between the two means, $F(1, 851) = 4.055$, $p = .044$, $\eta^2 = .005$. See Table 16 for the means and standard deviations for this analysis. Growth from fall to spring on the NWEA MAP reading assessment ($M = 4.42$) for fifth-grade students enrolled in a school that is receiving Title I funds is higher than the growth from fall to spring on the NWEA MAP reading assessment ($M = 3.59$) for fifth-grade students enrolled in a school that is not receiving Title I funds. H9 was supported. The effect size, as indexed by *eta squared*, is small.

Table 16

Descriptive Statistics for the Results of the Test for H9

School Funding Status	*M*	*SD*	*N*
Receiving Title I funds	4.42	8.62	498
Not receiving Title I funds	3.59	7.74	357

***H10*.** There is a statistically significant difference in fifth-grade student growth from fall to spring growth on the NWEA MAP mathematics assessment between students enrolled in a school receiving Title I funds and students enrolled in a school not receiving Title I funds.

A sixth two-factor ANOVA was conducted to test H10 and H12. The two categorical variables used to group the dependent variable, fall to spring growth on the

mathematics section of the NWEA MAP assessment, were school funding status (Title I and non-Title) and student SES (free and reduced lunch, non-free and reduced lunch). The results of the two-factor ANOVA can be used to test for differences in the means for a numerical variable among three or more groups, including a main effect for school funding status, a main effect for SES, and a two-way interaction effect (School Funding x SES). The main effect for school funding status by SES was used to test H10. The level of significance was set at .05. When appropriate, an effect size, as indexed by *eta squared*, is reported.

The results of the analysis indicated there was a statistically significant difference between the two means, $F(1, 843) = 6.898$, $p = .009$, $\eta^2 = .008$. See Table 17 for the means and standard deviations for this analysis. Growth from fall to spring on the NWEA MAP mathematics assessment ($M = 7.05$) for fifth-grade students enrolled in a school that is receiving Title I funds is lower than the growth from fall to spring on the NWEA MAP mathematics assessment ($M = 8.59$) for fifth-grade students enrolled in a school that is not receiving Title I funds. H10 was supported. The effect size, as indexed by *eta squared*, is small.

Table 17

Descriptive Statistics for the Results of the Test for H10

School Funding Status	*M*	*SD*	*N*
Receiving Title I funds	7.05	6.63	495
Not receiving Title I funds	8.59	7.13	352

RQ6. To what extent is the difference in fifth-grade student growth from fall to spring on the NWEA MAP reading and mathematics assessments between students

enrolled in a school receiving Title I funds and students enrolled in a school not receiving Title I funds affected by student SES?

H11. The difference between fifth-grade student growth from fall to spring on the NWEA MAP reading assessment between students enrolled in a school receiving Title I funds and students enrolled in a school not receiving Title I funds is affected by student SES.

The interaction between school funding status and SES from the fifth ANOVA was used to test H11. The level of significance was set at .05. When appropriate, an effect size, as indexed by *eta squared*, is reported.

The results of the analysis indicated there was not a statistically significant difference between the means, $F(1, 851) = 1.576$, $p = .210$. See Table 18 for the means and standard deviations for this analysis. No follow-up post hoc was warranted. H11 was not supported.

Table 18

Descriptive Statistics for the Results of the Test for H11

School Funding Status	*M*	*SD*	*N*
Receiving Title I funds			
Students receive free and reduced-price lunch	4.31	9.80	169
Students do not receive free and reduced-price lunch	4.48	7.69	329
Not receiving Title I funds			
Students receive free and reduced-price lunch	2.14	7.81	76
Students do not receive free and reduced-price lunch	3.98	7.69	281

H12. The difference between fifth-grade student growth from fall to spring on the NWEA MAP mathematics assessment between students enrolled in a school receiving Title I funds and students enrolled in a school not receiving Title I funds is affected by student SES.

The interaction between school funding status and SES from the sixth ANOVA was used to test H12. The level of significance was set at .05. When appropriate, an effect size, as indexed by *eta squared*, is reported.

The results of the analysis indicated there was not a statistically significant difference between the means, $F(1, 843) = 0.064$, $p = .800$. See Table 19 for the means and standard deviations for this analysis. No follow-up post hoc was warranted. H12 was not supported.

Table 19

Descriptive Statistics for the Results of the Test for H12

School Funding Status	*M*	*SD*	*N*
Receiving Title I funds			
Students receive free and reduced-price lunch	6.10	6.93	164
Students do not receive free and reduced-price lunch	7.52	6.43	331
Not receiving Title I funds			
Students receive free and reduced-price lunch	7.69	7.68	74
Students do not receive free and reduced-price lunch	8.83	6.97	278

Summary

The descriptive statistics of participants included in the study began Chapter 4. The results from the hypothesis testing by grade level and subject are also found in this

chapter. Chapter 5 includes the study summary, findings related to the literature, and the conclusions.

Chapter 5

Interpretation and Recommendations

ESEA was passed in 1965 and was reauthorized by Congress every five to six years, recently including the reauthorizations known as NCLB and ESSA (U.S. Department of Education, 2017). The latter focused on increasing equity among students, establishing high academic standards, closing the achievement gap among student groups, and maintaining accountability through statewide assessments measuring the progress of students (Ansell, 2011). To work toward these initiatives, the government provides additional funding to schools in many forms, including Title I funding (U.S. Department of Education, 2015b). District A has utilized Title I funding to provide additional staff and resources in six of the 10 elementary schools (District A director of elementary education, personal communication, July 20, 2018). Schools are identified for Title I funding based upon their percent of free and reduced-price lunch students. District A utilizes NWEA MAP to measure student academic growth (District A elementary principal, personal communication, September 6, 2017). The current study utilized third-, fourth-, and fifth-grade student fall to spring reading and mathematics growth scores and student SES to determine the difference of student growth in school receiving Title I funds and schools not receiving Title I funds. Chapter 5 includes a study summary, findings related to literature, and conclusions.

Study Summary

This section provides a summary of the research conducted for this study. The summary contains an overview of the problem concerning District A's Title I funding allocation and student academic growth as affected by SES. Also included in this section

is the purpose statement and research questions, review of the methodology, and the major findings.

Overview of the problem. In public education, there is a strong focus on standardized testing and student academic achievement as well as closing the achievement gap (National Center for Education Statistics, 2019). District A had an achievement gap in reading and mathematics between students enrolled in the free and reduced-price lunch program and students not enrolled in the program (District A elementary principal, personal communication, September 6, 2017). The district leaders want to know if there is a difference in student academic growth in relation to Title I funding resource allocation based on student socioeconomic status in schools receiving additional funding through Title I and those not receiving additional funding through Title I.

Purpose statement and research questions. District A allocates Title I funding for academically at-risk students through additional staff and resources. The first purpose of this study was to determine if there is a difference in third-, fourth-, and fifth-grade student fall to spring growth on the reading and mathematics sections of the NWEA MAP assessment between schools receiving Title I funds and schools not receiving Title I funds. The second purpose of this study was to determine to what extent the difference in third-, fourth-, and fifth-grade student growth from fall to spring on the NWEA MAP reading and mathematics assessments between students enrolled in a school receiving Title I funds and students enrolled in a school not receiving Title I funds is affected by student SES. To address the purposes of the study, six research questions were posed, and 12 hypotheses were tested.

Review of the methodology. The current study involved the use of a causal-comparative design to compare the academic growth of third-, fourth-, and fifth-grade students enrolled in a school receiving Title I funds and students enrolled in a school not receiving Title I funds. Students were disaggregated by SES, and the analysis compared student growth in the areas of reading and mathematics. A purposive sample of all third-, fourth-, and fifth-grade students with a fall and spring NWEA MAP reading and mathematics RIT score enrolled in District A during the 2017-2018 school year were included in the study. The NWEA MAP assessment measures student academic growth through the continuum of learning and is aligned to the Missouri Learning Standards. Six two-factor ANOVAs were conducted to test the 12 hypotheses.

Major findings. The finding for mathematics growth for third-grade students was marginally significant. Mathematics growth for third-grade students receiving free and reduced-price lunch at a building receiving Title I funds was lower than the growth for students receiving free and reduced-price lunch at a building not receiving Title I funds. However, findings indicated that when all third-grade students were compared, there were no significant differences in student growth in reading or mathematics between students enrolled in either a school receiving Title I funds or a school not receiving Title I funds.

Mathematics growth was higher for fourth-grade students not receiving free and reduced-price lunch and enrolled in a school receiving Title I funds than for fourth-grade students receiving free and reduced-price lunch and enrolled in schools not receiving Title I funds. Additionally, fourth-grade students not receiving free and reduced-price lunch and enrolled in a school not receiving Title I funds had higher growth than students

receiving free and reduced-price lunch and enrolled in a building not receiving Title I funds. However, findings indicated that when all fourth-grade students were compared, there were no significant differences in student growth in reading or mathematics between students enrolled in either a school receiving Title I funds or a school not receiving Title I funds.

Reading growth was significantly higher for fifth-grade students enrolled in schools receiving Title I funds than for fifth-grade students enrolled in schools not receiving Title I funds. Mathematics growth was significantly lower for fifth-grade students enrolled in schools receiving Title I funds than for fifth-grade students enrolled in schools not receiving Title I funds. Student SES did not affect the difference in reading or mathematics growth of fifth-grade students.

Findings Related to the Literature

A review of the literature related to the current study was detailed in Chapter 2 in the research areas of academic achievement gap, Title I, student SES effect on academic achievement, and academic achievement between Title I and non-Title I schools. A majority of the current research is focused on academic achievement as measured by proficiency on standardized tests, not student growth. The amount of research available to compare with the results of the current study was limited.

The first variable examined in the current study was student growth from fall to spring on the NWEA MAP reading and mathematics assessments of students enrolled in schools receiving Title I funds and schools not receiving Title I funds. The results of the study supported the results found by Rainwater (2015), Palk (2011), and Darden (2019) for third- and fourth-grade students. Rainwater (2015) found no significant correlation

between academic achievement and schools with additional funding from the state, while Darden (2019) found Title I funds granted to schools for targeting specific student populations and specific school programs, did not have a significant impact on school performance. Palk (2011) found that student achievement on the TCAP assessment was not affected by student enrollment in schools receiving Title I funds and schools not receiving Title I funds. The current study supported the findings of McCorvey-Watson (2012) in that there was not a significant difference between the academic achievement scores of fourth-grade students enrolled in Title I and non-Title I schools.

The results of the current study indicated no significant difference in third-grade student growth in reading and mathematics between students enrolled in a school receiving Title I funds and students enrolled in a school not receiving Title I funds contrasted with results of research by Jones (1979), Rose (1984), and Ross (2016). Jones (1979) analyzed the academic performance of students over three years and found there was a significant difference in the achievement trends of students receiving Title I services. Jones (1979) saw a gradual upward academic performance trend in reading comprehension for Title I students, while non-Title I students showed a decline or remained in a lower academic performance trend. Rose (1984) found non-Title I students performed significantly better in reading than Title I students on the CAT standardized assessment while Title I students performed significantly better in mathematics than non-Title I students on the same assessment. Ross (2016) conducted a study between third-grade students enrolled in schools receiving Title I funds and schools not receiving Title I funds and found student achievement was significantly higher in reading and

mathematics for students enrolled in buildings not receiving Title I funds than students enrolled in buildings receiving Title I funds.

Scott (2005) and Headen (2014) conducted studies with participants enrolled in fourth-grade. The results of the current study were different from the results of both studies. Scott (2005) found non-Title I students in fourth-grade scored higher than Title I students in both reading and mathematics. Headen (2014) studied the academic achievement of fourth-graders in reading and mathematics during the years of 2004, 2008, and 2013 and found students enrolled in non-Title I schools significantly outperformed their Title I peers.

The results of the analysis of differences in student academic growth in reading and mathematics of students enrolled in schools receiving Title I funds and not receiving Title I funds vary by subject area. The results of the current study indicated fifth-graders enrolled in schools receiving Title I funds had significantly higher growth in reading than those students enrolled in schools not receiving Title I funds and significantly lower growth in math. Jimenez-Castellanos (2010) conducted a study to determine to what extent resource allocation could impact academic achievement. The results of the current study supported the findings of Jimenez-Castellanos that the resource allocation of personnel and resources can both promote and hinder high-quality academic achievement.

The effect of student SES on differences in student growth from fall to spring on the NWEA MAP reading and mathematics assessments between students enrolled in schools receiving Title I funds and students enrolled in school not receiving Title I funds was examined. The results of the current study supported the findings of Bland-

Washington (2010), Palk (2011), Heier (2011), Matsudaira et al. (2012), and Misewicz (2014) for reading growth. Bland-Washington (2010) found that although fourth-graders enrolled in non-Title I schools outperformed their Title I peers, when data were disaggregated by SES, students enrolled in Title I schools performed relatively similar to low SES students enrolled in non-Title I schools. Palk (2011) found no statistical difference between the academic achievement of students based on SES enrolled in both school types. Heier (2011) researched the difference between the academic achievement of fourth-grade students enrolled in Title I and non-Title I schools. Heier compared the performance of economically disadvantaged students in both school types and found that low SES students enrolled in both school types performed relatively similar even with the additional funding provided to Title I schools. Matsudaira et al. (2012) studied student subgroups in Title I schools and the same subgroups in non-Title I schools and found no overall impact of Title I funds on student achievement in Title I schools. Misewicz (2014) researched the impact of supplemental educational services on student academic achievement between those receiving additional services and those not. Misewicz (2014) found no difference in student performance and concluded supplemental education services provided through the school are not enough to address the achievement gap between students. The results of the current study contrasted with the findings of Byrnes and Ruby (2007), Wright and Slate (2015), and Slamowitz (2018) and indicated a significant difference in the proficiency of low SES students in both English language arts and mathematics between Title I and non-Title I schools. The current study supported the research of Simmons (2018) in which students of low SES attending non-

Title I schools performed significantly higher than low SES students attending Title I schools.

The results of the current study showed students not receiving free and reduced-price lunch in schools receiving Title I funds and those not receiving Title I funds had significantly higher growth in mathematics than students receiving free and reduced-price lunch in schools not receiving Title I funds. The results supported the findings of Coleman et al. (1966) and Betts et al., Reuben, and Danenberg (2000) in which student SES had the highest correlation with the academic achievement of students. A later study conducted by Basque & Bouchamma (2016) found SES was a significant variable in connection with mathematics achievement.

Conclusions

This section includes conclusions drawn from the current study in regards to reading and mathematics growth of students enrolled in schools receiving Title I funds and schools not receiving Title I funds. Additional conclusions related to the impact of SES on student growth in both school types in District A are included. Also covered in this section are the implications for action, recommendations for future research, and concluding remarks.

Implications for action. The results of the current study have several implications for action. Reading growth was significantly higher for fifth-grade students enrolled in schools receiving Title I funds than for students enrolled in schools not receiving Title I funds. A conclusion that can be drawn is the Title I funding allocated by District A in the form of supplemental resources, services, and personnel, is addressing the learning needs of low SES students in the area of reading leading up to and through

fifth-grade. The first recommendation for District A is to examine the current reading intervention identification process for Tier III students across schools receiving Title I funds. Next, District A could analyze the number of students meeting reading intervention criteria across all buildings based upon the criteria set forth by buildings receiving Title I funds. Based upon these findings, if there is an increase in students requiring Tier III reading intervention services districtwide, District A could analyze how to leverage resources to provide an additional half-time interventionist at each building, thus increasing the current single half-time interventionist at buildings not receiving Title I funds to a full-time interventionist and the current full- and half-time interventionist at buildings receiving Title I funds to two full-time interventionists.

Although there was not a significant difference in mathematics growth for third-grade students, when analyzing growth by student SES in both school types, mathematics growth for third-grade students receiving free and reduced-price lunch at a building receiving Title I funds was lower than the growth for students receiving free and reduced-price lunch at a building not receiving Title I funds. Additionally, fourth-grade students not receiving free and reduced-price lunch and enrolled in a school not receiving Title I funds had higher growth than students receiving free and reduced-price lunch and enrolled in a building not receiving Title I funds. Finally, mathematics growth was significantly lower for fifth-grade students enrolled in schools receiving Title I funds than for students enrolled in schools not receiving Title I funds. A conclusion that can be drawn is that Title I funding allocations are not making a difference in mathematics student growth of low SES students. A recommendation for District A is to consider utilizing the additional half-time interventionist, as recommended above, in buildings

receiving Title I funds as mathematics interventionists in efforts to close the achievement gap between student populations. District A would need to determine a process for identifying students for mathematics interventions with a focus on early intervention and establishing a solid conceptual framework for all low SES students. Results of the current study suggest students of high SES enrolled in both schools receiving Title I funds and those not receiving Title I funds have higher mathematics growth than low SES students in both school types. A final recommendation for District A would be to consider professional development in the area of mathematics for teachers, and how to teach mathematics in a culturally responsive way to address the learning needs of students who receive free and reduced-price lunch within all schools regardless of whether they are receiving Title I funds or are not receiving Title I funds.

Recommendations for future research. The purpose of this study was to examine student growth in reading and mathematics and compare between schools receiving Title I funds and not receiving Title I funds. Currently, there is limited research in the area of academic growth. The first recommendation for future research would be to conduct a study of student growth in schoolwide Title I schools and targeted assistance Title I buildings. Additionally, replicating the current study in rural, suburban, and urban districts to determine differences within and between the various districts could be of benefit to all districts. A second recommendation for future research would be to analyze the academic growth of student subgroups in addition to free and reduced-price lunch, such as ethnicity and gender. The third recommendation for future research would be to determine if there is a correlation between student growth in reading and mathematics and student participation in pull-out intervention services. Furthermore, determining to

what extent the pace of growth compares between students receiving pull-out intervention services and those not receiving additional pull-out services. A final recommendation for future research would be to add a qualitative component to the study to analyze teacher and administrator perceptions about Title I funding, the impact on student academic growth and proficiency, and the effective use of the funds.

Concluding remarks. Public schools are measured by student performance on end of year state standardized assessments. District A utilizes the NWEA MAP interim assessment throughout the school year to measure student growth and inform instructional practices in the classroom. The current study highlighted the need for District A to examine districtwide mathematical instructional practices, curriculum resources and materials, as well as how supplemental funding is being spent to support mathematics instruction in the classroom for low SES students and struggling learners. Additionally, District A must examine current supplemental instructional resources and personnel at schools receiving Title I funds and determine what additional supports are needed in schools not receiving Title I funds to address the learning needs of low SES students in each building.

Schools across the country are held to high standards for student academic achievement and are given Title I funding to allocate additional resources to address student needs. The U.S. Department of Education's mission includes preparation for global competitiveness (U.S. Department of Education, 2011). The global competitiveness of companies is seen specifically through the mathematics, science, and technology development fields. It is important to ensure student academic needs are being met through equal access to educational opportunities and funding structures that

support mathematics instruction in addition to reading instruction (U.S. Department of Education, 2011). School districts across the country must explore the most effective ways to meet the diverse needs of students in order to address the disparities students enter the school system with and work towards closing the academic achievement gap.

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Appendices

Appendix A: Research Checklist and Approval Application

[redacted]

Research Checklist and Approval

Date: July 16, 2018

Submitted to: Director of Research, Evaluation & Assessment

Submitted by: Megan Brethower

Research Proposal Title: NWEA MAP Student Growth as Impacted by SES and school funding.

Principal Investigator(s): Megan Brethower

Checklist

☑ Completed "Application to Conduct Research in [redacted]

NA ☐ Copy of "Informed consent" letter to study population/parents

☑ Copies of measurement instruments

Waiting ☐ Approval from university human subjects committee (IRB) if applicable

☑ Copy of your complete application package

Approval of this research is contingent on adherence to district procedures as outlined in the document entitled "Application to Conduct Research" and the information provided with the application. The district must be notified of any substantive changes to the information contained in the application. The district reserves the right to withdraw approval of research if the research is deemed to no longer be in the best interests of [redacted] students, staff, or the district.

Research Application: ☑ Approved ☐ Denied Date: 7/19/18

Signatures

Director of Research, Evaluation, and Assessment

Principal

Principal

Principal

7/19/2018

Appendix B: Baker University Institutional Review Board Approval

Baker University Institutional Review Board

April 9th, 2019

Dear Megan Brethower and Susan Rogers,

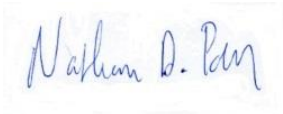
The Baker University IRB has reviewed your project application and approved this project under Exempt Status Review. As described, the project complies with all the requirements and policies established by the University for protection of human subjects in research. Unless renewed, approval lapses one year after approval date.

Please be aware of the following:

1. Any significant change in the research protocol as described should be reviewed by this Committee prior to altering the project.
2. Notify the IRB about any new investigators not named in original application.
3. When signed consent documents are required, the primary investigator must retain the signed consent documents of the research activity.
4. If this is a funded project, keep a copy of this approval letter with your proposal/grant file.
5. If the results of the research are used to prepare papers for publication or oral presentation at professional conferences, manuscripts or abstracts are requested for IRB as part of the project record.

Please inform this Committee or myself when this project is terminated or completed. As noted above, you must also provide IRB with an annual status report and receive approval for maintaining your status. If you have any questions, please contact me at npoell@bakeru.edu or 785.594.4582.

Sincerely,



Nathan Poell, MA
Chair, Baker University IRB

Baker University IRB Committee
Scott Crenshaw
Erin Morris, PhD
Jamin Perry, PhD
Susan Rogers, PhD

Appendix C: District A Research Approval

[redacted] Brethower, Megan 8/7/2019

RE: Data Request for Dissertation

You replied to this message on 8/15/2019 6:33 PM.

Bing Maps + Get more apps

Hi Megan – I have received your request and we are able to pull that data. With the start of school, our tech folks are getting those items completed first. I would anticipate that this would be available the 2nd week of school.

[redacted]

[redacted]

[redacted]