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Influence of an Afterschool Reading Program on Elementary Student Reading Achievement

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Abstract

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MEd, Trevecca Nazarene University, 2006

BS, Austin Peay State University, 2005

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Abstract

Many elementary school students require and may benefit from supplemental reading support and interventions that can be provided by afterschool programs. The problem addressed in this study was that it was not known if third grade students benefited from an afterschool reading program in one East Tennessee District. The purpose of this quantitative study was to compare end of year scale scores on the Standardized Test for the Assessment of Reading (STAR) of third grade students who attended the afterschool reading program for 30 or more days and those who did not attend the afterschool reading program while controlling for beginning of year STAR scale scores. The theoretical framework for this quasiexperimental ex post facto causal comparative design was Vygotsky's sociocultural and social development theory. This study involved a census sample of all third grade students enrolled in one school district during the 2016-2017, 2017-2018, and 2018-2019 school years, resulting in a total population of 373 students from four different elementary schools (232 attending the afterschool reading program and 141 not attending). ANCOVA results showed significantly higher end of year STAR scaled scores for students who attended the afterschool reading program compared to those who did not when controlling for beginning of year STAR scale scores ($p < .001$). The study's findings may contribute to positive social change by informing key stakeholders about the benefits of offering quality afterschool reading programs to all students, and as a result, afterschool programs could be harnessed as a means to improve students' reading achievement over time.

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Chapter 1: Introduction to the Study

Reading can transform lives and is critical to knowledge acquisition, engagement, and future success (Castles et al., 2018). Reading deficiency is a national, state, and local challenge for school administrators (McFarland et al., 2017). According to Ness (2016), approximately 8 million students in grades 4-12 read well below grade level, and of those struggling secondary readers, nearly 70% struggle with reading comprehension. Students who struggle to read are a warranted concern for many teachers. Students who fall behind in reading rarely catch up with their peers (Balanz & Byrnes, 2018; Stevens et al., 2020). Struggling readers need strategic, intensive, and varied intervention programs over the course of several years in order to maintain grade level achievement (Balfanz & Byrnes, 2018; Stevens et al., 2020). Students who struggle to read face long-term remediation, contained special education classrooms, and grade retention. Each year, struggling students fall farther behind their peers as they progress through each grade level. Although more than 10 million children have some sort of reading difficulty, 90% to 95% of students who received interventions at an early age overcome their reading difficulties (Drummond, 2015). Afterschool interventions are critical in terms of helping students gain academic knowledge and skills that help them achieve in school and beyond (Harpine, 2019).

There was an abundance of literature on reading interventions and small group instruction conducted during the school day; however, it was unknown if third grade students benefited from a particular afterschool reading program in one East Tennessee District (ETD, a pseudonym). This study's findings may contribute to positive social

change by providing information to stakeholders, district personnel members, school board members, and community leaders to help them better understand the effectiveness of an afterschool elementary reading intervention. Chapter 1 includes the study's background, problem, purpose, framework, and significance.

Background

The National Assessment of Educational Progress (NAEP) measures proficiency of fourth and eighth grade students in various subjects, such as reading, math, science, and social studies. The NAEP reading scale ranges from zero to 500. NAEP results were divided by student achievement score percentages in three categories: NAEP basic, NAEP proficient, and NAEP advanced. Students who achieved NAEP proficient demonstrated solid academic performance and knowledge in that content area (NAEP, 2019).

In 2019, the most recent NAEP test showed that the average reading score of fourth grade students in Tennessee was 219 out of 500, which is considered to be basic and below the national average. The percentage of students in Tennessee who performed at or above the NAEP proficient level was 35% in 2019, meaning that only 35% of TN's fourth grade students were proficient in reading (NAEP, 2019). This average is significantly different ($p < .05$) from the first test that was administered to fourth graders in 1998, with only a seven-point increase in scores from 1998 to 2019 (NAEP, 2019). Therefore, implementation of quality afterschool reading programs may increase students' reading achievement to reach NAEP proficiency.

The Tennessee Comprehensive Assessment Program (TCAP) was a series of skills and proficiency assessments for students in TN. In TN, all students in grades three through eight took the TCAP assessment, and in addition, fourth and eighth grade students took the TCAP and NAEP assessments. TCAP scores were categorized into four levels: below (level one), approaching (level two), on track (level three), and mastered (level four). According to the 2018-2019 state report card, only 35% of TN third to eighth grade students scored on track or mastered in reading, and 24% of students scored below (Tennessee Department of Education, 2018). In this study, 30% of students in this one East TN school district scored on track or mastered, and 70% of students scored approaching or below. TN students have consistently scored lower than the national average in reading. Harpine (2019) said students who struggle academically suffer from prolonged academic failure.

Student underachievement remains a problem in U.S. public education (Nelson-Royes, 2018). In December 2015, Congress replaced the No Child Left Behind Act (NCLB) with the Every Student Succeeds Act ESSA) of 2015, and President Obama reauthorized the Elementary and Secondary Education Act of 1965 (ESEA). The ESSA mandated that, by 2025, 75% of students in TN achieve reading proficiency by the end of third grade (Tennessee Department of Education, 2018).

Struggling readers require extra support involving high-quality interventions such as afterschool programs to achieve 75% reading proficiency (Rasinski, 2017). Geographic isolation and limited resources in rural areas mean students might lack access to rich and meaningful learning opportunities during out-of-school hours, leading to

learning disadvantages. Paluta et al. (2016) said “afterschool programs helped improve academic performance, heightened self-esteem and diminished problem behaviors” (p. 49). Students who participated in afterschool programs with safe and engaging learning environments had more positive youth outcomes (Afterschool Alliance, 2014).

Problem Statement

The problem addressed in this study is that it is unknown if third grade students benefit from an afterschool reading program at ETD. ETD has nine elementary schools, with 86% of students qualifying for free or reduced lunch. Seventy-three percent of the adult population has no education beyond a high school diploma, and 8% hold a bachelor’s degree or higher (U.S. Census Bureau, 2019). According to the Tennessee Department of Education (2018), 21% of students at ETD scored below basic in reading/language arts achievement, 50% scored approaching basic, and 25% scored proficient.

Research was abundant on the importance of in-school reading interventions. However, there was a gap in literature involving benefits of afterschool reading interventions for third grade students in terms of reading achievement. Burns et al. (2017) examined the relationship between English language proficiency and growth during reading interventions for English language learners. The students received additional interventions each week. The results indicated that the said students in the lowest English proficiency stage on state assessment had the highest growth, as indicated in their spring benchmark assessment scores. Jez and Wassmer (2015) said allotting increased sufficient

instructional time to reading instruction to socioeconomically disadvantaged students had 37% average increase in academic achievement from the previous academic year.

Schools are tasked with producing students who are capable of reading, comprehending, and synthesizing a variety of texts and genres in multiple formats. For poor readers to accomplish this task, targeted, systematic, and effective interventions must be given. Poor readers can become proficient readers with practice, guidance, and support (National Reading Panel, 2000). Afterschool interventions effectively improve key school outcomes and literacy skills (Jenson et al., 2018). However, they vary in terms of structure, quality, and effectiveness. Berendes et al. (2019) said effective afterschool programs require evidence-based curriculum, qualified staff, and collaboration with school and family. Therefore, they can improve students' academic performance, increase participation, improve reading abilities, and improve student interactions (Wieworka, 2017).

Purpose of Study

The purpose of this quantitative study was to compare end of year Standardized Test for the Assessment of Reading (STAR) scale scores of third grade students who attended an afterschool reading program for 30 or more days and those who did not attend the afterschool reading program while controlling for beginning of year STAR scale scores. The control group was third grade students in a specific TN school district who did not participate in the afterschool reading program. The independent variable was third grade student participation in the afterschool reading program. The dependent variable was third grade end of year STAR scaled scores. The covariate was beginning of

year STAR scaled scores of third grade students. Information generated from this study may lead to policy changes for school districts involving structure and implementation of quality afterschool reading programs.

Research Question

Research Question 1: What was the difference in third grade students' end of year STAR scale scores between students who attended an afterschool reading program for 30 or more days and students who did not when controlling for beginning of year STAR scale scored at ETD?

$H_0 1$: There is no difference in third grade students' end of year STAR scale scores between students who attended an afterschool reading program for 30 or more days and students who did not when controlling for beginning of year STAR scale scored at ETD?

$H_a 1$: There was a difference in third grade students' end of year STAR scale scores between students who attended an afterschool reading program for 30 or more days and students who did not when controlling for beginning of year STAR scale scored at ETD?

Theoretical Framework

The study's theoretical framework was Vygotsky's sociocultural and social development theory. Sociocultural and social development play a significant role in terms of the connection between reading and writing. The sociocultural theory of learning involves how learning occurs through social interaction and engagement with adults and peers (Ryoo & Kekelis, 2018). Looking at the sociocultural context of learning allows the

learner to dig deeper and challenge themselves in environments where they see learning as fun and engaging (Ryoo & Kekelis, 2018). This is particularly important to consider in the context of an afterschool reading program created to inspire struggling readers to gain confidence and increase literacy achievement.

Sociocultural and social development theories indicate the connection between teaching and learning, focusing on the social interactions between reading and writing (Hodges et al., 2016). The social constructivist approach to literacy learning shows that reading and writing connect because both involve active construction of meaning, shared cognitive processes, and knowledge representations (Carless & Boud, 2018). The sociocultural theory was appropriate for this study because the afterschool reading program focuses on the social interactions between learning and teaching within an afterschool setting.

Nature of the Study

I used a quasiexperimental ex post facto causal comparative design. Census sampling was used for this study. All students who were part of the third grade population were included in the data set. I compared pooled third grade STAR scaled scores from three school years: 2016–2017, 2017–2018, and 2018-2019 across four elementary schools in ETD for students who attended the afterschool reading program for 30 or more days as well as those who did not attend the afterschool reading program. All third grade students within four elementary schools had the opportunity to participate in the afterschool reading program. I chose this approach (30 or more days attendance) because the afterschool program was offered 55 days per semester, 110 days per school

year. Thirty days was approximately 55% of attendance in one semester. Those students attending 30 or more days had an opportunity to fully engage with and progress in the afterschool reading program. I used Analysis of Covariance (ANCOVA) analysis to test data sets.

I determined if there were significant differences in STAR scaled scores between third grade students who attended and did not attend the afterschool reading program. The control group was third grade students who did not participate in the afterschool reading program. The independent variable was third grade student participation in the afterschool reading program. The dependent variable was pooled third grade end of year STAR scaled scores for three school years from four elementary schools in one ETD school district. The covariate was pooled third grade beginning of year STAR scaled scores for three school years from this setting.

Participants in this study were third grade students in four elementary schools within one ETD school district. Every third grade student was offered afterschool programming, but participation was based on parent decisions and teacher input. The study involved two archival groups of third grade students: those who attended the afterschool reading program for 30 or more days and those who had the opportunity but did not. Every third grade student took a beginning and end of year STAR test and was offered the opportunity to attend afterschool programming. The first group of students included all third grade students to whom the program was offered and who attended the afterschool reading program for 30 or more days. The second group of students included all third grade students to whom the program was offered but did not attend the

afterschool reading program. The study only included STAR scaled scores, with no classroom level or teacher data. I used the Statistical Package for the Social Sciences (SPSS) version 28 to analyze archival data. I visually inspected collected data and used SPSS to screen data for outliers and test for statistical assumptions during ANCOVA analysis. A detailed discussion of the methodology that was used to test hypotheses is presented in Chapter 3.

Operational Definitions

Achievement gap: The achievement gap is the difference in academic performance between groups (NAEP, 2019).

Reading achievement: Specific to this study, reading achievement is students' performance as determined by STAR scale scores. The STAR provides norm-referenced scores for comparing student test results (Renaissance Learning, 2018).

Reading program: A supplementary program outside of daily literacy instruction that is intended to provide individualized reading skills to increase reading achievement (Nelson-Royes, 2018).

Scale scores: Scale scores have an equal-interval scale; for this study there are two sets of scores identical over the entire scale (Renaissance Learning, 2018).

Struggling reader: Students performing below grade-level standards (Kelly & Campbell, 2016).

Assumptions

There were several assumptions for this study. I assumed all four schools within the school district provided accurate afterschool attendance information. The second

assumption was that the school provided accurate STAR data. I also assumed the afterschool coordinator and teachers at each of the four elementary schools were trained and qualified to administer the STAR with fidelity as per the guidelines provided by Renaissance Learning, the testing company. The fourth assumption was that afterschool teachers in each of the four elementary schools facilitated the reading program with fidelity, and students were appropriately engaged in reading interventions during the program. I also assumed that curriculum content and structure of the afterschool program remained consistent between 2016 and 2019.

Scope and Delimitations

This study involved four elementary schools from one district. Participants in this study were third grade students who attended the afterschool reading program for 30 or more days and those who had the opportunity to attend but did not. Every third grade student was offered afterschool programming. The study included only STAR scaled scores, with no classroom level or teacher data. I used pooled archival data for three school years to compare student STAR scaled scores. Vygotsky's sociocultural and social development theory served as the theoretical framework for this study.

Limitations

According to Creswell and Creswell (2018), limitations are potential weaknesses. One limitation in an ex post facto design is that random assignment is not possible because the intervention or treatment has already occurred (Johnson & Christensen, 2019). Since archival data were collected and pooled from four different elementary schools across 3 years within one school district, this made it hard to guarantee all

students had the same afterschool staff and level of support during this time period. Another limitation involved students' reading ability and ability to attend the afterschool program. There could be an inaccurate reading assessments if students did not understand or comprehend questions. Teachers in each school emphasized the need for students who were having difficulty reading or struggling with classwork to attend the afterschool reading program. Therefore, the beginning of year STAR mean for students who attended the program was naturally depressed and lower compared to mean scores of those who did not attend the program. Another limitation was reliability of the reading assessment. Although the test-retest method is a strong indicator of reliability, there were limitations to this system. There was no singular test for accurately and effectively measuring a reading abilities. The STAR is a computerized adaptive test (CAT) which measures students' reading levels. The STAR has high reliability because of its consistency of scores across multiple tests and high because it accurately measures what it is set out to measure (Moreno & Segall, 1997). I discuss validity and reliability of the STAR in Chapter 3.

Significance of the Study

According to the TN Department of Education (2018), 21% of students in this district scored below basic in reading/language arts achievement, 50% scored approaching basic, and 25% scored proficient. Findings may be helpful for education stakeholders searching for alternative ways to improve reading achievement and test scores. Stakeholders include parents, teachers, principals, district administrators, and community members.

Summary

Chapter 1 included a brief overview of reading challenges students face in high-poverty schools. Literacy is an essential component of all aspects of life. ETD needs to find a way to support all readers to give them opportunities to be academically successful. By comparing end of year STAR scale scores of third grade students who attended the afterschool reading program for 30 or more days to those who did not, ETD can make educated decisions regarding usefulness of interventions, as well as provide additional or different resources to students. Vygotsky's sociocultural and social development theory served as the theoretical framework for this research.

Chapter 2 includes a literature review with information about theoretical foundations, the ESSA and implications for afterschool programming, importance of afterschool programs, reading interventions, and increased learning time on reading achievement and quality afterschool program practices and interventions. Chapter 3 includes a detailed explanation of the research methodology, data collection, and analysis. Chapter 4 includes a summary of findings, followed by Chapter 5 with the study results, social change implications, and recommendations for future research.

Chapter 2: Literature Review

State education agencies and local districts must find creative ways to enhance learning experiences for all students, especially those who are at risk of failing to meet federal and state performance requirements (McFarland et al., 2017). Students struggle with reading because learning to read is complex (Rasinski, 2017). This may happen because of a lack of reading skills, specifically in terms of phonics and comprehension. When students struggle with reading, it is essential to help them close the reading achievement gap. If efforts are focused on the elementary level before the fourth grade, there is a higher chance of students closing the achievement gap and reaching grade-level standards. The achievement gap is the difference in academic performance between groups. National legislation, such as NCLB and ESSA, have been passed involving closing the achievement gap and providing appropriate research-based interventions. Paluta et al. (2016) said "Afterschool programs helped improve academic performance, heightened self-esteem and diminished problem behaviors" (p. 49). Students who participated in afterschool programs that provide safe and engaging learning environments had substantial positive youth outcomes. The purpose of this quantitative study was to compare end of year STAR scale scores of third grade students who attended the afterschool reading program for 30 or more days and those who did not while controlling for beginning of year STAR scale scores. I analyzed archival data of third grade students from four elementary schools across three school years (2016-2019) to determine whether the afterschool reading intervention program had any influence on this group of students' STAR scaled scores.

This chapter includes an overview of the study's theoretical foundations, followed by the role the ESSA plays in afterschool programs and information regarding achievement gaps, reading achievement, reading interventions, measuring reading achievement, and afterschool programs. I discuss the ESSA and address differences between the NCLB and ESSA and what they indicate for states' reading instruction and interventions. I focused on different reading interventions that struggling students can learn to read and achieve with their peers. This is followed by a discussion of reading measurements and assessments as well as research related to afterschool programs and their effect on reading achievement. Finally, I summarize the gap in literature.

Literature Search Strategy

To locate literature related to this study's topic, I used Google Scholar as well as the following databases from the Walden University Library: Academic Search Complete, Business Source Premier, EBSCOHost, Education Research Complete, ERIC, ProQuest, SAGE Journals, and Taylor & Francis. Key search terms were *struggling reader, reading achievement, achievement gap, reading intervention, response to intervention, tutoring, Every Student Succeeds Act, afterschool programs, afterschool interventions, afterschool program effectiveness, afterschool tutoring, third grade reading, STAR, accelerated reader, Vygotsky, sociocognitive, sociocultural, social development, reading theories, information processing, schema,* and *Carroll's model*.

Theoretical Foundations

Creswell and Creswell (2018) defined theory in quantitative research as that which "explains and predicts the probable relationship between independent and

dependent variables" (p. 131). Theory is a bridge between independent and dependent variables in research (Creswell, 2018). There are multiple theories involving reading, reading instruction, reading intervention, and extended learning time; as such, using only one reading theory was insufficient in order to explain adequate reading intervention processes. However, in this study, I approached the sociocultural learning theory from the perspective that the environment and ways in which a student interacts affects what they learn. In this section, I explain Vygotsky's sociocultural learning theory and social development theories and how they related to this proposed study.

Sociocultural Theory

Social theories play a significant role in terms of deriving connections between reading and writing. They rely on the concept of social interactions between learning and teaching. Students improve reading and writing achievement by relying on afterschool literacy activities provided by teachers and peers across diverse contexts (Deroo & Watson, 2020). Sociocultural theory states that our literacy behaviors are closely linked to our social practices (Frankel et al., 2021). Two similar studies, conducted in Jamaican elementary classrooms (Lewis-Fokum & Thomas, 2018) and conducted in four urban elementary schools (van Rijk et al., 2017) sought to explain the Vygotskian sociocultural theory of meaningful learning. Both studies focused on how literacy was taught and implemented at the elementary level and how the learning environment, teacher perceptions, and student perceptions altered reading achievement. The findings of both studies indicated that relevance afterschool literacy intervention and collaboration with peers was clearly most central of all motivational components that kept students coming

to the program and achieveing higher results. Students who were able to choose subjects and texts of interest were more involved and interested in the given topic and themselves. Teachers must create learning environments that maximize meaning from informative text and relate that text back to students' needs for instruction (Lewis-Fokum & Thomas, 2018; van Rijk et al., 2017).

Social Development Theory

The social development theory can be used to explain how children develop their ways of thinking and behaving. Children learn via exposure to a more experienced and knowledgeable person (Nicholas et al., 2021). Vygotsky's theory involves the concept of a zone of proximal development (ZPD). ZPD theory suggests a connection between student learning and cognitive development. Vygotsky stated that a student's ZPD, or zone of proximal development, indicates the ideal difficulty level for optimal learning. When used in the context of reading, students get frustrated when they read books too challenging to understand, but they cannot improve their reading achievement with books too easy for them. The STAR Reading assessment provides reading ranges, related here to Vygotsky's ZPDs, which indicate their reading levels. Collins et al. (2017) said individualized instruction for low-performing students boosted their academic achievement more than traditional whole-group instruction. According to Vygotsky (1978), there are two key factors in terms of determining the success of ZPD. The first is subjectivity, which means that two people start the same task with different levels of knowledge about the task and eventually end up at the same or similar level. The second factor is scaffolding, which refers to how knowledge and example of the more

experienced person provide a framework for the cognitive growth of the less experienced person (Ungvarsky, 2020). Vygotsky's social development theory has found applications in terms of how people of all ages learn and attain knowledge. According to Vygotsky (1978), children and people of all ages, learn in three ways. First, learning can happen by imitating someone who already knows how to complete a task or skill. Second, a skill or task can be learned by hearing instructions explaining how to do it, and then completing the task based on those instructions. Third, new skills, tasks, or behaviors can be learned by working collaboratively with others. The social constructivist approach to literacy learning indicates that reading and writing connect because both involve active construction of meaning, shared cognitive processes, and knowledge representations.

ESSA

On December 10, 2015, members of Congress reauthorized the ESEA to create the ESSA and eliminated the testing and accountability measures of the NCLB (Black, 2017). The ESSA transferred the accountability and test scores from the federal government to the states. State educational leaders must define and consider the goals they deem important for student success, meaning they can minimize or prioritize test results. ESSA provides flexible and permissive state and local accountability for testing and other school quality measures. State educational leaders can set parameters around their accountability systems, including the goals and consequences of failing to meet those specified goals (Black, 2017).

The ESSA limited the federal government's role and provided more state- and district-led accountability. Particularly regarding testing, one of ESSA's primary goals is

to prepare all students for success in college and careers (Dennis, 2017). NCLB was one of the most disliked pieces of educational legislation, and it received significant backlash for decades (Black, 2017). ESSA is a policy for measuring outcomes and opportunities for students to learn while improving school culture (Ladd, 2017). However, testing did not completely diminish under the reauthorization, as all third grade to eighth grade and high school students are required to take annual math and reading tests. Schools must provide reports of academic measures, indicators, graduation rates, and the progress of subgroups of students. There is no lawful prohibition against having more than one school quality measure to promote school improvement or to identify the schools in need of intervention and support programs. ESSA also requires identifying and developing evidence-based, comprehensive support, and improvement plans for each state's lowest-performing schools (Ladd, 2017).

ESSA and the States

Schueler et al. (2017) conducted differences-in-differences analyses to compare the achievement trends of Lawrence, Massachusetts, students in school districts with turnaround and students in comparable districts without a turnaround. Over 500,000 students in 50 school districts in which at least half of the students qualified for free and reduced lunch showed significant improvements. The improvement resulted from "acceleration academies" that provided struggling students with targeted, small-group, single-subject instruction delivered by select teachers over week-long vacation breaks. Another significant turnaround component was increased learning time, including expanded school days, enrichment activities, tutoring, and special programs. Members of

the nonprofit National Center on Time and Learning worked with educators from several schools to craft school-level implementation plans for adding hours to the school day.

In the last years of the NCLB, school turnaround districts were a solution for many state legislatures. The process included taking the worst-performing schools, placing them in their state-controlled district, and either running them directly or handing them over to a charter school operator. A network of autonomous, independently run schools was a route for swift, efficient, and inspirational improvement. Six states have had some form of turnaround district and had their startup costs paid in various ways, including by philanthropists, state funding, and federal school improvement grant money (Burnette, 2017). Educational leaders in Louisiana and Tennessee have dramatically scaled back their estimates of how many schools they had hoped to run in the coming years, shuttering some schools and handing back control of some to local officials. At the same time, ESSA provides district educators with the power to plan turnaround strategies before state intervention occurs. The law enables state educators to set aside up to 7% of their Title I money for disadvantaged students for turnaround initiatives. The law also requires districts to develop and implement monitoring and tracking tools to assess and track students in kindergarten through 2nd grade to ensure they do not fall behind in reading.

Hung et al. (2020) examined factors contributing to third through eighth grade student achievement gaps across the United States in diverse populations. The researchers collected math and reading assessment data from white and African American students across several school districts in the US. The researchers used multiple linear regression

analysis to identify contextual factors leading to student achievement gaps. The results indicated three major factors contributing to student achievement gaps between white/black students; economic inequality, racial inequality, and household adult education attainment. Household adult education attainment was the most significant contributor to student achievement gaps. This is relevant to this study because only 8% of adults in the ETD have a bachelor's degree or higher. This could indicate there is a need for quality afterschool reading programs to increase student achievement.

Efforts for school readiness and literacy competencies are important components for academic achievement, but there is still a vital need for different policies. Similarly, it is essential how nearby educational institutions and schools carry out those guidelines. One determination is whether teacher licensing affects teaching and studying within the classroom. Critical elements for developing a literacy curriculum include how teachers use language to extend students' language, connect exclusive topics and reports, and encourage rich, back-and-forth conversations. Key stakeholders must remember implementation desires while organizing policies or guidelines and include provisions for evaluating and making necessary policy changes (Dennis, 2017). A successful Pre-K and early grade alignment is not a one-size-fits-all method; it requires coordination of standards, curricula, evaluation, statistics, expert development, and training to assist high-quality teacher-child interactions. The Pre-K– third grade method requires school authority and buy-in from the directors, and strong relationships between early childhood providers and primary schools, directors and centers, teachers at all degrees, and families and schools (Dennis, 2017). Also necessary is a dedication to assessing effective

interventions for improving student outcomes, funding to expand efforts with promising outcomes, and versatility to shift the direction of investment and policies.

ESSA and Reading Achievement

ESSA focuses on comprehensive literacy instruction that emphasizes continuous professional learning for teachers. The ESSA is what led schools to prioritize supplemental services in order to meet state and national benchmarks. Cunningham and Allington (2015) synthesized findings of effective literacy practices for academic achievement and presented eight best practices for teachers and schools when implementing literacy instruction:

> 1. The most effective classrooms provide huge amounts of balanced comprehensive instruction. 2. Children in the most effective classrooms do a lot of reading and writing. 3. Science and social studies are taught and integrated with reading and writing. 4. Meaning is central and teaching emphasizes higher-order thinking. 5. Skills are explicitly taught and children are coached to use them while reading and writing. 6. Teachers use a variety of formats to provide instruction. 7. Teachers use a wide variety of materials. 8. Classrooms are well-managed and have high expectations. (p. 4)

The NCLB had an overemphasis on the results of end-of-year state assessments, which resulted in punitive action against both children and teachers (Ladd, 2017). Publishers earn billions of dollars selling core curriculum and supplemental materials to school districts. The problem, which is no surprise to educators and literacy researchers, is that there is no one program to meet the needs of all children (Dennis, 2017). ESSA

provides the opportunity, with the support of states and school districts, to match intent with practice and support teachers and children in the teaching and learning of literacy. For example, ESSA requires school initiatives to attract effective teachers to low-income schools, with the goal "to improve within-district equity in the distribution of teachers" (Dennis, 2017, p. 5).

Reading Interventions and Achievement

Literacy is the foundation for student success and academic achievement. Adelson et al. (2016) examined Kentucky literacy data across all grades to address school readiness gaps and patterns of student achievement in cross-level relationships across the school years. The authors determined that individual and small-group interventions were more effective approaches for improving literacy than were whole-school literacy interventions. Despite the NCLB accountability model, the interventions focused on schools instead of students, which resulted in little to no improvement. However, the majority of variability in student scores appeared between students within schools. The findings indicated that the characteristics of individual students, specifically minority and low-income students, and prior reading achievement correlated with reading achievement. The study adds to the research on patterns of reading achievement gaps and has strengths such as an examination of comprehensive statewide data over several years.

D'Agostino and Rodgers (2017) said students entering first grade should know and do what educators covered in the typical first grade classroom of a decade or so ago. The authors concluded that rising academic standards affected almost every kindergarten-aged child in the United States. Thus, D'Agostino and Rodgers suggested that educators

update literacy interventions regularly with research-based practices to meet the needs of modern kindergarten and 1st graders. Educators must pay careful attention to low-achieving students who, despite noteworthy improvement in basic skills, are alarmingly falling further behind on word reading and text reading.

Researchers have examined the relationships of several domains of school readiness with later achievement. Davies et al. (2016) assessed the influence of school readiness on achievement over a crucial period of primary-grade schooling. The study addressed school readiness as an important predictor for later elementary achievement and the contributions of each readiness indicator, with the subsequent influence on school-level demographics. Data analysis showed that reading, writing, and math outcomes contributed to school readiness; however, multilevel regression models showed physical, social, and emotional domains significantly associated with achievement scores, independent of cognitive readiness. The findings indicated the importance of measuring holistic components when determining school readiness.

Clemens et al. (2019) explored if the pretest knowledge of word recognition, fluency, and vocabulary moderated the effects of a reading comprehension intervention for struggling sixth through eighth graders in Texas. The researchers collected secondary data analyses using a pre-test-posttest design to examine the effects of the reading comprehension experimental intervention. Sight words, oral reading fluency passages, and grade level vocabulary were examined as potential moderators for the intervention outcome. The researchers used the main-effects model for testing the moderating effects of the pretest variables. The results indicated that sight word recognition and vocabulary

knowledge were not significant predictors of posttest reading comprehension. However, pretest oral reading fluency did significantly moderate the effect of posttest reading comprehension scores, meaning that the lower the students pretest oral reading fluency score was, the effect of the reading comprehension intervention was greater. The researchers suggested that repeated oral fluency practice might have contributed to the ability to process text easier resulting in higher reading comprehension. This is relevant to my study because I am examining the effects of an afterschool reading program on student STAR scores. Within the afterschool reading program, students work on a variety of reading comprehension and skill-building strategies. The findings from this study could indicate that there is a need for quality afterschool reading programs that incorporate repeated oral reading fluency to increase student reading comprehension and ultimately increase student academic achievement on the STAR assessment.

In a similar study, researchers wanted to know if one particular performance measure had an impact on the end-of -year state reading assessment for third graders. The performance measure that they investigated was the Dynamic Indicators of Basic Early Literacy Skills (DIBELS) (Conradi Smith et al., 2020). Third grade is considered a pivotal year for students within reading development. They transition from learning to read to reading to learn. If students are struggling with learning to read, this can lead to delays which can impact their academic success (Conradi Smith et al., 2020). For this study, the researchers examined which DIBELS data predicted if third grade students passed the state reading assessment. The researchers wanted to answer the following research questions; “How well do DIBELS Next subtests administered at the end of third

grade predict performance on a high-stakes reading comprehension measure? Do the various subtests differ in their ability to predict achievement for students in the pass or fail groups? What are the average scores and characteristics of the groups for which the data successfully or unsuccessfully predicted passing or failure?" (Conradi Smith et al., 2020, p. 368). The sample consisted of 9,602 third grade students with diverse demographics.

Logistic regression was used to determine if the three subscales (rate, accuracy, daze) of the DIEBELS test predicted student pass or fail on the state reading assessment. The results from logistic regression analysis indicated that the reading performance on the state assessment could be predicted from the three subscales scores of DIBELS (Conradi Smith et al., 2020). All three subscales were statistically significant, however, rate ended up being the best predictor of proficiency on the state reading assessment. Rate accurately predicted 88% of students who passed the state reading assessment (Conradi Smith et al., 2020). Multiple regression analysis was used to determine how well the subscales of DIBELS predicted pass or fail. The findings indicated that the use of DIBELS for predicting fail on the state test might work better for some subgroups than others given the variance in reading comprehension (Conradi Smith et al., 2020). I thought the findings from this study were relevant to my study. In my study, the afterschool reading program focuses on rate, accuracy, and comprehension which could be a predictor for how well students do on end of year STAR. A future study could examine the curriculum used in the afterschool reading program to see if the instruction

methods and models contributed to the students' scores on the end of year reading assessment.

Mokhtari et al. (2015) focused on the effects of one-on-one instructional time on reading achievement, examining the ideal conditions in which struggling readers succeeded or failed when learning to read. The findings indicated that students who received tutoring performed better on their achievement tests. Also, students who received tutoring improved their reading proficiency, as indicated by standardized assessment scores. Educators must implement small-group, individualized instruction to accelerate student academic performance and close the reading achievement gap of struggling readers. Despite findings showing that the instructional time needed to close the achievement gap varies depending on student needs, Mokhtari et al. asserted that at-risk struggling readers need 44 to 80 hours of additional, individualized instruction to improve academic performance.

Similarly, researchers examined access to quality afterschool programs, specifically the 21st cclc grant funded program, for low income students attending low income schools (Klumpner & Woolley, 2021). The researchers used three binary logistic regression models to examine school characteristics and what type, if any, of afterschool program was offered. The dependent variable was type of afterschool program offered (fee based, 21st cclc, or other type). The independent variables were enrollment, school setting, percent of minority population, and free and reduced meal rates (Klumpner & Woolley, 2021). The researchers displayed the results in a table which revealed that schools with 35% or fewer students qualifying for free and reduced meals, had 11.5 times

higher odds of having a 21st cclc program than schools with 75% or higher population of students that qualified for free and reduced meals (Klumpner & Woolley, 2021). This trend was similar at each step, schools with fewer students qualifying for free and reduced meals were more likely to receive 21st cclc federal funding than schools with higher percentages of qualifying students. Findings also suggested that smaller schools, rural schools, and schools with less than 6% minorities were more likely to have fee based afterschool programs. Schools in rural areas were twice as likely to have another standalone afterschool program as a grant funded 21st cclc afterschool program. This study showed that the 21st cclc grant funded afterschool program policy has not been effective in providing students in rural, low income areas with quality afterschool programming (Klumpner & Woolley, 2021).

I found these studies to be very informative and relevant to my study. My study takes place in a low income rural school district. According to Klumpner and Woolley (2021), school districts have not been receiving adequate federal grant funding to operate quality afterschool programs and are more likely to offer fee-based childcare options instead. Without the funds to offer quality afterschool programs for students who need it most, student achievement is likely to continue to decline. Policy changes need to happen at the federal, state, and local level to make the process for applying and implementing these funding opportunities more accessible for all school districts.

Increased Learning Time and Achievement

Due to the rising levels of academic achievement and continual district budget cuts, educational stakeholders must understand the vital need for increased learning time

for academic achievement (Campbell et al., 2021). Campbell et al. (2021) examined how time spent on a reading program influenced reading achievement of fourth grade students. The results of the ANCOVA analysis showed a statistically significant and positive relationship between the number of instructional minutes in an academic year and school-site standardized test scores. Campbell et al. asserted that students who had more time to practice reading had greater overall reading achievement scores.

Campbell et al. (2021) findings have important implications for the achievement gap. Disadvantaged students are more affected by changes to learning time than their more affluent peers, which could widen the achievement gap. Unlike disadvantaged students, advantaged learners are more likely to receive additional educational and cultural experiences outside of the school day to fill in gaps in learning time. The study showed that an increased amount of allotted instructional time had a statistically significant and positive influence on a school's average academic achievement after controlling for other student and school factors. Campbell et al. (2021) hoped that education administrators and policymakers could use the findings when considering how to improve and maintain student achievement. The preservation of student achievement is an especially relevant issue when school districts have tight budgets, and the practical solution requires cutting back on learning time to ease school budget constraints.

In a similar systematic review focused on the academic achievement of low-income, at-risk students who participated in out-of-school-time academic (OSTA) programs, Knopf et al. (2015) examined OSTA's ability to improve participating students' health. The researchers hypothesized that students who participated in OSTA

programs with well-structured and safe environments would improve their academic achievement, social-emotional skills, and overall health and wellness. The authors evaluated 32 studies on math and reading outcomes, determining that targeted programs were more effective interventions than general academic programs. Targeted reading programs were more successful for kindergarten and third grade students than fourth to eighth grade students. Students from low-income families showed greater improvement than their more affluent peers. The most beneficial programs were those that provided an additional 45 to 200 school hours. Research has indicated that focused reading programs are an effective intervention for improving at-risk students' academic achievement. School administrators, teachers, parents, and community members must provide ongoing support to establish long-term OSTA program sustainability and results. Despite the promising outcomes, OSTA programs alone are not sufficient for closing the achievement gap or improving the health of low-income, at-risk youth.

Massengale & Perryman (2021) examined the impact of child-centered play on at-risk elementary students. The students received ten afterschool play sessions over the course of one semester. Their reading and math academic success was measured by the Measure of Academic Progress (MAP) test. Although child centered play did not directly affect student's reading or math achievement, the researchers found that when children are engaged in an environment where they feel emotionally safe, they are able to engage in their learning environment thus resulting in higher academic achievement (Massengale & Perryman, 2021). This particular study assessed the long-term effects of child centered play and academic growth over 4 years. A two-way repeated measured ANOVA was

used in this longitudinal study to compare the mean score differences of the independent variables; between-subject factors (students that qualified/did not qualify for services) and within-subject factor (student grade-1st through 4th). The dependent variables were the reading MAP scores and math MAP scores. Since this study had two dependent variables, two separate two-way repeated measures ANOVAs were completed (Massengale & Perryman, 2021). The findings indicated that the qualifying at-risk students did not catch up to their non-qualifying peers in reading achievement on the MAP assessment, however, it did show that the gap significantly decreased (Massengale & Perryman, 2021). These findings indicated that participating in this intervention may have contributed to student's increased reading achievement. The findings indicated that qualifying students in first grade scored way below their non-qualifying peers, but after participating in the intervention, were matched with their peers by the second grade and this same trajectory of growth happened in the third and fourth grades (Massengale & Perryman, 2021). The math MAP scores showed that at-risk qualifying students scored significantly lower than their peers did in first, second, and third grades, but by the fourth grade, the scores were no longer significantly different. Therefore, closing the math achievement gap between at-risk students and their peers (Massengale & Perryman, 2021).

This study is relevant to my study because it showed the importance of interventions on academic achievement of students. Although the intervention in this study was afterschool child-centered play, and not specific reading instruction, as in my study, it still showed there was a significant relationship between afterschool

interventions for at-risk students and academic success. This longitudinal study followed students over the course of four years. My study only looks at student growth over one year. I think for future research, it would be worth doing a longitudinal study of the afterschool reading program following students over four years to see if participating in the afterschool reading program closes the gap on reading achievement over the long term.

Findings from all of the discussed studies showed that increased learning time resulted in improved academic achievement, especially for disadvantaged and struggling students. Researchers found improved student outcomes when educators lengthened the school day and offered afterschool programs. Researchers understand school budget and time constraints, but they urge policymakers to think critically before cutting school time. District stakeholders should invest in ensuring that educators use the school day in the most effective ways or provide out-of-school programs with engaged and active learning time.

Tutoring and Achievement

In education, the purpose of tutoring is to provide students with the skills they need to achieve academically (Palincsar & Brown, 1986). Tutoring is an excellent way to provide students with one-on-one instruction (Presseisen, 1988). Research has shown that tutoring is a means of relieving student frustration, promoting student organization, fostering students' self-assurance, and building proficiency in subjects with which they struggle. Effective tutoring is a way to improve student retention, as tutors monitor, review, and support student progress (Nelson-Royes, 2018).

Afterschool tutoring programs began as bridges between communities and schools to provide services to at-risk youth. The significant interest in afterschool tutoring programs during the Clinton-Gore administration resulted in an allocation of $200 million for afterschool programs (Nelson-Royes, 2018). The Partnership for Family Involvement in Education showed support for afterschool programs for three important reasons: (a) there were approximately 15 million school-aged students left alone at home each week, (b) 28 million school-aged children had one or more parents who worked during afterschool hours, and (c) low-income students fell two to three grade levels behind in reading and math if they did not attend afterschool programs (Nelson-Royes, 2018).

School-aged children left unsupervised afterschool is more likely to struggle academically, drop out of school, and get involved in criminal activity than those who participate in well-structured afterschool programs. Most juvenile crimes occur between 2:00 p.m. and 8:00 p.m.; in addition, children are at greater risk of becoming victims of crime afterschool (Nelson-Royes, 2018). As the trend of tutoring emerged, there was an increased interest in structured afterschool programs. In 1997, 21st-Century Community Learning Centers provided $40 million in funding to implement afterschool programs. In 2001, the amount of funding increased to $1 billion for afterschool and summer school programs in high-poverty areas (Nelson-Royes, 2018).

Kao et al. (2015) examined the influence of afterschool tutoring with a pretest-posttest, unequal-group design. The researchers recruited 142 students from 11 elementary schools in Eastern Taiwan to receive tutoring from National Dong-Hwa

University students as part of the Digital Partner Afterschool Online Tutoring Program. College students tutored students in the experimental reading group for approximately 90 minutes twice a week during one semester, the sessions consisting of tutoring in specific skills based on student-assessed need in comprehension, inference, and information processing. The findings showed significant improvements in middle-grade students' ability to make direct inferences and interpret information from texts. Therefore, Kao et al. (2015) recommended that educators adapt individualized reading tutoring to enhance students' cognitive development.

Afterschool programs that include academic tutoring enhance academic performance. Research has shown that individualized afterschool tutoring programs are a successful intervention for improving students' reading skills. At-risk and low-income students benefit from participating in afterschool tutoring programs. Such programs provide a wide array of advantages to children, especially early elementary students (Nelson-Royes, 2018).

Northrop and Kelly (2019) identified four common reasons for reading underachievement: life experiences, reading instruction received in the early years, learning disabilities, and how students visually processed the material. The researchers found that struggling readers made progress when teachers addressed their underdeveloped skills. All children, including those who struggle to read, learn in different ways. Educators who use a variety of audio, kinesthetic, and visual modalities can improve student learning. Students benefit greatly from listening to audiobooks, retelling stories using puppets, acting out stories in plays. Other improvements came from

different grouping styles, leading Northrop and Kelly (2019) to suggest that educators vary their instructional time and instructional practices to meet the needs of students. The authors indicated that no matter the modality or grouping, struggling readers benefited from differentiated instruction.

Students who struggle to read are a warranted concern for many teachers. Multiple studies have shown that students who fall behind in reading rarely catch up with their peers. Students who struggle to read face long-term remediation contained special education classrooms, and grade retention. Each year, struggling students fall farther behind their peers as they progress through each grade level. Although more than 10 million children have some sort of reading difficulty, 90% to 95% of students who receive interventions at an early age can overcome their reading difficulties (Filderman & Toste, 2018). Not all students who struggle to read have diagnosed reading disabilities. Some students who fall behind require more time to learn or individualized reading instruction. In all cases, students who struggle to read depend on their teachers, administrators, and parents to provide them with the reading help and instruction they need (Filderman & Toste, 2018).

Students with learning disabilities can receive special education under the Individuals with Disabilities Education Act. Students who struggle to read often receive learning disability diagnoses. District educators develop an individualized education program for such students to determine the specific goals and milestones the learners must achieve to succeed, often incorporating small-group reading intervention and reading-related supports. Reading disabilities are common and occur in one out of four

students. However, 50% of children with reading disabilities make adequate progress (Filderman & Toste, 2018).

Small-group intervention is “supplemental instruction delivered simultaneously to three or more students with homogenous skills to support their reading needs” (Gersten et al., 2008, p. 4). Interventions in small groups provide struggling readers with specific literacy instruction for their needs. Small-group intervention is the main component of the heavily researched reading response-to-intervention model.

Burns et al. (2020) examined reading growth of students with and without disabilities and those with and without reading deficiencies, in response to participating in an intervention reading program. The research question for this study inquired about the “effect of interventions on the reading growth of second- and third grade students with severe reading deficits as compared to typically achieving peers and students identified with a reading disability” (Burns et al., 2020, p. 445). The participants were 499 second and third grade students from six elementary schools, which scored in the bottom 10th percentile on their Measures of Academic Progress for Reading (MAP-R) assessment. Reading growth is commonly used by researchers to determine student achievement in education. “Examining reading growth rates among students receiving reading intervention and students receiving special education services is necessary to provide insight into the effectiveness of tiered interventions and special education services” (Burns et al., 2020, p. 446). This was a quasiexperimental study because the participants were in pre-existing groups. The reading interventions were matched to student ability level and included a mix of phonics, fluency, and comprehension skills.

An ANCOVA analysis was used with the slope of reading growth as the dependent variable, and the group (severe reading deficient and special education) as the independent variables. Reading curriculum, school, and grade were used as the covariates. Results were presented in a table that listed the means and standard deviations of the reading slope by comparison groups as well as a figure to describe the growth rates for all three groups. The students with significant reading deficiencies grew at a rate higher than their peers in special education and equal to their typical achieving peers. This data is consistent with previous studies completed that showed student achievement in small group reading interventions (Burns et al., 2020). The growth rate of the students with severe reading deficiencies suggested that implementing evidenced-based reading interventions could result in increased reading achievement of students.

This study is significant and relevant to my study because it compared reading growth between groups of students in response to an intervention or reading program. The main difference between this study and mine is that this intervention was during the school day and not during after-school. This study is also relevant because it uses an ANCOVA analysis to determine if student participation in this intervention produced any significant reading growth when compared to peer groups. I think it is important to mention that this study used the MAP-R assessment as the primary screener to measure growth. The MAP-R assessment is very similar to the measure in my study, the STAR. They are both computerized adaptive achievement tests that measure reading skills of students (Burns et al., 2020). The findings from this study found that students participating in small groups reading interventions grew at a rate equal to or greater than

their peers not participating in the reading intervention. Hopefully, the findings from my study contributed to the literature by showing that students who participated in an afterschool intervention showed growth equal to or greater than their non-participating peers.

Burns et al. (2017) also examined second and third grade students and the relationship between English language proficiency and growth during reading interventions. Teachers identified these second and third grade students as needing targeted intervention because of low scores on their oral reading benchmark assessment. The second and third grade students received reading interventions each week throughout the school year. Burns et al. compared the average growth rate across schools with an ANOVA, which showed a non-significant effect. The authors combined the data across schools and compared the growth scores for the five ethnicity and language groups with a one-way ANOVA, which also indicated in a non-significant effect. The results indicated that the students identified in the lowest English proficiency stage on the state assessment had the highest growth, as indicated in their spring benchmark assessment scores. Burns et al. (2017) stated that second and third grade English language learners need early intervention services to achieve reading success.

Hall and Burns (2018) coded 27 articles according to variables relevant to the following research questions around small group and intervention effectiveness. Hall and Burns examined the effectiveness of small group reading instruction and found that this type of intervention was most effective with struggling readers in elementary school. A comparison of small-group reading interventions with the variables of student grade

level, types of interventions, and research design showed moderate effectiveness of small-group reading interventions. Small-group reading interventions, focused on specific reading skills, were significantly more effective than general reading interventions with combined multiple reading skills. Reading aloud and vocabulary interventions produced the strongest effects, indicating that small-group, read-aloud, and guided reading practices were effective methods for improving young students' vocabularies in a short time. As with other studies, the interventions for elementary school students had a more significant influence and growth than secondary-student interventions.

Roberts et al. (2018) investigated the effects of using a text-processing approach to improve struggling readers' reading comprehension during an afterschool reading program. The researchers studied the influence of the afterschool program to compare the influence of supplemental instruction to instruction that occurred during the school day. The authors designed a randomized control trial with students assigned to one of three conditions: text-processing with foundational reading skills, text-processing, and a business-as-usual comparison group that received no afterschool reading instruction. The findings showed no significant differences in text-processing and reading comprehension between the students who participated in the afterschool intervention and the students who did not. Additionally, no statistically significant differences emerged between the two contrasting text-processing reading conditions on reading comprehension measures. However, Roberts et al. only accounted for out-of-school reading interventions with upper-elementary students. Therefore, one could assume that attendance affected the results, something also noted by Wanzek et al. (2017), who indicated the difficulty of

maintaining regular student attendance in afterschool programs. Upper-elementary students are less likely to attend consistently and not improve as much academically as elementary students.

Becoming a proficient reader by third grade is a key predictor of future academic and career success, including high school graduation (Kent et al., 2017). However, according to the U.S. Department of Education National Center for Education Statistics (2016), only one-third of elementary students scored proficient on a national assessment of reading skills, and there were no improved scores from 2013 to 2015. Eighty percent of students from low-socioeconomic status backgrounds failed to meet reading proficiency milestones. The results of these studies indicated the effectiveness of small-group reading interventions, with moderate effects of using targeted interventions. Although several intervention variables correlated with intervention effects, targeted interventions, and group size were the two variables most closely related to the outcomes. The grade of the student and study characteristics also caused differential effects and indicated important areas for future research.

Afterschool Program Interventions

Afterschool programs emerged due to historical changes in children's participation in the labor force and formal schooling (Halpern, 2002). Late in the 19th century, the need for children in the labor force decreased due to growing expectations of compulsory education. Halpern (2002) described the time as a "distinct childhood culture" (p. 180) resulting from the longer period between childhood and adolescence and the transition to early adulthood. The first afterschool programs were boys' clubs created

to fill the gap between adolescence and adulthood. However, at the turn of the century, experts considered structured play activities beneficial for children's growth and development, leading to the creation of afterschool programs with mission statements and purposes beyond basic childcare (Phillips et al., 2018).

The 1990 Child Care Development and Block Grant (CCDBG), now called the Child Care Development Fund, was the first substantial federal initiative for school-aged care. The grant provides subsidized childcare expenses to low-income households and families receiving public assistance (Phillips et al., 2018). Originally, qualification for funding under the CCDBG bill depended on the quality of childcare; however, policymakers removed this qualifier before passing the bill. Therefore, CCDBG funds do not necessarily provide for quality afterschool programs. State educators can use a mix of CCDBG and Title I funds to subsidize childcare, including afterschool care (Phillips et al., 2018).

Interest in afterschool programs has been growing for the past three decades. The 1991 National Before and Afterschool Study indicated that nearly 1.7 million U.S. students in kindergarten through 8th grade attended regulated afterschool programs. In addition, almost 3.2 million children participated in some sort of regulated or nonregulated afterschool program. A few years later, the 1997 National Survey of American Families showed 6.7 million children enrolled in afterschool programs (Phillips et al., 2018). According to the America After 3 PM survey and the Afterschool Alliance (2014), 6.5 million children were involved in afterschool programs in 2014.

Standardized testing procedures have led to educational changes in traditional school settings (Baldridge et al., 2017). The hyper-focus on academic achievement and standardized test scores does not address the critically important social, emotional, and economic challenges facing students (Baldridge et al., 2017). Community-based educational sites (CBES) have the flexibility and design to educate students beyond the cognitive domain. Baldridge et al. found that such sites had a significant influence on students by providing increased opportunities for learning, socialization, and student support. The educational influence of community-based educational sites is in its ability to connect social-emotional education with academic standards, enabling students to bridge real-life and social development with academic standards to achieve academic success (Baldridge et al., 2017).

One study examined a community based organization's social-emotional pilot intervention, Journey of Hope, conducted in afterschool programs in rural TN. The Journey of Hope program was offered to K-3rd grade students, in four elementary schools, who attended the afterschool program (Powell & Davis, 2019). For this study, the Journey of Hope program was integrated into the regular afterschool program model and seen as a prevention intervention. The program consisted of a series of eight sessions which targeted problem emotional behaviors stemming from adverse childhood experiences (Powell & Davis, 2019). The sample included (n =112) students, that attended at least six out of the eight sessions. The students were assessed by their classroom teachers at three time periods (before the program, after completing the program, and six months after) using the Strengths and Difficulties Scale (SDQ) and the

Child Behavior Scale (CBS). The SDQ assessed the students' psychological symptoms such as emotional, hyperactivity, behavior problems, and peer problems (Powell & Davis, 2019). The CBS assessed students' aggressive and prosocial behaviors (Powell & Davis, 2019). These factors were entered into a one-way repeated measures ANOVA with a Greenhouse-Geisser within-subjects F test. Mean differences were calculated from beginning to end and beginning to six-month follow-up.

The results found no significant differences in student emotional problems over time, but the repeated measures ANOVA found that mean differences did exist for conduct problems between time points (Powell & Davis, 2019). Conduct problems seemed to decrease from beginning of program to the end of the program, however, conduct problems increased from the end of the program to the six-month follow-up. This trend continued for hyperactivity, peer social behaviors, social skills, and aggressive behaviors. So it can be concluded that while the students participated in the eight week afterschool intervention program, behaviors and coping skills improved significantly (Powell & Davis, 2019). However, once students completed the intervention, within six months their behaviors reverted back to how they were before they attended the program. This study shows that this intervention produced promising results to the students in the short-term while they were regularly participating, but as soon as the intervention was removed, the results were not sustainable over the long-term (Powell & Davis, 2019).

This study is significant to my study for a few reasons. First, this study was conducted in the same district and same afterschool programs as my current study in rural East TN. Second, I think it is important to note that student behavior and social skills

improved while participating in the afterschool intervention, but this was only for a very short amount of time. One limitation to this study is that the sample only included students that attended the afterschool program and did not have a control group, or equivalent, that did not attend the afterschool program. Another limitation is the amount of time the students participated in the intervention, eight weeks is a short amount of time to sustain long-term results. My hope is that my study shows that children participating in an afterschool reading intervention, for a significant amount of time, does increase reading achievement, but in the future I would like to know if the length of time participating, or repeated years in the program, produced lasting sustainable results.

Positive Practices in Afterschool Care

> According to the Afterschool Alliance (2014):
>
> Quality afterschool programs can boost the overall well-being of children and youth: nurturing their intellectual curiosity, developing them into lifelong learners, helping them become more self-confident and self-aware, supporting them as they navigate friendships and relationships, and improving their performance in and attitude toward school. (p. 2)

Bass (2019) stated that by increasing opportunities for youth to participate in high quality afterschool programs, the student level social and academic outcomes also increased. Afterschool programs could have different components; however, the shared goal of all such programs should be to have a positive influence on students' success. Although afterschool programs vary in appearance and composition, several common practices are effective for improving student achievement. The key factors for promising program

quality are intentional programming and strong program design, quality staff, effective partnerships, and program evaluation and improvement (Bass, 2019).

Quality Afterschool Program Interventions

One study analyzed a reading intervention program for first grade struggling readers. There are two basic fundamental concepts of reading acquisition, phonemic awareness and letter-sound recognition (Sucena et al., 2021). This intervention program targeted 311 at-risk first grade students and provided them with a daily opportunity to get additional practice in phonemic awareness, letter-sound knowledge, spelling, and decoding. There were 20 daily sessions that occurred inside the classroom and outside of the classroom from November to May. The participants were divided into two groups, intervention and comparative. Results were analyzed with an inter/intra group design. The inter- was the intervention and comparative group. The intra- was the pre/posttest. A Two-Way MANOVA was conducted to analyze the group and time effect on the assessment dimensions. The researcher displayed the results in a table which compared the effect of group and time in reading and writing letters, words and pseudo, onset awareness, and in phonemic segmentation. The results showed that the comparative group performed better than the intervention group on the pre-reading skills pretest (Sucena et al., 2021). However, the intervention group performed better than the comparative group in all variables on the posttest. The results of the Two-Way MANOVA indicate a statistically significant multivariate main effect for both time and group for all dimensions (Sucena et al., 2021). There was also a multivariate main effect of the interaction between time and group in the evaluated dimensions. This study

assessed the implementation of a reading intervention program for at-risk students. The findings revealed that students who participated in the structured skills-based intervention outperformed better than their peers that did not participate (Sucena et al., 2021).

This study is similar to my study because it is comparing the means of two groups using a pre/posttest assessment. I think it is important to note that the intervention group started with lower scores than the comparative group and then by participating in a skills-focused intervention, these students were able to catch up and outperform their peers. Similarly, the outcome for my study showed that students participating in a skills-focused afterschool reading program outperformed their peers that did not attend the program. Ultimately the goal with my study and this study was to highlight the importance and need of focused intervention programs on student academic achievement.

Oh et al. (2015) assessed the quality of afterschool settings by collecting observational data five times over one school year. The researchers conducted a G-study of sources of variation by using the repeated-measures analysis of variance framework, addressing the quality and effectiveness of programs for students from diverse populations and socioeconomic statuses. The findings indicated the need to improve the observational measurement tools for assessing afterschool program quality. The quality of afterschool settings is a particularly relevant issue to school practices and policies, given the wealth of research that indicates what students bring into class affects teaching and learning processes. Educators can improve students' behaviors, attitudes, skills, and competencies through positive experiences and activities in high-quality afterschool

settings. In turn, afterschool settings result in improved contexts for teaching and learning in school (Oh et al., 2015).

Naftzger et al. (2014) explored the influence of high-quality and low-quality afterschool program participation on youth outcomes, conducting three studies in three cities. In each study, the researchers defined afterschool program quality by quality ratings produced with the Youth Program Quality Assessment (PQA), an observation-based quality assessment tool developed and supported by the Weikart Center. The PQA comprises a series of rubric-based items organized into four broad domains: safety, supportive environment, interaction, and engagement. Educators and scholars can use the PQA to identify quality ratings for instructional best practices in afterschool programs. In the three studies, Naftzger et al. obtained the PQA scores by running a series of Rasch-based analyses, and then classified the programs into higher-, moderate-, and lower-quality groupings using hierarchical cluster analysis. The scholars included the Rasch-derived scores on the supportive environment, interaction, and engagement domains of the PQA in these analyses, with correlational analyses connecting program quality to youth outcomes. Naftzger et al. identified three youth outcomes in which a positive relationship correlated with enrollment in higher-quality programs, subsequently replicating each of these quality-outcome relationships. The results showed that state and local educators should use the scarce resources available to them to fund the development and implementation of quality improvement systems predicated on tools like the PQA as a strategy for enhancing the likelihood of achieving desired youth outcomes, particularly those outcomes related to positive school-related behaviors.

Leos-Urbel (2015) addressed two policy issues centered on the correlation between afterschool programs and student achievement. The first issue was the voluntary nature of most afterschool programs, which resulted in low attendance rates; the second was the goals and academic activities provided by the afterschool program. Brecher et al. (2010) described the confusion and disagreement regarding afterschool attendance and programs. Based on the theory of self-determination, the authors suggested that afterschool programs should contribute to positive relations, independence, and skill-building (Brecher et al., 2010). Leos-Urbel analyzed three possible outcomes: afterschool program attendance, standardized reading scores, and standardized math scores and compared students of different ages enrolled in different programs of varying quality. This design was a means of decreasing selection bias because the afterschool programs were voluntary (Leos-Urbel, 2015). The author discovered that middle school students attended less often and did not engage as much as elementary students in afterschool programs. Leos-Urbel concluded that afterschool programs with supportive environments that contributed to student engagement had the highest reading and math standardized test scores.

There are several reasons why afterschool research can be a challenge. Selection bias could be a factor in non-experimental studies because students can decide to enroll in afterschool programs; even so, they may not regularly attend due to competing afterschool activities. Finally, there remains a question of the measures of gauging the effectiveness of afterschool programs. Many stakeholders and policymakers have begun to recognize the influence of afterschool programs on student achievement, and several

have worked to extend learning time and provide afterschool programs within their districts (Pensiero & Green, 2017). However, the structure and activities of afterschool programs still cause debate. Options for afterschool programs range from extending the school day to the incorporation of social aspects. Although the researchers in these studies did not suggest policy change for afterschool programs, they indicated that the structure and activities of afterschool programs have a significant influence on academic achievement (Pensiero & Green, 2017).

Afterschool Programs and Academic Achievement

The U.S. Department of Education's 21st Century Community Learning Center Program provides over $1 billion in annual investments and funding for approximately 10 million kindergarten to 12th grade students (Afterschool Alliance, 2014). Afterschool intervention is an effective approach to improving key school outcomes and literacy skills. Jenson et al. (2018) used a quasiexperimental design with nonequivalent comparison groups to examine the academic achievement of low-income, behavioral students in a K–12 community-based afterschool program. Recruitment for the afterschool program occurred in four public housing neighborhoods. The analysis included 418 students in the intervention group and 226 students in the comparison group, for a total of 644 students. The students who participated in the community-based afterschool program had significantly higher rates of school attendance than students in the comparison group (Jenson et al., 2018). The educators in the literacy intervention program taught the manualized Read Well curricula and provided one-on-one tutoring and homework help. As a result, the students in the intervention group significantly

improved their reading skills during the school year. Afterschool programs for high-risk students in low-income communities should be part of comprehensive strategies to improve academic achievement and students' behavior at school and in the community. The findings contributed to the existing knowledge of the effectiveness of afterschool programs and indicated the need for additional research on afterschool methods and procedures.

Lee et al. (2017) determined the effectiveness of an afterschool reading program for underserved elementary school students. The researchers followed a cohort of 28 low-income, ethnic-minority students in Grades 1–6 between the ages of 6 and 12 years. The authors collected data on the students' developmental assets and school progress at two points. The students showed improved perceptions of efficacy for accomplishing tasks, getting good grades, and reading achievement. Whereas changes in homework completion indicated changes in reading achievement, changes in efficacy beliefs and program exposure did not. When students received the support and encouragement they needed, the teachers reported significant improvements in students' reading ability and performance. The predictive analysis findings showed that increased teacher perceptions of homework completion produced higher reading achievement. However, there were inconclusive data regarding increases in the efficacy beliefs of program exposure. The students in afterschool programs who received support from teachers improved their reading achievement.

Stakeholders, administration, communities, and educators throughout the country have expressed a growing interest in afterschool programs because they are a potential

means of improving academic achievement. Due to this growing need and awareness, members of several special interest groups have secured funding and collaborated with school staff to create afterschool programs for academic success (Frias et al., 2015). Knopf et al. (2015) found that afterschool and enrichment literacy programs were a more effective means of improving achievement test scores for kindergarten through third grade students than programs with a focus on social skills and minimum academic focus.

Hodges et al. (2016) determined the influence of nontraditional afterschool and enrichment programs on student outcomes and achievement in language arts and math. The researchers used longitudinal mixed-effects modeling to analyze the math and language arts achievement scores of low-income students who attended an afterschool enrichment camp in the U.S. Midwest. The analysis showed that camp attendance had a positive effect on the students' state standardized math and language arts scores. The language arts and math data had similar patterns in the influence of the covariates and predictor variables. The results of the model indicated that students who participated in the enrichment program performed 58 points better than their classmates who did not attend. Students who consistently attended the program significantly improved their test scores over time; however, students with sporadic or no attendance did not improve. Although a regression analysis can only provide correlational inference rather than causation, the study showed that an out-of-school enrichment program could contribute to later achievement gains. Hodges et al. demonstrated the correlation between student achievement and attendance. Allington et al. (2010) also determined that student

achievement significantly improved when students received literacy-rich afterschool and summer opportunities.

Summary and Conclusion

This literature review was the means used to analyze studies to determine if attending an afterschool program resulted in improved student reading achievement. Chapter 2 indicated several gaps in the literature and the mixed results of the effectiveness of afterschool programs, students who struggle to read at grade level in early grades, and the duration and scheduling of supplemental reading interventions Different educators use different educational reform measures across the United States and even in the same school district. Despite numerous studies about afterschool tutoring and reading achievement programs, results were scarce, mixed, and often inconclusive. Although afterschool programs with tutoring based on Vygotsky's theories of sociocultural and social development are a beneficial intervention for struggling readers in lower grades, there is a need for additional research on the influence of these programs on third grade students. This literature review could provide school leaders with the data they need to make evidence-based decisions when planning, adapting and revising tutoring programs for reading.

More state and local funding is needed to continue, increase, and improve the school districts' tutoring programs and professional development for teachers so that no third grade student falls behind due to poor reading skills (Cappella et al., 2018). Elementary students who struggle to read need safe and nurturing educational environments in quality afterschool programs (Luter et al., 2017). Structured and scripted

intervention programs for students provide better outcomes than less-academic programs focused on social interactions. Studies have shown the influence of afterschool programs on standardized math and reading test scores and teacher-assigned grades, but there is still a need for additional research. In Chapter 3, I reviewed the research design, methodology, sampling, and data analysis used to complete the study.

Chapter 3: Research Method

The purpose of this quantitative study was to compare end of year STAR scale scores of third grade students in a specific eastern TN school district who attended an afterschool reading program for 30 or more days and those who did not while controlling for beginning of year STAR scale scores. In Chapter 3, the research design and methodology are discussed, including reasons for choosing the design, variables, sampling procedures, archival data methods, and data analysis. The chapter ends with a summary and involving around ethical considerations.

Research Design and Rationale

This quantitative study involved using a quasiexperimental ex post facto causal comparative design using archival data via ANCOVA analysis. The control group was third grade students who did not participate in the afterschool reading program. The independent variable was third grade student participation in the afterschool reading program. The dependent variable was third grade end of year STAR scaled scores. The covariate was beginning of year STAR scaled scores for these students. The ex post facto research design was most appropriate for this study because the afterschool reading program had already occurred. This design is a nonexperimental research design that researchers use to analyze information after it has occurred (Creswell & Creswell, 2018). The design is appropriate when the researcher is using archived data to examine variables of two groups. It was used to determine answers to the following research question:

Research Question 1: What was the difference in third grade students' end of year STAR scale scores between students who attended an afterschool reading program for 30

or more days and students who did not when controlling for beginning of year STAR scale scored at ETD?

$H_0$1: There is no difference in third grade students' end of year STAR scale scores between students who attended an afterschool reading program for 30 or more days and students who did not when controlling for beginning of year STAR scale scored at ETD?

H_a1: There was a difference in third grade students' end of year STAR scale scores between students who attended an afterschool reading program for 30 or more days and students who did not when controlling for beginning of year STAR scale scored at ETD?

In ex post facto studies, outcomes have already occurred, and it is therefore difficult to determine the order of events and how variables influenced one another (Johnson & Christensen, 2019). As such, it is not possible to draw cause-and-effect conclusions from this design. The basic assumptions for ex post facto design were as follows: the researcher cannot have control over the independent variables, use randomization, or manipulate variables, and it may be difficult to determine relationships between variables because there can be no firm conclusions on cause and effect, only generalizations about cause and effect (Frankfort-Nachmias et al., 2014). Therefore, this design was most suitable for this study.

A strength of ex post facto research is that it is relevant in disciplines such as education and social sciences, where variables cannot be changed or manipulated. It can be more useful than experimental research because it can be used to analyze the influence

of variables which cannot be manipulated (Johnson & Christensen, 2019). This type of research was also economical and less time consuming. Weaknesses of ex post facto research include the inability to manipulate variables or randomly assign groups. Using this research design may prohibit researchers from being able to give reasonable explanations involving relationships between variables. Since ex post facto designs involve archival data, this presented some external validity concerns in terms of generalizing results. However, this design was used to increase internal validity by addressing problems such as selection bias and self-reporting data.

Methodology

Population

The population for this study was 677 total third grade students from four different elementary schools from 3 consecutive years at ETD. Of those 677 students, 373 had beginning and end of year STAR scores. Within this district, 86% of children qualify for free or reduced lunch. Student demographics are 82% Caucasian, 8% African American, and 10% two or more races. According to the TN Department of Education (2018), 21% of students in this district scored below basic in reading/language arts achievement, 50% scored approaching basic, and 25% scored proficient.

Sampling and Sampling Procedures

I used a census sampling strategy, as all students enrolled in third grade in four schools in this district were included in the data set. Lodico et al. (2010) said census sampling is a nonrandom sampling technique that draws from the entire population. Archival STAR results and attendance data were provided by the school district for all

third grade students from the four elementary schools from 2016 to 2019. Any student in the population who did not have both STAR scores were eliminated from analysis due to incomplete data. The sample consisted of 373 total third grade students, with 141 students who attended afterschool programming for 30 or more days and 232 who had no afterschool attendance. Both groups had beginning and end of year STAR score information. Since this was archival data, recruitment of individual participants was not necessary.

Procedures for Recruitment, Participation, and Data Collection

A request to obtain STAR testing and afterschool attendance data for the 2016-2017, 2017-2018, 2018-2019 school years was submitted to the district office. The district provided deidentified student data. Once permission to conduct research was granted by the superintendent, the completed request form to conduct research along with the abstract and methodology portions of my study was submitted to the school system for final approval.

A G*Power analysis was used to compute the necessary number of participants needed for an ANCOVA. The assumed effect size was $f = 0.25$. Type 1 error was entered at .05 and power was 0.95. The number of groups entered was 2, with 1 covariate and 1 numerator degrees of freedom. The minimum sample size was $N = 210$, meaning 105 for each group. Cohen (1992) said for a study with two groups and one independent variable with a medium effect size using a one-way ANOVA, the group size should be around 64 participants. After I received data and removed all students with incomplete data, I

needed a minimum of 64 students who attended the afterschool program and 64 students who did not, with each group having beginning and ending STAR scores.

Archival Data

I used archival STAR scores and afterschool participation data collected from approximately 677 third grade students within four elementary schools across three school years (2016-2019), from one school district. Out of the 677 total third grade students, 141 students attended the afterschool program for 30 or more days, and 232 did not attend, both groups had a beginning and end of year STAR. With IRB approval (01-28-22-0449664), I obtained informed consent by disclosing the study's purpose, procedure, and presentation to the school superintendent to avoid misleading or harming the districts' administrators, faculty members, or students. Since I used archival data, I did not require additional permission. I obtained data user agreements from the rural ETD. The purpose of the agreement was to provide me with access to a limited data set in compliance the Family Educational Rights and Privacy Act.

Instrumentation

For this study, I analyzed the STAR scaled scores for all third grade students, from four elementary schools, that completed a beginning and ending STAR during three school years (2016-2019). The STAR was developed by Renaissance Learning and was chosen for use with students by the state of Tennessee (Renaissance Learning, 2018). The latest versions of STAR were published in 2017. The STAR provided norm-referenced scores for comparing a child's test results to the results of a group of children who have taken the same test. (Renaissance Learning, 2018). All test scores undergo conversion for

comparing to the norm-referenced scores (Renaissance Learning, 2018). The STAR did this in two steps. First, the maximum likelihood was the means used to estimate each student's location on the Rasch ability scale based on the difficulty of the items and the pattern of right and wrong answers. Second, the Rasch ability scores undergo conversion to STAR scaled scores (Renaissance Learning, 2018). I used the interval level of measurement for this study because the STAR consists of scaled scores based on an equal-interval scale. The nominal level would not be an appropriate measurement because I did not measure quality. I used the ordinal level of measurement because I did not assign the students with numbers and rankings. I used the ratio level of measurement because there was not an absolute zero in measuring reading levels and determining scaled scores.

Renaissance Learning used two methods to test the reliability of the STAR, internal consistency, and test-retest correlation coefficients (Renaissance Learning, 2020). The researchers tested over 5,000 students per grade level using the same bank of test questions over one year. A reliability coefficient of 1.0 = perfect (although perfect reliability is only theoretical), with coefficients of 0.7, 0.8, and 0.9 defined as good, better, and best. There was high internal consistency reliability that ranged between 0.93 to 0.95 and test-retest reliability of 0.91 for all grades (Renaissance Learning, 2020). The test also showed the reliability of the STAR equal to or higher than other major testing instruments.

Test validity was described as the degree to which a test measures what it was intended to measure (Renaissance Learning, 2020). A more current description was that a

test was valid to the extent that there were evidentiary data to support specific claims as to what the test measures, the interpretation of its scores, and the uses for which it was recommended or applied. The STAR had cumulative evidence of criterion-related validity, convergent and discriminant validity evidence, and had demonstrated accuracy of 30 screening and diagnostic classifications (Renaissance Learning, 2020). These components of construct validity provided evidence that an assessment measured specific attributes as claimed and was appropriate for specific uses and inferences. Construct validity evidence was attained cumulatively; upon its initial release, an assessment may have evidence consistent with construct validity, but over time additional support should be accumulated and documented (Renaissance Learning, 2020).

Operationalization of Variables

To measure the reading achievement of the students, student participation in the afterschool program was analyzed to determine if participation had any significant influence on student reading scaled scores while controlling for beginning of year reading achievement. The independent variable was third grade student participation in the afterschool reading program. This is a categorical variable and was represented by YES for attending the afterschool program for 30 or more days and NO for not attending the afterschool program. The dependent variable was the third grade end of year STAR scaled scores. The covariate was beginning of year STAR scaled scores of third grade students, this served as the baseline score to determine if any difference occurred in student scaled scores after attending afterschool programming for 30 or more days. The dependent and covariate were measured with interval numbers and are represented by a

score of 0-1400. By coding the data as described, it made it possible to determine if there were any difference in student end of year STAR assessment scaled scores of those that attended the afterschool program and those that did not, while controlling for the beginning of year STAR. The additional data set retrieved from the district were attendance data in order to confirm that students participated 30 or more days in the afterschool program.

Data Analysis Plan

Data analysis helped examine the efficacy of an afterschool reading program for struggling third grade students. The STAR scaled scores provided quantitative archival data for this study. I used the Statistical Package for Social Services Statistics version 28 (SPSS) to analyze the archival data of third grade students' reading scaled scores. I visually inspected the collected data and used SPSS to screen the data for outliers and test for statistical assumptions for the ANCOVA analysis. I referred to the test scores as the interval data indicated by the STAR scaled scores. In interval measurements, the numbers reported in the scores indicated the differences between the measured characteristics to present an interval scale (Leedy & Ormrod, 2010). In this study, that was the scaled scores. I analyzed the data to answer the following research question and test the hypothesis:

Research Question 1: What was the difference in third grade students' end of year STAR scale scores between students who attended an afterschool reading program for 30 or more days and students who did not when controlling for beginning of year STAR scale scored at ETD?

$H_0$1: There is no difference in third grade students' end of year STAR scale scores between students who attended an afterschool reading program for 30 or more days and students who did not when controlling for beginning of year STAR scale scored at ETD?

H_a1: There was a difference in third grade students' end of year STAR scale scores between students who attended an afterschool reading program for 30 or more days and students who did not when controlling for beginning of year STAR scale scored at ETD?

I conducted an ANCOVA analysis to examine if there was a significant difference in end of the year STAR scores between the two groups of third grade participants while controlling for preexisting differences with the covariate of beginning of year STAR scores. Researchers used ANCOVA in both experimental and quasiexperimental conditions to explore the differences between the mean scores of a dependent variable. Scholars also conducted ANCOVA for non-experimental archival designs in which the researcher did not get involved in the data measurement or collection and when the independent variables were the participants' attributes (i.e., non-manipulated) (Hesamian, 2016). ANCOVA was the appropriate statistical test to use for this study because it helped decrease the chance of error by using the student's beginning of year STAR as the covariate. After determining that the ANCOVA was the most appropriate statistical test, I uploaded my archival data set into IBM SPSS Statistics Version 28 for analysis.

Threats to Validity

Due to the quasiexperimental, ex post facto, causal comparative design, there were threats to the study's internal and external validity. Using a quasiexperimental design enabled me to study already-organized instructional groups to determine the influence of the afterschool reading program on overall reading achievement. A strength of ex post facto research was that the variables were not manipulated or changed. This was extremely useful and relevant in education disciplines, especially when measuring achievement, because I was not able to manipulate the factors necessary to study the cause and effect relationships directly (Cohen et al., 2000). By using archival data in ex post facto design, I was able to eliminate sampling bias which is considered a threat to external validity (Rudestam & Newton, 2017). It was more useful than experimental research because it was used to analyze the cause based on the effect (Johnson & Christensen, 2019). This type of research was also economical and less time consuming for the researcher. The weaknesses of ex post facto research was the inability to manipulate the variables or randomly assign groups. Using this research design prohibited me from determining cause and effect relationships, however, I was able to draw conclusions about the nature of the variables and their relationships to one another.

Since ex post facto designs used archival data, this presented some external validity concerns, such as the ability to generalize results. However, this design increased internal validity by illuminating problems such as selection bias and self-reporting data. Students' reading ability affected the validity of a reading assessment. For example, there could be an inaccurate reading assessment if the student does not understand the

assessment questions (Allington, 2012). The STAR is a test appropriate for the child's grade level, and the difficulty of the questions fluctuates depending on the student's answer to the previous question (Renaissance Learning, 2016). The role of using the beginning of year STAR as the covariate, allowed the scale scores to remain constant and allowed for differences to be accounted for due to the intervention, baseline, and/or both (Farmus, et al., 2019).

Content validity is the degree to which the test's content matches the content domain associated with the construct (Frankfort-Nachmias & Nachmias, 2008). Content validity is often a good indicator of whether there was an appropriate measurement of the desired trait. I achieved content validity, as the STAR aligned with the common core and national and state curriculum standards.

The STAR is considered to have validity because it accurately measures what it is intended to measure. "Empirical validity is determined by directly relating test scores or other predictors to the criterion of interest" (Renaissance Learning, 2016, p. 1). The STAR has been statistically linked to the Tennessee Comprehensive Assessment Program (TCAP) that all school district educators administer to students in kindergarten through eighth grade. Renaissance Learning professionals have also collected a large range of empirically valid correlations between the STAR and several state comprehensive exams (Renaissance Learning, 2016).

Construct validity is a means of ensuring that the test measures what it is supposed to measure. The STAR has strong construct validity (Mårdberg & Carlstedt, 1998). There has been a multitude of research to ensure the test is an accurate

measurement of the knowledge and skills needed for reading and vocabulary comprehension. The STAR has strong construct validity because it contains skills directly correlated to the common core objectives, such as reading comprehension, vocabulary, fluency, and grammar structure (Mårdberg & Carlstedt, 1998).

Ethical Procedures

This study was conducted in accordance with all policies and procedures required by the ETD and Walden University for conducting archival data analysis. The ETD school district did not have its own IRB review process. According to Walden University requirements, all researchers must receive approval from the IRB to collect data. I provided the school district a copy of the research proposal and IRB conditional approval along with a data sharing agreement. All identifying information that could identify participants was removed before collection.

There is a need for research in education and the classroom to develop effective programs and procedures for enhancing students' learning. However, several ethical considerations were essential when dealing with children and research. Safety and protection, the participants' rights, and effective communication of the results were priorities when researching children. I used the study's data only to determine if the afterschool reading program had any statistical influence on reading achievement and this may lead to recommending that educator's research further on whether to implement the program in other schools within the district. As the principal investigator of this study, my responsibility was to protect the privacy of the participants and keep the data confidential. The school district granted me permission to request and access the data

needed for this study. I completely disclosed the educational purpose of the study. Finally, I assured confidentiality of all participants by using de-identified data and confidentiality of the school district by using a generalized term for the school district in order to mask their identity.

Summary

Learning to read is a complex process (Rasinski, 2017). Students may struggle to read because they lack phonics and comprehension skills, necessitating the intervention of educators to close the achievement gap in reading (Rasinski, 2017). Elementary-level interventions before the fourth grade result in improved chances of closing the achievement gap, the difference in the academic performance between groups, and reaching grade-level reading standards (Balfanz & Byrnes, 2018). Updated national legislation focuses on closing the achievement gap through research-based interventions. Paluta et al. (2016) found that "afterschool programs helped improve academic performance, heightened self-esteem and diminished problem behaviors" (p. 49). State education agencies and local districts must find creative ways to enhance all students' learning experience, especially those at risk of failing to meet federal and state performance requirements.

This chapter included the research design and how I used a quasiexperimental ex post facto causal comparative design. I compared changes in third grade students' STAR scaled scores from three school years to discern the effect, if any, of the afterschool program on reading achievement. Chapter 4 includes study findings, with a summary and discussion of findings and recommendations following in Chapter 5.

Chapter 4: Results

The purpose of this quantitative study was to compare end of year STAR scale scores of third grade students who attended the afterschool reading program for 30 or more days and those who did not while controlling for beginning of year STAR scale scores. I analyzed archival data using an ANCOVA analysis.

The research question I used to guide this study was:

Research Question 1: What was the difference in third grade students' end of year STAR scale scores between students who attended an afterschool reading program for 30 or more days and students who did not when controlling for beginning of year STAR scale scored at ETD?

$H_0$1: There is no difference in third grade students' end of year STAR scale scores between students who attended an afterschool reading program for 30 or more days and students who did not when controlling for beginning of year STAR scale scored at ETD?

H_a1: There was a difference in third grade students' end of year STAR scale scores between students who attended an afterschool reading program for 30 or more days and students who did not when controlling for beginning of year STAR scale scored at ETD?

In Chapter 4, I provide a description of data collection methods and procedures for my study. I evaluate assumptions and present results based on my statistical analysis and report any additional statistical tests that emerged as a result of analysis. The chapter ends with a summary and transition to Chapter 5.

Data Collection

After obtaining approval from Walden International Review Board (IRB), I collected archival student data for this study. The rural East TN school district provided deidentified student beginning and end of year STAR scores and afterschool attendance data for all third grade students who were enrolled in four elementary schools within one school district, during the 2016-2017, 2017-2018, and 2018-2019 school years. The initial data set included a total of 677 third grade students. Data had to be cleaned, which meant eliminating unwanted columns and rows of information and combining schools and years into one file in order to run SPSS analysis. One data set was created that included all third grade students from every school who had both a beginning and end of year STAR assessment (n = 398) between 2016 and 2019. Students without both beginning and end of year STAR assessments were omitted (n = 279). Students with 29 days or fewer of afterschool attendance were also omitted (n = 25). I chose 30 or more days of attendance because the afterschool program is offered 55 days per semester and 110 days per school year. Thirty days is approximately 55% of attendance in one semester. Those students attending 30 or more days, had an opportunity to fully engage with and make progress in the afterschool reading program. The final sample included N = 373 total third graders, of which 183 were girls and 190 were boys. The two groups for my analysis included students who had both beginning and end of year STAR scores. The first group included 141 students who had 30 or more days of afterschool attendance and the second group included 232 students who had no afterschool attendance.

The cleaned and final data set was comprised of 373 third grade students from the rural east TN school district. The scaled score range for the STAR is between 0-1400, and therefore does not allow for infinite score possibility. There was only one student who scored in the higher range on the end of year assessment. The student's score was not ± 3 standard deviations from the mean; therefore, I did not delete this score. The final data set included 183 girls and 189 boys, who had both a beginning and end of year STAR. There were 141 students with 30 or more days of afterschool participation and 232 students with no afterschool participation. The size of the sample contained 162 more participants than the 210 participants required based on the power analysis, as presented in Chapter 3. Cohen (1992) stated that for a study with two groups and one independent variable with a medium effect size, using a one-way ANOVA, the group size should be around 64 participants. My sample size of 373 was large enough to have sufficient power in the study.

Results

In this section, I present descriptive statistics of the sample and assumptions of the ANCOVA. Statistical procedures were analyzed, evaluated, and reported. The section concludes with a summary of findings.

Descriptive Characteristics

During the 2016-2017, 2017-2018, and 2018-2019 school years, all third grade students from four different elementary schools within one rural east TN school district were given a beginning and end of year STAR to measure reading achievement growth. During this time, all students were given the opportunity to attend the free afterschool

reading intervention program. However, teachers in each school emphasized the need for students who were having difficulty reading or struggling with classwork to attend this program. Therefore, the beginning of year STAR mean for students who attended the program was naturally depressed and lower than the beginning of year STAR mean for students who did not attend the program. Descriptive statistics indicated that group numbers were consistent and reflective of their school enrollment numbers (see Table 1).

Table 1

Descriptive Statistics by School and School Year

Afterschool-Yes or No	School Name	School Year	Number of students	Mean of Spring Scaled Scores
			n	*M*
No	School A	2016-2017	18	537.78
		2017-2018	13	518.54
		2018-2019	20	547
	School B	2016-2017	19	546.21
		2017-2018	24	522.42
		2018-2019	20	485
	School C	2016-2017	33	444.06
		2017-2018	29	458.86
		2018-2019	28	411.5
	School D	2016-2017	9	408.78
		2017-2018	10	384.7
		2018-2019	9	376.22
Yes	School A	2016-2017	11	411.55
		2017-2018	11	472.45
		2018-2019	8	430.5
	School B	2016-2017	16	425.94
		2017-2018	12	475

	2018-2019	8	464.63
School C	2016-2017	12	393.17
	2017-2018	12	482.42
	2018-2019	11	441.73
School D	2016-2017	9	479.89
	2017-2018	13	467.31
	2018-2019	18	345.72

Of the 373 total third grade students, 141 students had 30 or more afterschool attendance days. The highest attendance was 159 days and the lowest was 30 days. The unadjusted mean scaled score of the beginning of year STAR for all third grade students was *M* = 313.9 and the unadjusted mean of the end of year STAR for all third grade students was *M* = 460.5. As shown in Table 2, the beginning of year unadjusted mean STAR scaled score for students who attended the afterschool reading program was *M* = 265.6 and the end of year STAR scaled score was *M* = 435.3. The beginning of year unadjusted mean STAR scaled score for students who did not afterschool reading program was *M* = 343.3 and the end of year STAR scaled score was *M* = 475.7.

Table 2

Beginning and End of Year STAR Scaled Scores

	Afterschool	*N*	*M*	*SD*
Beginning of Year STAR Scaled Score	No	232	343.3	134.5
	Yes	141	265.6	117.6
	Total	373	313.9	133.7

End of Year STAR Scaled Score	No	232	475.7	165.0
	Yes	141	435.3	156.7
	Total	373	460.5	162.9

ANCOVA Assumptions

I used ANCOVA to examine if there was a significant difference in end of the year STAR scaled scores between the two groups of third grade participants (yes-attended afterschool, no-did not attend afterschool) while controlling for preexisting differences with the covariate of beginning of year STAR scaled scores. Lakens (2013) required the evaluation of nine statistical assumptions when using an ANCOVA analysis. The assumptions were 1) the dependent and covariate variables were measured on a continuous scale 2) the independent variable contained two or more groups 3) there were different participants in each independent group 4) there were no significant outliers 5) there should be approximately normal residuals 6) there must be homogeneity of variances 7) the covariate must align in a linear pattern with the dependent variable as it relates to each independent factor 8) there must be homoscedasticity 9) there must be homogeneity of regression slopes. The first three assumptions were met through the design of my study. The beginning and end of year STAR scaled scores were measured on a continuous scale. The independent variable contained two groups with different participants, those third grade students that attended the afterschool reading program and those that did not attend the afterschool reading program.

The remaining six assumptions were tested using SPSS. To test for the fourth and fifth assumptions, I ran the descriptive statistics and screened the data for outliers by looking at data points that were within ±3 standard deviations from the mean. I did not find any students with scores ±3 standard deviations from the mean. Within the descriptive analysis, I looked at the Test of Normality, specifically the Shapiro-Wilk test, which indicated a significant result for the beginning and end of year scaled score ($p <$ .001), therefore not meeting assumption five indicating that the beginning and the end of year scaled score data were normally distributed. Given that the Shapiro-Wilk test is known to be extremely precise and sensitive to minor variations from normality, additional inspection of the data was conducted. Despite the significance of the Shapiro-Wilk test, I conducted a visual inspection of the plots which indicated that these data were close to normal.

In further consideration of the normality assumption, the study's large sample size is believed to sufficiently address the issue of normality and allow for continuing with the analysis. According to Ghasemi and Zahediasl (2012), large enough sample sizes, greater than 30 or 40, should not cause major concerns with the normality assumption. Poncet et al. (2016) determined that the ANCOVA is a powerful and robust test even under asymmetric distributions and therefore normality and sample size do not matter when comparing larger groups of same size and variance. Snijders (2011) stated that the ANCOVA, with a large sample size, is robust against deviations from normality and the violation of this assumption should only be considered if there are significant outliers. The data set for this study had no significant outliers and the sample was considered large

with 373 students. Since my sample size was large and the ANCOVA was a robust test, I proceeded with running the ANCOVA analysis.

Levene's test showed a non-statistically significant result ($p = .087$) which met the assumption of homogeneity of variances. To test for a linear relationship between the covariate and dependent variable for each level of the independent variable, I created a matrix scatterplot. Assumption seven was met because the points on the scatterplot formed an elliptical shape, indicating there was a linear relationship. To test for homoscedasticity, I created a scatterplot of the standardized residuals compared to predicted values. Assumption eight was met because the plots had homoscedasticity and followed the linear path. The tests between subject effects that compared the afterschool intervention with the pretest score, showed a non-significant result of ($p = .189$), which met assumption nine. Since my sample size was large and the visual inspection of the plots were close to normal, I proceeded with running the ANCOVA analysis to test the hypothesis.

Analysis of Findings

The research question that guided this study was: What was the difference in third grade students' end of year STAR scale scores between students who attended an afterschool reading program for 30 or more days and students who did not when controlling for beginning of year STAR scale scored at ETD? An ANCOVA, between-subjects factor: afterschool (yes, no); covariate: beginning of year STAR, revealed the effect of afterschool participation was significant, $F(1, 373) = 13.45$, $p < .001$, $\eta p^2 = .035$, illustrating a moderate effect size. The main effect of beginning of year scaled scored was

also significant, $F(1, 373) = 702.96$, $p < .001$, $\eta p^2 = .655$, illustrating a large effect size. The interaction between afterschool participation and beginning of year scaled score was not significant, $F(1, 373) = 1.732$, $p = .189$, $\eta p^2 = .005$, illustrating a small effect size.

Findings showed that when controlling for the beginning of year test, there was a statistically significant difference ($p < .001$) in the end of the year STAR scaled scores for students who attended the afterschool reading program compared to those that did not attend. The moderate effect size of the partial eta squared indicated that afterschool participation contributed to 3.5% of the difference in end of year scaled scores. Even though the effect of afterschool participation was significant, the strength of the effect was very weak. The large effect size of the partial eta squared indicated that the scores on the beginning of year STAR contributed to 65% of the difference in end of year scaled score. Meaning that the beginning of year STAR had a huge influence on the outcome of the end of year STAR scaled scores. The null hypothesis was rejected because the findings show that there was a statistically significant difference ($p < .001$) in the end of year STAR scaled scores of students that attended the afterschool when controlling for the beginning of year assessment. The estimated marginal means were the adjusted mean scores that took into account the covariate, beginning of year STAR scaled scores. The estimated marginal mean was the mean of each group, those that attended the afterschool reading program $M = 485$ and those that did not attend $M = 446$, when compared to the end of year STAR scaled scores. The estimated marginal means indicated that students who participated in the afterschool reading program scored on average 39 points higher

on the end of year STAR than the students who did not attend the afterschool reading program.

Summary

A quasiexperimental quantitative methodology was used with archival data to compare end of year STAR scale scores of third grade students who attended the afterschool reading program for 30 or more days with those who did not. The control group was third grade students who did not participate in the afterschool reading program. The independent variable was third grade student participation in the afterschool reading program. The dependent variable was third grade end of year STAR scaled scores. The covariate was beginning of year STAR scaled scores for this population.

Archival data were collected from four elementary schools within one rural east TN school district during the following school years: 2016-2017, 2017-2018, and 2018-2019. The dataset consisted of 373 third grade students who had both beginning and end of year STAR scores. Out of the 373 students, 141 attended the afterschool reading intervention program and 232 did not.

I used ANCOVA for analysis of RQ1, what was the difference in third grade students' end of year STAR scale scores between students who attended an afterschool reading program for 30 or more days and students who did not when controlling for beginning of year STAR scale scored at ETD. The estimated marginal means of the end of year scores for the group who attended the afterschool program was higher (M = 485) compared to students who did not attend (M = 446). Results revealed that there was a

statistically significant difference, and so the null hypothesis was rejected. The partial eta squared indicated a moderate effect size in end of year STAR scaled scores of students who attended the afterschool program when controlling for the beginning of year assessment.

In Chapter 5, I discuss and provide a summary of interpretations and implications related to these findings. I revisit and explain limitations of this study and provide suggestions for further research to build on findings from this study. Finally, I address social change implications and potential research questions for future researchers to consider.

Chapter 5: Discussion, Conclusions, and Recommendations

Afterschool interventions are critical for helping students gain the academic knowledge and skills that help them achieve in school and beyond (Harpine, 2019). Students who fall behind in reading rarely catch up with their peers (Balfanz & Byrnes, 2018; Stevens et al., 2020). Struggling readers need strategic, intensive, and varied intervention programs over the course of several years in order to maintain grade level achievement (Balfanz & Byrnes, 2018; Stevens et al., 2020).

The purpose of this quantitative study was to compare end of year STAR scale scores of third grade students who attended the afterschool reading program for 30 or more days and those who did not while controlling for beginning of year STAR scale scores. The control group was third grade students who did not participate in the afterschool reading program. The independent variable was third grade student participation in the afterschool reading program. The dependent variable was third grade end of year STAR scaled scores. The covariate was beginning of year STAR scaled scores for this population. There was a need for this study because there was limited research on this topic. Information generated from this study may lead to policy changes in school districts involving the structure and implementation of quality afterschool reading programs.

Key findings regarding differences in end of year STAR scaled scores between students who attended the afterschool reading program for 30 or more days and those did not were statistically significant. An ANCOVA analysis was run to determine differences in end of year student scaled scores when controlling for beginning of year student

scores. Findings showed that when controlling for the beginning of year test, there was a statistically significant difference in end of year STAR scaled scores for students who attended the afterschool reading program compared to those who did not attend. The estimated marginal means of end of year scores for the group that attended the afterschool program was higher (M = 485) than the mean of students who did not attend (M = 446). Therefore, based on the ANCOVA analysis, the null hypothesis was rejected.

This chapter includes interpretations of findings supported by the theoretical framework and literature review that was presented in Chapter 2. Limitations presented in Chapter 1 are restated and recommendations for future research are suggested based on these limitations. I discuss implications that this study has for future researchers and stakeholders within the education community.

Interpretation of the Findings

I sought to compare differences in end of year STAR scale scores of third grade students who attended the afterschool reading program for 30 or more days to those who did not. For this study, ANCOVA analysis was used to determine differences between variables. One goal of this study was that results could influence policy changes in school districts involving structure and implementation of quality afterschool reading programs to increase academic reading achievement.

Interpretation of Findings Related to Theoretical Framework

Vygotsky's sociocultural and social development theories were theoretical frameworks for this study. These theories involve the concept of social interactions between learning and teaching to improve academic achievement (Deroo & Watson,

2020; Frankel et al., 2021). Vygotsky's social development theory has found applications in terms of how people of all ages learn and attain knowledge. According to Vygotsky (1978), children and people of all ages learn in three ways. First, learning can happen by imitating someone who already knows how to complete a task or skill. Second, a skill or task can be learned by hearing instructions involving how to do it and then completing the task based on these instructions. Third, new skills, tasks, or behaviors can be learned by working collaboratively with others. In these cases, the learner has three levels of skills (Ungvarsky, 2020). Students who attended the afterschool program performed better on the end of year reading assessment compared to students who did attend. Students who participated 30 or more days in the afterschool reading program received individualized instruction in smaller groups by a trained teacher. They were presented information in a fun and engaging environment, and were able to work collaboratively with their peers.

Interpretations of Findings Related to the Literature Review

Findings from this study aligned with research in Chapter 2 that supported the need for targeted reading interventions and extended learning time to increase academic achievement. Due to rising standards of academic achievement and continual district budget cuts, educational stakeholders must understand the vital need for increased learning time for academic achievement (Campbell et al., 2021). D'Agostino and Rodgers (2017) said rising academic standards affect almost every kindergarten-aged child in the United States. Thus, D'Agostino and Rodgers suggested that educators

update literacy interventions regularly with research-based afterschool literacy practices to meet needs of modern kindergarten and first graders.

Likewise, significant findings in this study confirmed the need for quality afterschool program interventions for struggling readers. Sucena et al. (2021) assessed the implementation of a reading intervention program for at-risk students. The intervention group started with lower scores than the comparative group and then as a result of participating in a skills-focused intervention, these students caught up and out performed their peers. The findings from this particular study revealed that said students who participated in structured skills-based interventions saw greater achievement compared to those who did not participate. Students who participated in afterschool programs and received support from teachers improved their reading achievement. Massengale and Perryman (2021) said when children are engaged in an environment where they feel emotionally safe, they are able to engage in their learning environment, thus resulting in higher academic achievement. When students receive the support and encouragement they need, teachers reported significant improvements in terms of students' reading ability and performance (Jenson et al., 2018; Lee et al., 2017). Jenson et al. (2018) said students who participated in a community-based afterschool program had significantly higher rates of school attendance compared to students in the comparison group and significantly improved their reading skills during the school year. Afterschool programs for high-risk students in low-income communities should be part of comprehensive strategies to improve academic achievement and students' behavior. Findings from this study will contribute to existing knowledge regarding effectiveness of

afterschool programs and the need for additional research on afterschool methods and procedures.

Limitations of the Study

One limitation of an ex post facto design is that random assignment is not possible because the intervention or treatment has already occurred (Johnson & Christensen, 2019). A limitation of this study was that archival data were collected and pooled from four different elementary schools across 3 years within one school district in eastern TN for third grade students only, making it hard to guarantee that all students had the same afterschool staff and level of support and structure from school to school or year to year. Also, since the sample was taken from just a single school district, rather than a random sample, this could be seen as a potential limitation, because a random sample could provide a more diverse population of students. Another limitation, as mentioned in Chapter 1, was the elementary students' reading ability and ability to attend the afterschool program. Teachers in each school emphasized the need for students who were having difficulty reading or struggling with classwork to attend the afterschool reading program. Therefore, the beginning of year STAR scaled score mean for students who attended the afterschool reading program was naturally depressed and lower than the beginning of year score mean of students who did not attend. Students who received instruction during the afterschool program likely received more hours of reading instruction compared to students who did not. Thus, it is possible that difference in STAR scores could be attributed to afterschool program students having more hours of instruction involving reading and not a direct result of the afterschool program.

Recommendations

Study findings indicated participation in the afterschool reading program had a positive effect on third grade students' reading achievement scores. My recommendations for further research are grounded within the strengths and limitations of this study. This study was limited to third grade students, who attended the afterschool reading program, at only four schools, within one school district, and not every student that attended the afterschool reading program. For future studies, I would recommend pooling students in Kindergarten through third grade that attended the afterschool reading program and see if there were any significant differences in scores between the different grade levels. This study pooled students from three school years, however, a similar longitudinal study that follows students who attended the afterschool reading program for more than one year, would be beneficial in comparing their reading achievement progress against their peers that did not attend. The current study examined only those students who attended the afterschool reading program for 30 or more days and those that did not attend as all. For further study, it would be beneficial to see the number of days students attended the afterschool reading program compared to significant growth in reading scores, or a breakdown of scores based on less than 30 days of attendance, 30-60 days of attendance, or 90+ days of attendance. Further research in this area would help to understand the level and degree of time needed in a specific intervention to have a positive influence on reading scores.

It is also recommended that more research be conducted on the curriculum and strategies used by the teachers in each of the afterschool reading programs. Although the

reading programs were structured similarly, the reading strategies implemented by individual teachers and tutors were not observed. I would recommend that consistency of using the reading strategies across teachers is observed and over time teachers are shown to be implementing the program and teaching methods with fidelity to the model. Therefore, it is unknown if the afterschool reading program alone impacted how students learned and performed on the end of year assessment or if these students improved due to differentiation of instruction and best practices in teaching reading.

Implications

Marking the transition from learning to read, to reading to learn, third grade level reading proficiency is a pivotal point in a child's educational development whereby literacy becomes the cornerstone for lifelong education achievement (Nelson-Royes, 2018; Ness, 2016; Stevens et al., 2020). As a result, students who do not possess the expected reading skills in third grade often fall behind their peers, making it difficult to regain lost ground without intervention (Balfanz & Byrnes, 2018; Harpine, 2019; McFarland et al., 2017). The extent of this shortfall in the US today is staggering: the 2019 National Assessment of Educational Progress (NAEP) reports that 65% of all US children in fourth grade were below proficient readers (NAEP, 2019). Beyond academia, federal and state policy makers also recognize the importance of achieving proficient reading by the end of third grade. To these ends, many states have enacted grade retention policies. There is no academic consensus as to whether holding students back a year is socially detrimental and may increase dropout rates, or if progressing students who are below grade level proficiency in order to maintain their social development is

just as harmful (Black, 2017). Policymakers are increasingly looking to intervene through high-quality early childhood development and additional learning time outside of the school day via afterschool or summer school programs (Black, 2017). Accepting that reading proficiency at the end of third grade is a key educational milestone and indicator at predicting lifelong education achievement, this research study may contribute to positive social change by providing information to stakeholders, district personnel members, school board members, and community leaders to help them better understand the effectiveness of afterschool elementary reading intervention.

Conclusion

The purpose of this quantitative study was to compare end of year STAR scale scores of third grade students who attended the afterschool reading program for 30 or more days and those who did not attend the afterschool reading program while controlling for beginning of year STAR scale scores. Archival data was collected from four elementary schools within one rural East TN school district during the school years of 2016-2017, 2017-2018, and 2018-2019. The data analysis revealed that there was a statistically significant difference in the end of year STAR scaled scores of students that attended the afterschool when controlling for the beginning of year assessment. The findings from this study confirm previous studies that suggested struggling readers need strategic, intensive, and varied intervention programs over the course of several years in order for students to maintain grade level achievement (Balfanz & Byrnes, 2018; Stevens et al., 2020). Although afterschool intervention programs have been seen an effective approach to improving key school outcomes and literacy skills, further research needs to

be conducted on the variance in time, structure, quality, and effectiveness (Jenson et al., 2018).

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