

2018

Impact of Increased Learning Time on Economically Disadvantaged Students at an Urban Elementary School

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Walden University

College of Education

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Scott Matthew Larkin

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Walden University
2018

Abstract

Impact of Increased Learning Time on Economically Disadvantaged Students at an
Urban Elementary School

by

Scott Larkin

MA, Georgian Court University, 2003

BA, University of Richmond, 1996

Doctoral Study Submitted in Partial Fulfillment
of the Requirements for the Degree of
Doctor of Education

Walden University

May 2018

Abstract

At an urban school district, administrators were concerned about the English language arts (ELA) achievement gap between economically disadvantaged (ED) students and non-economically disadvantaged (NED). To address this gap in performance, district administrators instituted an extended day program (EDP) for ED students that included additional learning time and individualized strategies in ELA. The purpose of the study was to determine the extent of the impact that the EDP had on ED students in ELA achievement. The quasi-experimental quantitative design was guided by Carroll's model of school learning and explored the difference in ELA Partnership for Assessment of Readiness for College and Careers (PARCC) scale scores between ED students who participated in the EDP and ED students who did not during the 2016/2017 school year. The study examined 28 matched-pairs of students, based on grade level and reading ability who were classified as ED during school year 2016/2017, following an intervention. Ex post facto analysis included a paired-samples *t* test to determine whether a statistically significant difference existed in ELA PARCC scores for ED students who received the intervention and those who did not, controlling for grade level and reading level. Data analysis indicated no statistical difference between groups. The project deliverable recommended implementation of a Response to Intervention program to replace the EDP because such a program would affect more students. Local school administrators may use the findings of the study to effectuate positive social change by making program decisions that could support the improvement of ELA achievement of ED students. In the larger context, this study could become part of the body of literature on the relationship between extended learning time and academic achievement among ED students.

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Dedication

To W.W. My star. My perfect silence.

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Table of Contents

List of Tables	v
List of Figures	vi
Section 1: The Problem.....	1
The Local Problem.....	1
Rationale	4
Definition of Terms.....	4
Significance of the Study	5
Research Question and Hypotheses	6
Review of the Literature	8
Introduction.....	8
Theoretical Framework.....	9
Achievement Gap.....	10
Poverty	15
Learning Time.....	22
After School Programs.....	25
Recommendations for Improving After School Programs	29
Implications.....	30
Summary.....	32
Section 2: The Methodology.....	34
Introduction.....	34
Research Design and Approach	34

Participants.....	38
Setting and Sampling	38
Instrumentation and Materials	42
Assessment of Reliability and Validity.....	47
Data Collection and Analysis.....	53
Data Collection and Research Question Alignment	54
Access to Dataset	56
Variable Scales.....	56
Descriptive and Inferential Analyses	57
Assumptions, Limitations, Scope, and Delimitations	60
Protection of Participant Rights’	64
Data Analysis Results	64
Descriptive Statistics.....	65
Inferential Statistics	71
Summary	72
Project Deliverable.....	73
Section 3: The Project.....	74
Introduction.....	74
Rationale	75
Review of the Literature	75
Writing a White Paper	76
Improving Afterschool Programs	77

Data-Driven Decision Making in Education.....	80
Response to Intervention.....	84
Project Description.....	88
Resources, Supports, Potential Barriers, and Potential Solutions to Barriers.....	88
Implementation Timeline.....	91
Roles and Responsibilities	92
Project Evaluation Plan.....	93
Evaluation Type	93
Project Goals.....	94
Project Implications	95
Social Change Implications	95
Importance to Stakeholders.....	95
Conclusion	96
Section 4: Reflections and Conclusions.....	97
Introduction.....	97
Project Strengths and Limitations.....	98
Strengths	98
Limitations	98
Recommendations for Alternative Approaches	99
Scholarship, Project Development and Evaluation, and Leadership and Change	100
Reflection on Importance of the Work	101

Implications, Applications, and Directions for Future Research	102
Implications for Social Change.....	102
Theoretical Implications	102
Recommendations for Future Practice.....	103
Recommendations for Future Research.....	103
Conclusion	104
References.....	106
Appendix A: The Project	131
Appendix B: Letter of Cooperation	151
Appendix C: Data Use Agreement	153
Appendix D: Confidentiality Agreement.....	156

List of Tables

Table 1. Comparative Proficiency rates of NED and ED students at an Urban School District on New Jersey Assessment of Skills and Knowledge as a Percentage	1
Table 2. Comparative proficiency rates of NED and ED students at an urban school District on the Partnership for Assessment for College and Career Readiness	2
Table 3. Lexile® Score Ranges for Grades 3-8	36
Table 4. Characteristics of ED Students in Sampling Population	41
Table 5. PARCC ELA Scoring Rubric Traits	45
Table 6. PARCC Writing Assessment Rubric	46
Table 7. Computer-Based PARCC ELA Version Reliability of 2016/2017 Assessment..	48
Table 8. Computer-Based PARCC ELA Version Reliability of 2016/2017 Assessment for Economically Disadvantaged Students	49
Table 9. PARCC Unit Testing Times	52
Table 10. Quantitative Variable Scales	57
Table 11. Aggregated Descriptive Statistics	65
Table 12. Disaggregated Descriptive Statistics	65
Table 13. Paired Samples	67
Table 14. Shapiro-Wilk Test	70
Table 15. Paired Samples <i>t</i> Test Analysis	72
Table A1. Aggregated Descriptive Statistics	138
Table A2. Disaggregated Descriptive Statistics	138
Table A3. Paired Samples <i>t</i> Test Analysis	139

List of Figures

Figure 1. Static-group comparison, pre-experimental design.....62

Figure 2. Paired-samples *t*-test flow chart63

Section 1: The Problem

The Local Problem

At an urban school district in New Jersey, students have historically performed below the state average on statewide assessments as reported by the New Jersey Department of Education (NJDOE). When disaggregated, these assessment scores revealed an achievement gap at the school district between economically disadvantaged students (ED) and non-economically disadvantaged students (NED). Table 1 illustrates the gap in proficiency rates on the New Jersey Assessment of Skills and Knowledge (NJASK) between ED and NED students at the urban school district over a 3-year period. While overall performance increased, the disparity between groups has remained static.

Table 2, shows similar gaps between ED and NED students at the local school district as measured by the Partnership for Assessment for College and Career Readiness (PARCC) assessment during SY 2014/2015, 2015/2016, and 2016/2017.

Table 1

Comparative Proficiency Rates of NED and ED Students at an Urban School District on New Jersey Assessment of Skills and Knowledge as a Percentage

School year	Language arts literacy		Mathematics	
	NED	ED	NED	ED
2011/2012	58	33	67	30
2012/2013	70	40	78	47
2013/2014	70	24	73	26

Note. NED = Non-economically disadvantaged; ED= economically disadvantaged. Adapted from “New Jersey School Performance Report for 2013/2014,” by the New Jersey Department of Education, 2015, and “New Jersey School Performance Report for 2012/2013,” by the New Jersey Department of Education, 2014, and “New Jersey School Performance Report for 2011/2012,” by the New Jersey Department of Education.

Table 2

Comparative Proficiency Rates of NED and ED Students at an Urban School District on the Partnership for Assessment for College and Career Readiness

School year	English language arts/literacy		Mathematics	
	NED	ED	NED	ED
2014/2015	67	25	41	2
2015/2016	69	29	55	17
2016/2017	71	28	44	14

Note. NED = Non-economically disadvantaged; ED= economically disadvantaged. Adapted from “2015 PARCC Assessment Scores,” by the New Jersey Department of Education, 2016, “2016 PARCC Assessment Scores,” by the New Jersey Department of Education, 2016, and “2017 PARCC Assessment Scores,” by the New Jersey Department of Education, 2017.

Despite attempted reforms, an achievement gap between students based on socioeconomic status (SES) also exists nationally (Bohmstedt, Kitmitto, Ogut, Sherman, & Chan, 2015; Graham & Provost, 2012; Huang, 2015). These reforms included increased support for ED students (Amendum & Fitzgerald, 2013), an enhanced focus on early education (Hagans & Good, 2013; Herbers et al., 2012; Schippers, 2014), and specific teacher training (Battey, 2012). ED students were more likely to drop out of high school, earn less income, have greater rates of absenteeism, and were persistently poor (Goins, 2014); each of these represent long-term negative implications for these students.

To help address the problem, the local school district allocated federal grant money awarded under Title I, Part A (Title I) of the Elementary and Secondary Education Act (ESEA) to fund an extended school day program. Title I provides financial assistance to school districts with high rates of poverty (U.S. Department of Education [USDOE], 2015). Districts must use this money to provide increased learning time for those students

most at-risk of failing to meet state academic proficiency standards (USDOE, 2015). Researchers indicated that extended learning time provided during after-school programs increased student achievement scores (Berry & Hess, 2013; Del Razo & Renee 2013; Kidron & Lindsay, 2014). Simply providing after-school programs, however, did not necessarily support diverse learners and close this achievement gap. On-going program assessment was required to inform program decisions intended to significantly improve student learning (Rodgers, Grays, Fulcher, & Jurich, 2012). Effective assessment should also be triangulated across multiple observers, over multiple days, using multiple tools (Tracy, Surr, & Richer, 2012). Such assessment can provide a more accurate accounting of program achievement. In previous school years, the district allocated Title I funds to purchase professional development services, additional technology, and classroom reduction instructors (B. McBride, personal communication, February 11, 2011). In 2011, the NJDOE determined that the district misused these federal funds and required a corrective action plan (R. Cicchino, personal communication, December 20, 2011). In response, the district began an extended learning program (P. Collum, personal communication, December 1, 2013). During SY 16/17 the extended school day program at the local school district offered eligible students 40 hours of increased learning time in 2-hour increments after school. Students were grouped in classes of 8-10 and were taught mathematics and English language arts/literacy (ELA) by certified district teachers. Students were also taught computer skills and character education (S. Richert, personal communication, July 14, 2015). Eligibility for this program was based on achievement scores, a teacher's recommendation, and a parent's request (S. Larkin, personal

communication, June 29, 2015). All 35 students who attended the program were classified as ED during SY 16/17. Following the completion of this program, district officials did not analyze the data to determine the impact of an extended school day program on ED students nor did they solicit qualitative data. District administrators were concerned that this program was not summarily evaluated to determine its effectiveness (D. Bramley, personal communication, May 31, 2015).

Rationale

The purpose of the study was to determine the effect that the extended school program (EDP) had on ED students in ELA achievement. As cited in Tables 1 and 2, ED students attending the school district have achieved lower proficiency rates in ELA on both the NJASK and PARCC assessments. District leadership have expressed concern regarding this achievement gap and sought to determine the extent to which the EDP has affected ED students who have been enrolled and received the EDP services (D. Bramley, personal communication, May 31, 2015). Once I had collected and analyzed secondary data using a quantitative approach, I created a policy recommendation following Walden University guidelines. This evaluation may assist district administrators in making decisions concerning the extended school day program.

Definition of Terms

Achievement gap: Disparity in academic success between majority and marginalized student groups (Huang, 2015).

After school programs: Activities, both academic and social, that are organized and supervised by adults and occur after the end of a school's instructional day (Rhea, 2013).

Blended learning: Integrating traditional teaching methods with computer-based instructional programs (Williams, 2011).

Early intervention: Instructional programs for at-risk students before the age of 5 (Schippers, 2014).

Economically disadvantaged: Students who qualify for free or reduced lunch under federal guidelines (Amendum & Fitzgerald, 2013).

Extended school day: Programs that extend the number of hours students spend in school daily or the number of days students spend in school annually (Kidran & Lindsay, 2014).

Grade retention: Failure of a student to progress to the grade due to academic, attendance, or social difficulties (Mallett, 2016).

Poverty: Earning less than \$24,257.00 for a family of 4 in 2015 (United States Census Bureau [USCB], 2015).

Significance of the Study

Nationally, a gap in academic achievement exists between ED and NED students (Bohmstedt et al., 2015; Graham & Provost, 2012; Huang, 2015). The findings of this study will contribute to the greater study of improving ELA achievement among ED students. The existence of an achievement gap between ED and NED students dictates that educators seek more effective methods for improving ELA skills for ED students.

At the local school district in New Jersey, an achievement gap exists between ED and NED students in ELA dating back to 2011. This specific study analyzed archival test data from the PARCC to determine the extent to which ED students' enrollment in the EDP effected a difference in student scores in ELA on the PARCC compared to ED students not enrolled in the EDP. This study may be useful for local administrators in making evidenced-based decisions regarding using the EDP for ED students as an intervention to possibly improve student performance in ELA on the PARCC. By participating in EDP's, which use research-based teaching strategies, ED students at the local school district may have an improved chance of gaining skills in ELA. Such skills may help these students demonstrate proficiency on the PARCC, creating a more successful school experience. A successful EDP could support administrators by providing an intervention tool to help close the achievement gap between ED and NED students in ELA as measured by scores on the PARCC. Additionally, data analysis may provide a basis for completing a thorough policy recommendation related to the use of EDP to support ED student learning in ELA. Future researchers may also use these findings to consider the use of supplemental instruction for ED students in ELA and other academic areas.

Research Question and Hypotheses

At the local school district, an achievement gap exists between ED students and NED students (NJDOE, 2016) in ELA and math performance as measured by the PARCC. In recent years, the district administrators implemented the EDP to address the poor performance of ED students in ELA and math. In SY 16/17, the school

administrators used Title I monies to fund the EDP for eligible students. Eligible students included those who were deemed most at-risk of failing to meet state proficiency standards. During the EDP, certified staff taught students math and ELA in small group settings using evidence-based practices. Following completion of the program, district administrators did not conduct an evaluation to determine the effect of EDP on reducing the ED/NED achievement gap. Additionally, administrators did not evaluate the extent to which the EDP program affected the performance of ED students in ELA as measured by the PARCC. Thus, this study focused on one academic area, ELA, in order to provide summative data regarding the extent to which the EDP affected ED student performance in ELA on the PARCC compared to ED students not receiving the EDP. The following research question guided this study:

RQ: What is the difference in ELA PARCC scale scores between ED students who participated in the EDP and ED students who did not participate in the EDP for the SY 2016/2017 while controlling for grade level and Lexile[®] reading score?

H_0 : There will be no significant difference between ELA PARCC scale scores of ED students participating in the EDP and ED students who did not participate in the EDP as measured by the post test scores of ELA on PARCC assessments during SY 2016/2017 while controlling for grade level and Lexile[®] reading score.

H_a : There will be a significant difference between ELA PARCC scale scores of ED students participating in the EDP and ED students who did not participate in the EDP as measured by the post test scores of ELA on PARCC

assessments during SY 2016/2017 while controlling for grade level and Lexile[®] reading score.

Review of the Literature

Introduction

Despite the efforts of educators and researchers, student achievement gaps still exist, leaving some students at a disadvantage. Recent assessment data from the U.S. Department of Education indicated that reading achievement gaps between high poverty and low poverty schools has remained static since 2005 (Kena et al., 2016). The literature review for this study examined the body of research on the main topics of poverty, achievement gap, and extended learning time. This examination revealed similarities and differences in the findings and recommendations of researchers. The findings of the literature review help frame the study, provide a factual context for the local problem on a larger setting, and offer opinions regarding validity and next steps.

Using the Walden University library resources databases including Academic Search Complete, Education Source, Education Resource Complete, ERIC, Sage Premier, and ProQuest, I utilized these search terms and identified current, peer-reviewed articles that were related to my study. After reading a sampling of these articles, I identified the subtopics *tutoring*, *student achievement*, *reading*, and *time* to gather further research. Using a matrix, I identified and sorted information from the literature into these common subtopics. This matrix served as the roadmap for my review.

Theoretical Framework

The theoretical framework for this study was Carroll's model of school learning. According to Carroll (1963), schools' goals are learning tasks, a process that is described as a student moving from not knowing a concept to knowing it. The model can be applied to all student learning that can be measured with a valid assessment. The five factors that impacted learning tasks were aptitude (time needed to learn), opportunity (amount of time allotted for learning), perseverance (time a person is willing to work on a task), quality of instruction (both teaching and materials), and ability to understand (general intelligence). Carroll (1963) presented these five factors under two headings: determinants of time needed for learning (aptitude, ability to understand, and quality of instruction) and determinants of time spent in learning (perseverance and opportunity). Because these times were variable, degrees of learning became a function of time spent over time needed. Any variance in time needed to learn a task represented the inverse of a person's ability to understand. Farbman (2015) stated that this framework "unpacked the commonsensical connection between time and learning" (p. 4). Learning, therefore, increased as educators provided increased instructional time.

Carroll (1963) recommended that future research should measure the opportunity to learn. Specifically, students require equality and diversity of opportunity (Carroll, 1989). This recommendation guided a quantitative study of the academic impact of increased learning time through an extended school day program on ED students in ELA at the local school district. The research question was crafted to measure the relationship

of additional learning time on ED students' academic achievement as measured by standardized test scores on the SY 2016/2017 PARCC assessment of ELA.

Achievement Gap

Beginning in 1966 with Coleman's report, *Equality of Educational Opportunity* (Coleman, 1966), researchers have studied the achievement gap between various at-risk subgroups, identified causes of such gaps, and proposed solutions for closing the gaps. This information became more important to schools in 2006 when the No Child Left Behind Act (NCLB) required schools to publicly present disaggregated achievement scores of subgroups including ethnic/racial, SES, English language learners, and special education (Schulte & Stevens, 2015). As a result of this new accountability, schools have used multiple interventions in an attempt to close the achievement gap. A review of recent literature revealed a set of common causal factors and wide ranging solutions. Authors studied multiple achievement gaps between various demographic groups (Bartz, 2016; Valant & Newark, 2016). These gaps resulted from lower achievement scores by students from minority groups and predicted a lack of success for them as adults. A gap existed in Kindergarten and widened as students approached 8th grade (Graham & Provost, 2012). This trend continued in high school as the average African American 12th grade student fell in the 19th percentile when included in the distribution of European American students (Bartz, 2016). Using the National Assessment of Educational Progress's reading scales from 2015, students eligible for free or reduced lunch achieved statistically significantly lower than noneligible students in Grades 4, 8, and 12 (USDOE, 2015). Additionally, minority students scored lower on college

placement tests and participated in college preparation classes at lower levels than nonminority students (Colgren & Sappington, 2015).

Causes of the achievement gap. Multiple researchers found that in-school factors created an academic achievement gap (Parks & Wallin, 2012; Valant & Newark). One analysis of secondary data showed that the academic achievement gap stemmed from school segregation (Valant & Newark, 2016). While de jure school segregation is illegal, many Hispanic and African American students attend de facto segregated schools. Parks and Wallin (2012) attributed achievement gaps to discrimination, instability at home, lack of healthcare, and lack of academic interventions, while Webb and Thomas (2015) linked the achievement gap to low teacher efficacy and expectations. In a survey of upstate New York students, Faitar and Faitar (2012) determined that students who took higher-level courses felt more prepared to be successful in college and that racial minority students were disproportionately placed in lower track classes. Students in Illinois scored higher on SAT and ACT after taking advanced placement courses while low income and minority students were statistically underrepresented in advanced placement courses (Colgren & Sappington, 2015). Other in-school factors included few resources, inability to attract effective teachers to underperforming schools, lack of professional development, and poor technology (Graham & Provost, 2012). Using data collected by the U.S. Census Bureau (Graham & Provost, 2012), the authors were clear that in-school factors strongly widened the achievement gap. By identifying causes, the authors also offered solutions for school administrators.

While researchers indicated that in-school factors impacted the achievement gap, other researchers found that out-of-school factors played a greater role in creating and maintaining these gaps (Bartz, 2016; Egalite, 2016). Teacher factors including their competency, advanced degrees, college attended, quantity of professional development, and years of experience had little effect on closing the achievement gap (Bartz, 2016). Family background and peer environments were better predictors of school achievement than were in-school factors. These familial factors included parental education, family income, parental incarceration, and family structure (Bartz, 2016; Egalite, 2016). In a survey conducted in large Southeastern school district, teachers perceived parenting techniques to be a greater cause of an achievement gap than student disruptions, lack of motivation, or low family income (Ratcliff et al., 2016). Although researchers conducted comparative studies of in-school and out-of-school factors, both indicate the existence of significant gaps.

Researchers identified minority student psychological factors as contributing to the achievement gap (Milner, 2015; Webb & Thomas, 2015). Stereotype threats to minority students led to challenge avoidance and self-suppression, causing long and short term effects (Borman, Grigg, & Hanselman, 2016). Self-stereotyping, poverty, poor nutrition, low self-esteem, and negative media portrayal of black males has contributed to increased achievement gaps (Webb & Thomas, 2015). While the intersection of race, poverty, and the achievement gap is a valid discussion (Milner, 2015), it goes beyond the scope of this study.

Students at the local school district face the same in and out of school factors discussed in the above paragraph. While the research indicated multiple causes for the achievement gap, the district has focused its extended school day program on addressing in-school factors.

Strategies for closing the achievement gap. Teachers played a significant role in closing the achievement gap (Fowler, 2016). Researchers revealed common attributes among successful teachers including extensive training, high expectations, data-driven decisions, attention to student nonacademic needs, strong relationship with students, and cultural competency (Bartz, 2015; Fowler, 2016; Hanushek, 2016). School leaders helped close the gap when they promoted school-wide programs and strategies that addressed the needs of at-risk learners. These included standards-based instruction, small class sizes, mentoring programs, academic supports, college preparation instruction, credit recovery programs, and blended learning (Williams, 2011). Successful leaders developed teacher talent, provided visionary leadership, promoted success-driven school cultures, and scheduled increased learning times (Webb & Thomas, 2015). Some charter schools were effective in closing the achievement gap because a rigorous curriculum included regularly assessed student progress, monitored and enforced strict attendance policies, and extensions of the school day (Parks & Wallin, 2012). In successful schools, teachers emphasized achievement, offered student choices, frequently assessed student progress, used data-driven decisions, and provided effective early literacy programs (Fowler, 2016; Huang, 2015).

Parents and community members have also helped close the achievement gap. Effective parenting included active engagement, emphasis on confidence, and cooperation with schools (Huang, 2015). Positive parental support also promoted students' intrinsic goals and increased academic success (Froiland & Worrell, 2017). Minority students who were taught self-confidence, resilience, and self-affirming behaviors by adults achieved higher standardized test scores than those minority students who did not (Borman et al., 2016). Community members who mentored students also helped to improve achievement (Fruht & Wray-Lake, 2013).

Policy makers have affected the achievement gap as well. Verstegen (2015) recommended equitable finance to address the needs of at-risk students. Hanushek (2016) clarified this point by stating that simply providing extra money did not solve the problem. Funding needed to be spent wisely. Schools with higher populations of at-risk students required greater funding. When Pennsylvania increased funding for these schools in the mid 2000s, achievement rose among minority students (Quinn & Steinberg, 2015). Darlington-Hammond (2011) pointed to Finland, South Korea, and Singapore as countries that have decreased the achievement gap by funding schools equitably based on specific needs.

Multiple pathways exist to closing achievement gaps. Specific to the research questions for this study, ED students require multiple supports to improve academic achievement. As identified by the authors in the above paragraphs, these supports include effective teaching strategies, financial support, community involvement, rigorous classroom instruction, and guiding assessment.

Poverty

The USCB (2015) reported that the official poverty rate for the United States was 14.8% or 46.7 million people in 2014. That year, poverty affected minority subgroups at a high rate. In 2014, 26.2 % of African Americans and 23.6% of Hispanics lived in poverty while the rate for Whites was 10.1% and Asians was 12.0%. Also, of the nearly 74,000,000 Americans under the age of 18, 21.1% lived in poverty (USCB, 2015). Poor academic achievement in school often correlates with poverty. The Census Bureau (2015) polled impoverished Americans over age 25 and found that 65% did not have a college degree.

Impact of poverty. Researchers agreed that poverty affected students' academic achievement (Goins, 2014; Randsell, 2012; Walsh et al., 2014). Academic success during adolescence is associated with academic success in high school and provides a foundation for future financial success (Gordon & Cui, 2016). Conversely, poverty undermined children's chances at a good start in life, reduced the odds they will succeed in and finish school, and negatively impacted their future economic success (Dell'Angelo, 2016; Mallett, 2016; Schippers, 2014; Thompson & Haskins, 2014). The USDOE (2015) reported that, in 2013, the median salary for adults between the ages of 24 and 35 was \$25,000 higher for those who had at least a bachelor's degree when compared to those without a high school diploma. Goins (2014) supported this by concluding that students who did not obtain a high school diploma by age 20 were seven times more likely to be persistently poor. Impoverished students had limited access to health insurance, food security, and adequate childcare (Walsh et al., 2014) and were also susceptible to

hopelessness, fatalism, despair, domestic violence, and unpredictable lives (Lam, 2014; Thompson & Haskins, 2014). Also, impoverished children had reduced capacity for reasoning, stress reactivity, decision-making, and learning (Rosenbaum & Blum, 2015). They became fearful and anxious around adults who they perceived as having failed them (Thompson & Haskins, 2014). Consequently, these students displayed increased behavioral problems (Thompson & Haskins, 2014).

Poverty creates difficulties for adults, increasing its impact on children. An adult's lack of income limits a families' ability to invest money, time, and energy to children's educational development (Walsh et al., 2014). This lack of income created increased parental depression and anxiety (Thompson & Haskins, 2014). Impoverished parents spoke less to their children and asked fewer questions when reading because they lacked time for productive social interaction (Schippers, 2014). Impoverished parents were less likely to buy books, regulate television watching, and engage meaningful dialogues. Instead, they spent more time trying to provide basic necessities (Lam, 2014). Parents living in impoverished settings provided inconsistent childcare and experienced more violence in the home, leading to higher rates of depression and anxiety (Thompson & Haskins, 2014). Because of this stress, impoverished parents were more likely to engage in harsh parenting (Lam, 2014; Thompson & Haskins, 2014) and create toxic learning conditions in the home (Haig, 2014; Petrelli & Wright, 2016).

Researchers found similarities of the biological effects of poverty on children (Rosenblum & Blum, 2015; Thomson & Haskins, 2014). Poor health correlated disproportionately with poverty, race, and social context (Rosenbaum & Blum, 2015).

Poor children were less likely to have adequate health care and more likely to suffer from chronic infections and asthma (Thomson & Haskins, 2014; Walsh et al., 2014). Stressors including hunger, unstable housing, lack of dental care, caring for a family member, economic stressors, immigration issues, community violence, and safety concerns led to increased absenteeism and negatively impacted students in high poverty schools at a significantly higher rate than students attending low poverty schools (Mirra & Rogers, 2015). They also faced food insecurity and exposure to high levels of crime and residential mobility (Walsh et al., 2014). Parents living in impoverished settings also lacked access to social services and adequate prenatal care (Walsh et al., 2014).

Chronic stress from poverty affected children's biological development. These stressors included uncertainty around food, inconsistent housing, exposure to disease, poor nutrition, and experiences with crime (Haig, 2015). Chronic stress in children increased levels of the steroid hormone cortisol, which impacted development of the hippocampus, hypothalamus, amygdala, and prefrontal cortex in study subjects (Thompson & Haskins, 2014). Similarly, chronic stress in infants diminished function of the hypothalamus-pituitary-adrenal axis (McFarland & Hayward, 2014). Because of these biological factors, poor children displayed defects in working memory and language leading to academic underachievement, poor emotional restraint, difficulty with focus, and poor impulse control (McFarland & Hayward, 2014; Rosenaum & Blum, 2015; Thompson & Haskins, 2014). Impoverished students were twice as likely to have developmental delays and were at greater risk for severe health problems, grade retention, and school discipline. These students also faced greater risk of juvenile delinquency and

adult incarceration (Mallett, 2016). In rural New York, researchers found that the time children spent in poverty from birth to age 9 correlated to rates of mental illness and learned helplessness due to exposure to psychosocial and physical risk factors (Evans & Cassells, 2014).

Multiple studies have linked poverty and poor school performance. Poverty related school issues were the most significant objectives in school reform and out of school factors accounted for greater variance in student achievement than did in-school factors (Goins, 2014; Randsell, 2012; Walsh et al., 2014). Poverty was one of the largest risks to positive school performance because impoverished students were more likely to develop poor academic skills and habits than peers in higher socio-economic groups. In a study of Broward County schools in Florida, poverty was a greater factor for achievement variance than bilingualism, ethnicity, child risk, or school resources. Poverty was also the single best predictor of reading comprehension in all grades (Randsell, 2012). Students living in poverty experienced higher absentee and lower graduation rates (Goins, 2014). Additionally, 40% of impoverished students did not enter primary school with the proper readiness and were 1.3 times more likely to have developmental delays (Goins, 2014; Schippers, 2014). Similarly, while children began speaking at similar rates, by age three, children on welfare had vocabularies of 500 words on average while middle class children had vocabularies of 1,100 words on average (Schippers, 2014). Disparities also existed in learning outcomes and Kindergarten readiness skills (Holiday, Cimetta, Cutshaw, Yaden, & Marx, 2014). Along with these affects, poverty reduced students' cognitive functioning, social/emotional growth (Walsh et al., 2014), academic motivation

(Lam, 2014), and school perception (Sallee & Boske, 2013). The review of the research found no positive connections between poverty and student achievement.

While researchers reported varying results, the impact of poverty continued to be detrimental as students progressed through school. First grade students in Minneapolis who received a free lunch had lower oral reading fluency and were absent more often than students who did not receive free lunch (Herbers et al., 2012). This same group of students also achieved slower academic progress from grades 3-8 in reading and mathematics (Herbers et al., 2012). By the end of fourth grade, ED students averaged two grades below their peers and four grades below by the end of 12th grade (Goins, 2014). In 2009, only 17% of students eligible for free or reduced lunch were proficient in reading (Hagans & Good, 2013). Sixty percent of fourth graders read below basic level and the impact of poverty on reading achievement appeared as early as Kindergarten (Conradi, Amendum, & Liebfreund, 2016). ED students also scored lower on math assessments throughout their school years (Battey, 2012; Robinson, 2013). These students also faced higher risk for poor literacy, lower achievement, retention, special education placement, and high school dropout (Hagans & Good, 2013). In every state except South Dakota, graduation rates for ED was lower than their peers with New Jersey and Connecticut having the highest differential at 21 points (Goins, 2014). Gaps in literacy were similar between ED and NED students. In 2015, the gap between these two groups was 36 points for 4th grade students and 33 points for 8th grade students, as measured by the National Assessment of Educational Progress' reading scale (Kena et al., 2016).

Strategies for addressing impacts of poverty. Multiple programs presented a range of strategies for improving academic achievement of ED students. One common theme in the literature is the need for academic and social support for students. Schools were successful in raising academic achievement when they provided supports to ED students that were grounded in non-academic needs, addressed students' individual strengths and weaknesses, tended to social/emotional health, and were part of the schools' core functions (Walsh et al., 2014). A schools' focus should be on relational support and supporting specific individual student needs (Thompson & Haskins, 2014). In a qualitative study, Kraft, Papay, Johnson, Charner-Laird, Ng, and Reinhorn (2015) determined that teachers felt more successful in teaching impoverished students when administrators provided common planning time, push-in special education instruction, disciplined environments, and encouraged parental involvement. Proper health-related support also helped students (Holiday, Cimetta, Cutshaw, Yaden, & Marx, 2014). Another common protective factor was adult involvement. This included maternal sensitivity (Thompson & Haskins, 2014), high parental education (Holiday et al., 2014), and adult engagement (Robinson, 2013).

To address academic deficiencies of impoverished students, educators developed specific programs that have achieved varying degrees of success. Common among successful programs was early intervention (Conradi, Amendum, & Liebfreund, 2016; Hagans & Good, 2013; Haig, 2014). Schippers (2014) indicated these programs should begin at birth but no later than age three. According to a University of Oregon study, early intervention normalized behavior, reduced parental stress, and increased adult

attachment (Thompson & Haskins, 2014). In a small Pacific Northwest city, students in grades 1-3 achieved gains after receiving intense phonological instruction (Hagans & Good, 2013). Students in Massachusetts improved their test scores after participating in a program that included reading pertinent text, opportunities to speak, and expressing personal connection to text content (Hemphill et al., 2015). In Chicago, a longitudinal study of three programs determined that high quality intervention programs for poor children between the ages of birth and three led to decreased crime and increased long-term economic benefits (Schippers, 2014).

Researchers also identified specific instructional practices that have increased academic achievement by ED students. Successful teachers reflected on the nature of poverty, its impact on student learning, and their capacity to create positive learning environments for all students (Battey, 2012; Sallee & Boske, 2013). Instructional practices need to focus more on problem solving, thinking, and discussing and less on routine completion (Battey, 2012). Impoverished students succeeded when teachers differentiated instruction (Huang, Moon, and Boren, 2014) and maintained high expectations (Lam, 2014). Effective administrators maintained low teacher to student ratios, hired highly qualified staff, and supported teachers (Goins, 2014; Schippers, 2014). Positive teacher factors including increased years in district, increased years teaching, and high self-efficacy improved students' scores in a large, Northeastern urban district (Dell'Angelo, 2016). In a two-year longitudinal study of high poverty schools, high levels of in-class structure and increased teacher support increased students' reading

achievement among poor students attending schools that provided high levels of support for staff (Amendum & Fitzgerald, 2013).

Local, state, and federal governments can also impact student achievement through increased funding for instructional programs (Randsell, 2014; Rosenbaum & Blum, 2015). Local boards of education should strive to attract and retain high quality teachers in high poverty areas by providing effective pre-service and professional development programs (Goins, 2014). These officials can also create an environment that is conducive to success by impoverished students by maintaining small class sizes, allowing for flexible calendars, and providing opportunities for tutoring (Goins, 2014). While the research pointed clearly to detriments in children's academic, social, and emotional achievement, effective schools provided programs and services to ameliorate the negative outcomes associated with poverty.

Learning Time

In recent years, educational reformers and researchers have studied the impact of instructional time on student achievement. Stated in its simplest form, learning time is the amount of time a student spends engaged in a learning task (Fischer, Berliner, Marliave, Cahen, & Dishaw, 2015). For many school districts, reforms to learning time included increased time to the existing school day and increased days to the existing school calendar (Del Razo & Renee, 2013). Reforms in learning time, most often as after school programs, had mixed results in their effectiveness, utilized various methods, and required different policy and community assistance.

Kidron and Lindsay (2014) conducted a meta-analysis of 7,000 studies of increased learning time programs. In their work, certified teachers using traditional instruction taught studied programs. Additionally, programs occurred after school hours or during the summer. Their research uncovered varying degree of effectiveness. Academic impact depended on setting, implementation, and targeted students. These programs had the strongest effect on students struggling to meet grade-level standards in ELA and students with attention deficit/hyperactivity disorder (ADHD).

Other researchers found similarly mixed results. In a study of 38 countries, increased learning time was found to have minimal impact on student learning (Sandoval-Hernandez, Aghaksiri, Wild, & Rutkowski, 2013). Effective teaching correlated more to achievement than simply increased time. Other researchers, determined that increased learning time impacted different subgroups to varying degrees (DiGiacomo, Prudhomme, Jones, Welner, & Kishner, 2016; Leos-Urbel, 2015). An increase in active learning time and better use of class time improved achievement by underserved populations (Lopez & Rivera, 2015). In a study of California schools, student test scores improved by 1.5% per 15-minute increase in instructional day while ED students improved achievement by 37% in the same study (Jez & Wassmer, 2015). The study also revealed that increased instructional time for all students widened the achievement gap by impacting higher-level students in positive ways.

The most common methods of expanding learning time were after-school and summer school programs (Kidron & Lindsay, 2014). Such programs offered opportunities to teach students using non-traditional methods and provided conditions

that were more conducive to learning (Berry & Hess, 2013). These programs also decreased idle time for students, reducing rates of delinquency (Del Razo & Renee, 2013). After school programs that increase learning time taught academic and social skills, often by relying on social learning theory (Kidron & Lindsay, 2014).

While researchers indicated varying degrees of effectiveness, multiple studies determined that increased time alone did not improve student achievement. Effective extended learning time programs utilized community resources (Del Razo & Renee, 2013; Kidron & Lindsay, 2014), increased student engagement time (Sandoval-Hernandez, Aghaksiri, Wild, & Rutkowski, 2013), and utilized certified teachers (Kidron & Lindsay, 2014). Although researchers failed to draw a conclusive decision of the positive impact of extended learning time, it also failed to associate extended learning with detrimental student outcomes.

When evaluating extended time programs, researchers should consider the interaction of when the extended time is applied, what students are targeted, and who provides the service (Midkiff & Cohen-Vogel, 2015). Without using this recommended triangulation, the research on extended learning provides no clear recommended prescription for implementation. Studies tested multiple variables and failed to provide longitudinal data on the effect of specific conditions (Kidron & Lindsay, 2014). Additionally, studies focused on mandatory, targeted programs rather than school-wide, opt-in type programs (Midkiff & Cohen-Vogel, 2015).

After School Programs

To provide additional learning experiences for students, school districts often provide after school programs (ASP's) that offer various experiences and activities. Because unsupervised times can lead to negative outcomes for students, including academic deficiencies, social problems, delinquency, and drug use, ASP's can offer alternative learning experiences and secure environments for students (Hirsch, 2011). ASP's are generally safe, structured programs that provide students with adult supervision. These programs typically sought one, or a combination of these outcomes: increased academic performance, social/emotional development, and behavioral outcomes (Rhea, 2013). ASP's are also thematic based such as Science, Technology, Engineering, and Math (STEM) programs, extracurricular-based, and project-based. Such programs are more focused on youth development, have a willingness to use experimental methods, and utilize curricula not bound by legislative mandates (Hirsch, 2011). Additionally, students can benefit from expanded blocks of learning time, which can develop stronger links to school and community (Hirsch, 2011).

ASP's provide a variety of services and are constructed in ways to improve student achievement, social growth, and emotional security. Evidence of academic success among students enrolled in ASP's varies. Researchers attributed this conclusion to a lack of defined participation by researchers and over-reliance on comparing participants to non-participants (Spring & Duffy, 2012). Sampling research studies of ASP's held this statement to be partially accurate (Del Razzo & Renee, 2013; Kidron &

Lindsay, 2014; Rhea, 2013). The following paragraphs review the literature on ASP in the specific areas of impact on students, and recommendations for improvements.

Impact of after school programs. The Afterschool Alliance, a private organization designed to increase awareness and funding for after school programs, (Afterschool Alliance, 2015) studied multiple ASP's and found varying results. In Wisconsin, students in an ASP increased class participation during the regular school day by 66%, improved motivation by 60%, and improved behavioral outcomes by 55%. The group also studied 83 ASP's in Oakland, California and found that students who participated in programs were more confident in their academic achievement after completing the program. Students attending a program in Texas improved school attendance rates. In the aggregate, the Afterschool Alliance concluded that students who attended ASP's improved attendance rates and improved academic scores on standardized tests. The researchers found that students who were at the greatest risk of failure achieved the greatest gains and that those who attended with greater frequency and for a longer duration achieved greater gains when compared to students who attended less frequently. Along with academic gains, the researchers found that students reported improved self-concept and displayed better decision-making skills. Also, since adults who supervised ASP's kept students safe and healthy, students who attended ASP's were truant less often and misbehaved less frequently (Afterschool Alliance, 2015).

A meta-analysis of 35 research studies revealed that students in ASP's experienced positive changes in feelings and attitudes toward school, behavioral patterns, and school performance (Durlak, Weissberg, & Pachan, 2010). Students also increased

self-perception, achieved higher grades, and felt more connected to school. They also found students who attended APS's that offered low frequency and low duration programs did not achieve significantly positive results academically. Students who attended ASP's with low student-to-staff ratios and provided at least 45 hours of instruction achieved increased scores on standardized tests, improved their attitudes about school, improved school attendance, displayed deeper engagement in learning, reduced drop-out rates, and achieved greater on-time promotion rates (Rhea, 2013). Additionally, these students displayed greater confidence, self-esteem, better communication skills, leadership skills, and increased community involvement. Behavioral outcomes included few incidents of criminal behavior and delinquency, improved knowledge of safe social behaviors, and avoidance of risk behaviors. After attending a 12-week ASP called Project Expanding Horizons, students expressed positive feelings toward student choice, educational autonomy, independent reading, and development of strong student/staff relationships (Little & Hines, 2006). Students who completed this program also achieved statistically significant improvement when compared to national peer norms.

As the achievement gap expanded, ASP's have become a solution for many urban school districts in an effort to improve students' achievement scores. While ASP's utilized different techniques, researchers discovered similar academic and social benefits for urban students. Teaching, Enhancing, and Nurturing (TEN), an ASP, is designed to target specific factors linked to at-risk behaviors such as academic failure, domestic violence, poor social skills, and school truancy. Program components included a reading component, tutored homework sessions, teacher consultation, home visits, parent

meetings, and clinical supervision. Teachers focused on students' academic and social skills, problem-solving, critical thinking, and resiliency. Reading instruction included intense phonemic pronunciations, phoneme blends, sight vocabulary, and word dismantling. Using paired-samples *t*-tests to study the effect of TEN on 154 elementary school students from a large Northeast city, researchers concluded that students who attended the program experienced academic gains regardless of age or gender (Johnson, Gupta, Rosen, & Rosen, 2016). In Baltimore, Title I students who attended an ASP received instruction in small groups, in one-on-one settings, through computer-based models, and in combination of all three. Students who received instruction in small groups after school achieved the highest rate of academic improvement (Harding, Jones, & Rebach, 2012). Leos-Urbel (2015) studied 29 after school programs in New York City that offered academic enrichment and sports activities. Using the Out of School Time Program Observation Instrument, he found a positive correlation between positive after school environments and reading achievement. He also concluded, however, that over-engagement after school reduced student test scores in reading and mathematics.

The literature also addressed the use of ASP's to meet the needs of non-English speaking students. English language learners (ELL) benefitted from targeted homework and academic assistance, multidisciplinary activity offerings, positive peer relationships, family involvement, and staff consistency (Hollstead & Doll, 2014). Niehaus, Rudasill, and Adelson (2012) conducted a longitudinal study that found ELL students experienced increased self-efficacy and motivation after attending ASP's.

Collectively, researchers identified a common set of attributes among successful ASP's such as student choice and autonomy when selecting materials and activities (Niehaus, Rudasill, & Adelson, 2012). Adults who worked in successful programs taught students to develop academic and social skills (Haig, 2015; Johnson, Gupta, Rosen & Rosen, 2016; Springer and Diffly, 2012). The inclusion of a program coordinator (Haig, 2015; Nelson-Royes & Reglin, 2011) and high family involvement (Haig, 2015; Hall, Williams, & Daniel, 2010) both predicted and increased student success. Students succeeded at higher rates when ASP's offered a range of academic and extracurricular activities (Hall, Williams, & Daniel, 2010; Hirsch, 2011; Leos-Urbel, 2015) and adequate staffing, funding, and time (Leos-Urbel, 2015; Nelson-Royes & Reglin, 2011; Rhea, 2013). Conversely, ineffective programs were poorly funded (Hall, Williams, & Daniel, 2010), not well attended (Rhea, 2013), and staff was poorly trained (Johnson, Gupta, & Rosen, 2013).

Recommendations for Improving After School Programs

Researchers have offered a range of ideas for improving the efficacy of ASP's. Programs were most effective when they established school/home partnerships (Haig, 2013; Rhea, 2013) and staff were fully trained in methods to improve students' self-esteem (Johnson, Gupta, Rosen, & Rosen, 2016). School personnel alone cannot serve students after school. District officials needed to establish partnerships with local authorities to increase offerings (Haig, 2013) and ASP's should be sequenced, active, focused, and explicit (Durlak et al., 2010). Schools must also clearly define goals of their ASP's (Harding, Jones, & Rebach, 2012). Common among these recommendations were

increased funding (Nelson-Royes & Reglin, 2011; Springer & Diffly, 2012) research-based methods (Harding, Jones, & Rebach, 2012; Nelson-Royes & Reglin, 2011), and program assessment (Durlak et al., 2010, Leos-Urbel, 2015).

The literature on ASP's presents varying views of their impact on student achievement. The authors are clear that ASP's could close the achievement gap but present multiple recommendations for implementing effective services. Positive indicators include high attendance rates, program evaluation, adult supervision, small group settings, positive adult interaction, student choice, and adequate funding. Specific to LAL, school administrators could create effective ASP's by utilizing research-based techniques. In an ethnically diverse middle school, program administrators developed an ASP that improved student-reading scores. The program design featured extensive teacher training in lesson design and instructional techniques, adequate instructional time, and strict program implementation (Velten & Mokhtari, 2016). These recommendations could help guide an appropriate evaluation of the extended school day program at the local school district.

Implications

An academic achievement gaps exists between various demographic groups in many schools. Specific to this study, an achievement gap at a local school district exists between ED and NED students despite attempted reforms (D. Bramley, personal communication, May, 31, 2015). This gap exists nationally as well (NJDOE, 2016). Carroll's (1963) model of school learning suggested that school district officials can close this achievement gap by increasing that amount of instructional time that ED students

receive. Researchers support Carroll's theory when applied to ED students (Jez & Wassmer, 2015).

School officials could increase instructional time in three ways: expanding the school day, creating more instructional time within the existing school day, and providing instruction before or after school (Midkiff & Cohen-Vogel, 2015). Local school district administrators have chosen to provide additional instruction to ED students during an after school extended learning period. Rhea (2013) found that after school programs could be successful in closing achievement gaps when developed properly (Rhea, 2013). Specifically, for ED students, schools must provide support and attend to individual learning needs (Thompson & Haskins, 2014). Therefore, educators could improve the effect of after school programs by developing research-based programs.

Because the local school district provided a program that was influenced by multiple variables, I believed that completing an evaluation would help district officials improve students' achievement. Given the static achievement gap between ED and NED students over the past five years, as shown in tables 1 and 2, completing a research-based program evaluation can help to determine whether there is a relationship between the district's extended school day program and students' achievement. With that assumption, the implications for the project deliverable were considerable. I created an evaluation report that provided district officials with data analysis and recommendations for improving the program in the area of language arts literacy, drawn from the collective recommendations in the body of literature and supported by my own research. Conversely, had the after school program helped to close the ED/NED achievement gap,

the report would have included the same analysis and recommendations for expanding the program.

Summary

At the local school district, an achievement gap exists between ED students and their NED counterparts. While this gap is not unique to the district, school officials attempted to close this gap by offering students a voluntary extended school day program for students most at risk of failing to meet state standards. During SY 2016/2017, all 28 pairs of students in the local school district were in grades 3-8 and classified as ED. Of those 56 students, 28 attended the EDP and 28 did not. To answer the study's research question, I used a deductive, quasi-experimental quantitative design and conducted a paired samples *t* test to compare mean scale scores on the PARCC assessment of ELA for ED students who attended the program and those who did not. Carroll's model of school learning provided the theoretical framework of the study. A literature review of the key variables, identified in the problem statement and research questions, summarized similarities, differences, and recommendations for improved student outcomes.

I reviewed recent research regarding achievements gap between groups of students. These gaps exist between African American and white students, Hispanic and white students, and ED and NED students. Central to this study was the implementation of extended learning time through after school programs. Findings among studies in this literature review presented varied results. Some research found significant correlation between learning time and achievement while others did not. Each study did, however, present recommendations for creating positive results in an after school, extended

learning period. Positive factors included adult support, consistency, self-affirmation, student choice, and caring environments. Negative predictors were poor funding, insufficient time, lack of alignment with school goals, and rigid instructional practices.

Section 2 will present the quantitative research methodology and my research framework along with a data analysis. Section 3 will include a brief description of the project and a literature review related to the project genre. Section 4 will conclude the study and include reflections, recommendations for alternate approaches, lessons learned about leadership, and implications for future research.

Section 2: The Methodology

Introduction

The purpose of this study was to determine the effect that the local district's EDP had on ED students in ELA achievement. The study evaluated the influence of student participation in the EDP by examining secondary data on student achievement in ELA by ED students as measured by scaled scores on the 2016-2017 PARCC assessment and compared to those students who did not participate in the EDP. The research question was: What is the difference in ELA PARCC scale scores between ED students who participated in the district's EDP and ED students who did not participate in the EDP during the 2016/2017 school year?

In Section 2 of this study, I discuss the research methodology, including design, setting and sampling, instrumentation, data collection and analysis strategies, assumption, limitations, scope, delimitations, and protection of participant rights.

Research Design and Approach

There are three main approaches to a research design: quantitative (QUAN), qualitative (QUAL), and mixed methods (MM; Creswell, 2014). These designs can be inductive or deductive (Soiferman, 2010). Inductive research is qualitative and builds from detailed information to broader generalizations from the researcher's point of view (Creswell, 2014; Soiferman, 2010). Deductive research uses theory to establish a quantitative test for answering research hypotheses (Creswell, 2014). This research approach involves collecting, analyzing, and interpreting numeric data (Williams, 2007). Creswell (2014) described two broader categories of QUAN research: survey research

and experimental research. Survey research is a basic method that identifies empirical correlation between two or more phenomena (Williams, 2007). Experimental designs determine whether a treatment influences a studied outcome (Creswell, 2014). There are three types of experimental designs: pre-experimental, quasi-experimental, and true experimental (Williams, 2007). Pre-experimental designs involve a single group of participants that are observed after a treatment or intervention. Researchers consider this the simplest form of experimental design because it may not contain a pretest or control group (Salkind, 2010). True experimental designs test the effect of a treatment on randomly assigned groups (Creswell, 2014). This design is best for determining the statistical effect of educational programs, but ethical and practical dilemmas often prevent its use (Szafran, 2007). As this study utilized secondary data, no pretest data was used. Specifically, I conducted a static-group comparison to compare PARCC ELA scores of ED students who attended the EDP and ED students who did not. This research design compared two groups of individuals; one group who participated in the program being assessed and one group who had not participated in the program being assessed. Participant data is gathered and compared through posttest change scores (Szafran, 2007). In this specific study, students opted to attend the EDP and no pretest data was taken from the control or treatment group. To reduce threats to internal validity, I used a paired samples *t* test to compare PARCC scale scores. In this design, two groups of participants are paired on one or more characteristics (Laerd Statistics, 2015). For this study, participants will be matched by grade level and reading ability as measured in Lexile[®] scores.

Lexile[®] scores are numeric representations of a student’s capacity to read and a text’s complexity. Scores are based on a developmental scale that considers a text’s word frequency and sentence length (Lennon & Burdick, 2014). Students are assigned a Lexile[®] score when their ability to read a text matches a comprehension rate of 75% (Lennon & Burdick, 2014). These scores quantify the skills needed for students to be successful readers at each grade level (Smith, Holiday, & Wright, 2017). The table below displays Lexile[®] scores for Grades 3-8.

Table 3

Lexile[®] Score Ranges for Grades 3-8

Grade	Range
3	415-760
4	635-950
5	770-1080
6	855-1165
7	925-1235
8	985-1295

Note. Range represents mid-scores for the inter-quartile range. Adapted from “Matching Lexile Measures and Grade Ranges.” (2017) Available at <https://lexile.com/educators/measuring-growth-with-lexile/lexile-measures-grade-equivalents/>

In the district under study, student Lexile[®] scores were calculated in September, 2016, by a computer-based assessment platform called Achieve3000 LevelSet (D. Bramley, personal communication, November 15, 2017).

In this study, the control group was ED students who did not attend the EDP while the experimental group was ED students who did attend the EDP. Statistical analysis compared scaled scores on the SY 16/17 PARCC assessment of ELA of each group to answer the null hypothesis of the study's research question using a paired samples *t* test. According to Johnston (2014), application of theoretical models is critical to conducting secondary quantitative research. This study tested Carroll's model of school learning, which postulates that increased learning time will increase student academic achievement (Carroll, 1963).

A quasi-experimental design was justified for this study because the control and treatment groups were created nonrandomly and no pretest data was taken. Specifically, students were identified as eligible for the district's EDP using multiple measures, including standardized test scores, grades, teacher recommendation, and parental request, and could choose to participate or not (S. Larkin, personal communication, June, 29, 2015). Students who did and did not opt to participate represent two different naturally formed, nonrandomly assigned groups. All eligible students were ED, scored poorly on previous standardized assessments, and were identified by their teachers as being at-risk of failing to meet state proficiency standards (S. Larkin, personal communication, September 23, 2016). The design was logically derived from the problem statement because it isolated the effect of the district's EDP on ED students in ELA as measured by the PARCC assessment of ELA.

Participants

Setting and Sampling

The school district under study was a small PreK-8 district that serves two communities: one rural, one urban. At the end of SY 16/17, the district comprised 189 students. Those students had the following demographic identifiers:

1. 18% special education students
2. 64% economically disadvantaged
3. 18% limited English proficiency
4. 36% European American
5. 16% African American
6. 35% Hispanic
7. 5% Asian
8. 7% multiracial (D. Bramley, personal communication, September 11, 2017)

The target student population for this study was ED students attending the district under study who were eligible for the EDP during SY 16/17. ED is defined by the NJDOE as those students eligible to receive free or reduced lunch (NJDOE, 2017). These students were eligible for the research population because they attended the local school for the entire SY 16/17 school year, were classified as ED during SY 16/17, were administered the PARCC assessment of ELA in the spring of 2017, were deemed eligible for the EDP, and received a calculated Lexile[®] score in September, 2016. While all students in Grades 3-8 were administered the PARCC assessment, all students did not

qualify to be part of the research study because many were not classified ED during SY 16/17.

Sampling method. Population sampling can be either random or nonrandom. Nonrandom samples are selected without chance or randomization. The researcher uses subjective methods to determine which members of the population become part of a study (Etikan, Musa, & Alkassim, 2016). Purposive samples are used when the researcher is studying one or more predefined groups. This method is effective when studying a targeted population and proportionality is not prioritized but does raise threats to external validity (Trochim, 2006).

Purposive sampling methods are categorized in seven variations: maximum variation sampling, homogenous sampling, typical case sampling, deviant case sampling, total population sampling, and expert sampling (Etikan et al., 2016). For this study, I used a homogenous sample. According to Etikan et al. (2016), this method includes members of the sampling population who share similar traits or characteristics. This sampling technique was appropriate for this study because it allowed for pairing of students and controlled for grade and reading level. As the local setting was a small district, each student represented a large percentage of the full district enrollment and therefore was a significant member of the school community. ED students in the district should be considered when testing the effectiveness of a program designed to improve their achievement.

Sample size. During SY 16/17, 130 students from the local school district were classified as ED based upon eligibility to receive free or reduced lunch (D. Bramley,

personal communication, September 11, 2017). To be eligible to receive free lunch, a household of four must earn less than \$31,590 annually and to be eligible for reduced lunch, a family of four must earn less than \$44,955 (NJDOE, 2016). Of these 130 students, 74 were in Grades 3-8, took the PARCC assessment of ELA, were enrolled as students in the district under study for the entire academic year, were eligible to attend the EDP, and received a Lexile® score in September of 2016 (D. Bramley, personal communication, September, 11, 2017).

Using homogenous sampling, all 74 students were eligible for participation in the research study. These 74 students were grouped into 28 paired-samples based on grade level and reading ability. Using G*Power analysis, this sampling produced an output with an error probability of .05, an actual statistical power of .8, and an effect size of .49. Conducting a one-tailed *t* test using paired samples produced a critical *t* value of 1.76 (G*Power, 2017).

Eligibility criteria for selection of participants. To be considered as participants for the study, students needed to meet the following criteria:

1. were classified as ED during SY 2016/2017;
2. received a calculated Lexile® in September, 2016;
3. were eligible to attend the EDP during SY 16/17;
4. completed the PARCC assessment of ELA during SY 2016/2017; and
5. attended the research district for the entire school year of 2016/2017.

In the state of New Jersey, students are classified as ED when they qualify for free or reduced lunch at the income levels noted previously (NJDOE, 2016). Because this study

utilized a homogenous sample, each student who met all criteria was eligible to participate in the study. If a student failed to meet all criteria, that student was excluded from the study.

Recruitment of participants. As this study used secondary data, participants were originally part of a data set that included all 2016/2017 student PARCC scores from the research district. That data set was student scaled scores from the 2016/2017 PARCC assessment of ELA. In the local setting, students in Grades 3-8 took the PARCC assessment. The data set included students with various demographic characteristics. The table below details student characteristics by grade, ethnicity, gender, and attendance in the extended school day program.

Table 4

Characteristics of Economically Disadvantaged Students in Sampling Population

Characteristic	Number (<i>N</i> = 74)
Grade	
Third	16
Fourth	15
Fifth	9
Sixth	9
Seventh	16
Eighth	9
Ethnicity	
African American	25
Asian	4
Hispanic	25
White	20
Gender	
Male	43
Female	31
Extended Program	
Yes	35
No	39

Note. Numbers represent total population sample. Adapted from “Comparison of Convenience and Purposive Sampling,” by L. Etikan, S. Musa, and R. Alkassim, 2016, *American Journal of Theoretical and Applied Statistics*, 5, p. 3.

Instrumentation and Materials

During a quantitative research experiment, a researcher selects an instrument, to be given as a pretest, posttest, or both, to provide measures for data for analysis (Creswell, 2014). For this study, the instrument was the PARCC assessment of ELA. The post scores from the two groups were compared using a paired samples *t* test.

Instrument description. As part of President Obama's 2009 American Recovery and Reinvestment Act (ARRA), states were awarded \$4.35 billion as part of the Race to the Top (RTTT) grant. Part of the grant required states to adapt standards and assessments that helped students succeed in college and the workplace (Hoy & Miskel, 2013). The resulting Common Core State Standards (CCSS) were designed by state political and education leaders to establish a set of real-world goals that were clearer, emphasized higher-order thinking, contained rigorous objectives, prepared students for college and the 21st century workplace, and were research-driven (Common Core State Standards Initiative, 2017).

To qualify for the RTTT grant, the New Jersey State Board of Education adopted the CCSS in June of 2010 and joined the Partnership for the Assessment of Readiness for College and Careers (PARCC) (NJDOE, 2016). This multi-state consortia developed assessments to judge students' progress in meeting the CCSS in the areas of ELA and mathematics. To accomplish this task, PARCC hired Pearson, the world's largest education company, to develop testing items and an electronic platform so students could take the assessment via computer. Test administrators also offer a paper version (Strauss, 2014). For this study, I utilized results from version 7.00, developed in December, 2016,

of the PARCC assessment of ELA. The test was appropriate to the study because it provided student achievement data related to the research questions. These data reflected student achievement in ELA. Test items were aligned to the CCSS of ELA, initially developed by Pearson, and reviewed by state experts, local educators, and postsecondary faculty (Item Development, 2017). Questions were then field tested, built into the test, administered, and then reviewed again (Life Cycle, 2014).

Instrument concepts. In each grade, 3-8, the assessment is administered in three units with varying degrees of difficulty depending upon grade. Each test contains a literary analysis portion, research simulation task, and a writing narrative. Test items assess knowledge of literacy text, vocabulary, written expression, knowledge of language and conventions, and informational text (ELA Test Specifications, 2017). For the research simulation, students analyze information presented several texts of multimedia presentations. Students answer questions and complete a writing prompt. For the literary analysis research task, students complete writing task based on two separate texts such as short stories, novels, poems, or other fictional literature. For the narrative writing task, students read and create a narrative writing piece based on one fictional text (PARCC, 2015).

In grades 3-5, the students are assessed on their ability to read and understand complex texts. The balance of these texts is 50% informational text and 50% texts that students are expected to read in ELA, science, social studies, and the arts. Informational texts include biographies, books about history, and technical texts. Literature type readings include adventure stories, folk tales, legends, and fables. In the area of writing,

test items reflect 65% analytical skills and 35% narrative skills. In each section, students are assessed on their ability to cite evidence, analyze content, apply proper grammar, decode words, and read fluently. Beginning in grade 4, students are expected to use academic vocabulary in their writings (Model Content Frameworks, 2012).

In grades 6-8, the split between informational and narrative texts remains 50% narrative and 50% informational but the writing is divided between analytical and narrative in a 70/30% relationship on the SY 16/17 assessment. Also, as students get older, they are expected to increase the length of their writing, acknowledge opposing claims, maintain formal style, draw more complex conclusions, write critical compare and contrast pieces, read increasing challenging texts, and cite more specific evidence while writing. Students in grades 6-8 are also expected to read from and write about multi-disciplinary texts including science, social studies, and art (Model Content Frameworks, 2012).

Score calculation. Student performance on PARCC assessments are reported using scale scores, performance levels, and subclaim performance indicators. Student raw scores are converted to scale scores ranging from 650 to 850 to account for differences in difficulty between test items. In ELA, additional scores are provided for reading and writing. Reading scores range from 10 to 90 while writing scores range from 10 to 60. (PARCC, 2017).

Students also earn performance level scores using a 5 point scale with the following designations:

- 5—Exceeded expectations

- 4–Met expectations
- 3–Approached expectations
- 2–Partially met expectations
- 1–Did not yet meet expectations

Scores of 4 and 5 are considered proficient scores on the assessment. Students also earn student growth percentile scores (SGP), which represent a comparison between a student and his/her academic peers measured from one year to the next. This score is represented from 1 to 99 (PARCC, 2017).

PARCC assessment rubric standards are established by educators from multiple states who read student writing submissions, use rubric criteria, discuss findings with other educators, and assign scores. These scored submissions are then used as training materials for other educators (PARCC, 2015). Students’ writing samples are scored using rubrics described in the following table:

Table 5

PARCC ELA Scoring Rubric Traits

Task type	Writing traits
Research simulation	Reading comprehension Written expression Knowledge of language and conventions
Literary analysis task	Reading comprehension Written expression Knowledge of language and conventions
Narrative writing task	Written expression Knowledge of language and conventions

Note. Adopted from “Guide to English Language Arts/Literacy Released Item: Understanding Scoring,” By the Partnership for Assessment of for Readiness of College and Careers, 2015.

Student writing samples are assigned points using a five point scale. Achievement points are described in the table below:

Table 6

PARCC Writing Assessment Rubric

Point value	Description
4	Student response demonstrates full comprehension of ideas stated explicitly and inferentially by providing an accurate analysis and supporting the analysis with effective and convincing textual evidence.
3	Student response demonstrates comprehension of ideas stated explicitly and/or inferentially by providing mostly accurate analysis and supporting the analysis with adequate textual evidence.
2	Student response demonstrates basic comprehension of ideas state explicitly and/or inferentially by providing generally accurate analysis and supporting analysis with basic textual evidence.
1	Student response demonstrates limited comprehension of idea stated explicitly and/or inferentially by providing a minimally accurate analysis and supporting the analysis with limited textual evidence.
0	Student response demonstrates no comprehension of ideas by providing inaccurate or no analysis and little to no textual evidence.

Note. Adopted from “Guide to English Language Arts/Literacy Released Item: Understanding Scoring,” By the Partnership for Assessment of for Readiness of College and Careers, 2015.

PARCC assessments scorers must complete training and pass qualification examinations prior to scoring exams (PARCC, 2015). Training units include prompts, passages, rubrics, training sets, and qualification sets (PARCC, 2017). Qualification involves scoring 10 sample responses from each of the three task sets; literary analysis, research simulation, and narrative writing. To become qualified to score a PARCC assessment in ELA, the scorer must score at least 70% identical to PARCC approved score on samples from each set, 70% identical to PARCC approved score on 70% of the aggregate number of samples, and 95% within one point of PARCC approved score on the aggregate number of samples (PARCC, 2017).

Assessment of Reliability and Validity

Quality instruments are reliable and valid. Reliability estimates an instrument's stability in producing similar results under similar circumstances (Kimberlin & Winterstein, 2008). Additionally, reliable tests produce scores that reflect that the concept being tested and that differences in scores are a result of the test taker's ability to produce proper answers rather than by chance (Creswell, 2014). PARCC's 2016 technical report used an internal consistency measure to describe reliability (PARCC, 2017). Internal consistency is the extent to which an instrument's measurement items test the same idea (Tang, Cui, & Babenko, 2014). Reliability coefficients quantify consistency between multiple test administrations on a scale from 0 to 1. Coefficients of .8 or greater are considered reliable enough to draw a statistical conclusion using an instrument, although .9 is considered best for decisions having significant consequences (Webb, Shavelson, & Haertel, 2006). Mathematically, reliability is calculated as:

where k equals the total number of test items, σ^2 is the variance of a single test item, and

σ^2 equals the variance of all test items. Reliability coefficients for the computer-based

ELA version of the 16/17 PARCC assessment from grades 3-8 are listed in the table

below:

Table 7

Computer-based PARCC ELA Version Reliability of 2016/2017 Assessment

Grade	Sample Size	Reliability Coefficient
3	371,885	.91
4	377,002	.91
5	404,383	.91
6	402,155	.92
7	395,258	.93
8	388,964	.92

Note. Adopted from “2016 PARCC Technical Report,” by the Partnership for Readiness of College and Career, p.78.

PARCC also reported reliability coefficients for subgroups including gender, ethnicity, English language proficiency, SES, and special education eligibility (PARCC, 2017). Germane to this study, and listed in the table below, are the calculated reliability

on the 2016/2017 spring administration of the computer-based PARCC assessment in ELA for ED students:

Table 8

Computer-based PARCC ELA Version Reliability of 2016/2017 Assessment for Economically Disadvantaged Students

Grade	Sample Size	Reliability Coefficient
3	171, 175	.89
4	170,854	.89
5	188,854	.88
6	181,767	.90
7	174,771	.91
8	170,454	.91

Note. Adopted from “2016 PARCC Technical Report,” by the Partnership for Readiness of College and Career, p.82-87.

Since humans scored the writing portion of the assessment, PARCC also conducted an inter-rater reliability test (PARCC, 2017). Inter-rater reliability is the degree of similarity between two examiners or readers (Creswell, 2014). In order to maintain high inter-rater reliability, Wang (2009) recommended that testing institutions establish specific standards for scoring, identify test takers by number, not name, and utilize samples from chief examiners.

In 2016/2017, two scorers read each prompt written by each test taker. PARCC established an expectation of exact agreement between scorers at 65% and within one

point at 96%. Actual results were 72% and 99% respectively (PARCC, 2017). These percentages reflect high inter-rater reliability.

Unlike reliability, establishing validity is an evidence-based process (Sullivan, 2011). Construct validity refers to the degree in which an assessment tool measures its intended concept (Sullivan, 2011). In this case, PARCC assessments were designed to test students' mastery of the Common Core Standards. These standards represent "the academic knowledge, skills, and practices students must demonstrate to show readiness for success in an entry-level, credit-bearing college course or relevant technical course" (PARCC, 2017, p. 115). Students who score 4 or 5 on their final PARCC high school assessment are considered to have learned the academic skills necessary to the successful in college or prepared for potential careers. To validate this determination, PARCC compared student scores on the PARCC assessments, where applicable, to scores on the Scholastic Aptitude Test (SAT), American College Testing (ACT), National Assessment of Educational Progress, Trends in International Mathematics and Science Study (TIMSS), Programme of International Student Assessment (PISA), and Progress in International Ready Literacy Study (PIRLS) (PARCC, 2017).

PARCC also developed construct validity while developing content for the assessment. When developing questions, PARCC consulted educators, assessments experts, and bias and sensitivity experts. These groups reviewed test items for task accuracy, appropriateness, alignment to instructional standards, and freedom from bias (PARCC, 2017). Additionally, all testing items were field testing and reviewed by

teachers, students, administrators, and parents before being added to assessments (PARCC, 2017).

Instrument completion. In the spring of 2017, students in the target district were administered the PARCC assessments of ELA and mathematics. Students in grade 5-8 took the assessment between May 1st and May 5th. Students in grade 3 and 4 took the assessment between May 8th and May 12th. The district administrators scheduled a makeup period for all students between May 15th and May 18th (D. Bramley, personal communication, March 22, 2017). Although the PARCC assessment is available in paper form, all students at the local district completed the test via computer (J. McMEnamin, personal communication, April 13, 2017). Per PARCC, students were allotted a period of time in which to complete three separate units of questions. Times for each unit are listed below:

Table 9

PARCC Unit Testing Times

Grade	Unit	Minutes
3	1	90
	2	75
	3	90
4	1	90
	2	90
	3	90
5	1	90
	2	90
	3	90
6	1	110
	2	110
	3	90
7	1	110
	2	110
	3	90
8	1	110
	2	110
	3	90

Note. Adopted from “Test Coordinator Manual,” by the Partnership for Assessment of Readiness for College and Career, p. 10, 2016.

Before students completed the test, district officials were required to take multiple steps as part of the setup process. Technology setup included checking testing devices, verifying web filters allowed test site, download full test materials onto district servers, download test application on individual devices, and conduct PARCC recommended technology infrastructure trial (PARCC, 2017). Student registration involved inputting names and appropriate accommodations allowable by testing guidelines. For the ELA portion of the test, the accommodations included human reader, human scribe, extended time, closed captioning, and text-to-speech. Individual student accommodations were

determined prior to testing for students with disabilities and English language learners (PARCC, 2017). Staff completed test administration training on April 25, 2017 as part of the school's monthly faculty meeting (S. Larkin, personal communication, May 3, 2017). Training included distribution of appropriate manuals, viewing online training modules, explaining staff user roles, and addressing administration errors (PARCC, 2017).

After signing onto the test with a PARCC-generated entrance ticket that included a user name and password, student completed the PARCC assessment of ELA for their corresponding grade. Test completion involved answering a series of multiple-choice questions and completing writing assignments based on reading passage (PARCC, 2017). Students completed three units of testing in accordance with the times listed in Table 8. After student tests were completed, the district testing coordinator certified all tests and submitted them to Pearson for scoring (PARCC, 2017). Samples of the computer-based version of the PARCC assessment of ELA are accessible at <https://parcc.pearson.com/practice-tests/english/>. Student raw scores are located in Appendix D.

Data Collection and Analysis

In a quantitative study, raw data sets will be in the form of numeric information. Data sets can be considered as primary or secondary. Primary data is collected by researchers to answer a specific research question (Cheng & Phillips, 2014). Conversely, secondary data is research data that was originally gathered for a different reason. (Tripathy, 2013). Cheng and Phillips (2014) described two methods for analyzing secondary data. In the first method, the analysis is research-question driven. Researchers

begin with a research question and seek appropriate datasets to answer that question. In the second variation described by Cheng and Phillips (2014), the data-driven approach, researchers study a particular dataset first and then determine what research questions deserve study.

Prior to conducting secondary research, the following steps are needed:

- Develop an analytic plan
- Develop an understanding of the strengths and weaknesses of the dataset
- Generate operational definition of variables (Cheng & Phillips, 2014).

Because secondary data is already gathered, it is often accessible, easily understood, and quickly accessed (Cheng & Phillips, 2014). Since researchers that use secondary data are not the people who collected it, certain limitations exist. Secondary data often contain no identifying information of the study's participants, raising doubts about validity by creating the possibility of unverified, falsified data (Tripathy, 2013). Additionally, secondary data may not contain all the variables sought in the research question (Cheng & Phillips, 2014). This study will examine secondary data from the local school district to determine if the district's EDP significantly improved student achievement by ED students during SY 16/17 as measured by the PARCC assessment in ELA.

Data Collection and Research Question Alignment

On June 19, 2017, NJDOE electronically delivered individual PARCC scores for district students (D. Bramley, personal communication, June 19, 2017). This information included student scale scores on the ELA and mathematics assessments, as well as scale scores in the sub-category of reading and writing. For this study, the research question

will be: What is the difference in ELA PARCC scale scores between ED students who participated in the EDP and students who did not participate in the EDP for the 2016/2017 school year? After separating math and ELA scores, I noted students who were classified as ED during the 16/17 school year. I also noted which students attended the EDP during the SY 2016/2017. To control for grade level and reading ability, I created matched pairs using student grade level during SY 106/2017 and student Lexile[®] scores. This information allowed me to test the null and alternative hypotheses of the above listed research question. Those hypotheses were:

RQ: What is the difference in ELA PARCC scale scores between ED students who participated in the EDP and students who did not participate in the EDP for the 2016/2017 school year while controlling for grade level and Lexile[®] reading score?

H_0 : There will be no significant difference between ELA PARCC scale scores of ED students participating in the EDP and ED students who did not participate in the EDP as measured by the post test scores of ELA on PARCC assessments during SY 2016/2017 while controlling for grade level and Lexile[®] reading score.

H_a : There will be a significant difference between ELA PARCC scale scores of ED students participating in the EDP and ED students who did not participate in the EDP as measured by the post test scores of ELA on PARCC assessments during SY 2016/2017 while controlling for grade level and Lexile[®] reading score.

Access to Dataset

The dataset was stored on the district's computer network server as a Microsoft Excel file. Prior to accessing the dataset, I received a letter of cooperation from the local school district and data use agreement, signed by the local district and the researcher. Both documents are located in the appendix of this document.

Variable Scales

In a quantitative study, a variable is a characteristic that can be measured that varies among individuals within a group. The two forms of variables in a study are independent variables and dependent variables. Independent variables are those characteristics that impact outcomes while dependent variables are those influenced by the independent variable (Creswell, 2014). In order to measure variables, Stevens (1946) identified four scales: nominal, ordinal, interval, and ratio. These scales are described in the table below:

Table 10

Quantitative Variable Scales

Scale	Description
Nominal	Words or numbers that are used to label data only for the purpose of identification
Ordinal	Numeric scale used to rank individuals within a group. Examples include intelligence, mineral hardness, and personality traits
Interval	Numeric scale that measures difference between two points
Ratio	Numeric scale that measures distance between a point and 0

Note. Adopted from “On the Theory of Scales of Measurement.” By S.S. Stevens, 1946, *Science*, 103, p. 678-680.

For this study, the independent variable was participation in the local district’s EDP and was measured on a nominal scale. The dependent variable was scaled scores on the 2016/2017 PARCC assessment of ELA assessment and was measured on an interval scale.

Descriptive and Inferential Analyses

Descriptive statistics summarize, present raw data, and allow for simple interpretation through measures of central tendency and measures of spread (Laerd Statistics, 2013b). These measures include statistical mean, standard deviation, and variance (Creswell, 2014). Central tendency is a single statistical value that best describes a set of numbers (Manikandan, 2011). In this study, I calculated statistical mean to illustrate the central tendency of the dataset. Mean is the most commonly used calculation

of central tendency and is simply the average of the numbers in a dataset. Mean is calculated as:

where ΣX refers to the sum of the individual values of the entire dataset and N represents that total sample size (Manikandan, 2011). Descriptions of spread are used in conjunction with central tendency to validate mean scores and provide an indicator of how well it represents a sample population. (Laerd Statistics, 2013b). For this study, I calculated and displayed variance and standard deviation (SD) as measures of spread. Variance assigns a score that measures variation of group scores from the mean. Small variance indicates that numbers are closely clustered to the average score while a larger variance score indicates the opposite. Variance is calculated as:

where σ^2 is variance, $\Sigma(x-\mu)^2$ is the sum of all data points squared, and N is the total population size (Laerd Statistics, 2013b). Like variance, SD measures the spread of continuous scores within a group. SD can be calculated for a group or for a population (Laerd Statistics, 2013b). In this study, I calculated population SD, because while the sample is from a larger population, it is not intended to project a judgment of a larger group. Population SD is calculated as:

where σ means population standard deviation, $\Sigma(x-\mu)^2$ is the sum of all data points squared and N is the total population size (Laerd Statistics, 2013b).

These descriptive statistics provided an analysis of the raw data related to the research question. For this study, I calculated and display the mean, variance, and standard deviation scores for two groups of students derived from their PARCC assessment score in ELA during SY 16/17. The experimental group was students from the local school district who were classified as ED during SY 16/17 and did participate in the district's EDP and the control group was students classified as ED during SY 16/17 and did not participate in the district's EDP.

Inferential statistical analysis involves drawing conclusions about a population from a smaller sample. This process involves developing a hypothesis, selecting a statistical test, gathering data, and conducting hypothesis testing (Coolidge, 2006). In this quasi-experimental analysis, a judgment will be made to reject or accept the null hypothesis by comparing the means of two samples on a dependent variable. The null hypothesis of the study's research question was:

H_0 : There will be no significant difference between ELA PARCC scale scores of ED students participating in the EDP and ED students who did not participate in the EDP as measured by the post test scores of ELA on PARCC assessments during SY 2016/2017 while controlling for grade level and Lexile[®] reading score.

To test the null hypothesis, I conducted a paired samples t -test. A t test is a statistical test used to compare means from two groups. In experimental studies, subjects are typically

divided into two groups; one that receives a treatment and one that does not (Kim, 2015). A paired samples *t*-test will determine whether statistical significance exists between the two groups (Laerd Statistics, 2015).

For a paired samples *t* test to be appropriate, four criteria must be met:

1. There must be one dependent variable measured on an interval scale.
2. There must be an independent variable separated into two nominal groups.
3. There must be no significant outliers between two groups.
4. The distribution of differences between in the dependent variable between two groups must be approximately normally distributed. (Laerd Statistics, 2015).

For this study, the dependent variable was measured as scaled scores on the PARCC assessment of ELA. The scale is interval and is measured between 650 and 850 (PARCC, 2017). The independent variable was measured nominally as students who attended the local district's EDP and those who did not. Control variables were student grade level during SY 2016/2017 and student Lexile[®] scores calculated in September of 2016. Students took each PARCC assessment separately on separate machines, per district security measures (J. McMenemy, personal communication, October 17, 2017).

Assumptions, Limitations, Scope, and Delimitations

Assumptions. In order to bolster a statistical test's robustness, the researcher typically needs to meet more assumptions or mitigate an assumption's violation (Hoekstra, Kiers, & Johnson, 2012). The American Psychological Association (2009) indicated that no one method is appropriate when conducting research, but that the method used "support[ed] their analytic burdens, including robustness to violations of the

assumptions that underlie them” (p. 33). The four assumptions of a paired samples t test are listed in the previous section. At the proposal stage, it was assumed that there were no significant outlying data points, the dependent variable is distributed approximately normally for each independent variable, and there is homogeneity of variance for each independent variable group (Laerd Statistics, 2015). Once I collected all data, I verified that each assumption is true. If they were not, I would have considered the impact on the study’s validity to determine if another statistical test is appropriate.

Limitations. Potential limitations exist within the described research design. Because the district under study is a small setting, the sample size of 74 students was small. Although this sample met the standard for power of .8, a larger sample would have been statistically more powerful. Additionally, findings of the study were limited to the local setting. Although findings may become part of the body of research of similar topics, results of the study did make any evaluations beyond the local setting and in English language art/literacy only. This study also only presented quantitative data. Because no qualitative data was collected or analyzed, intrinsic student attributes such as determination, resilience, and perception were not considered.

Scope and delimitations. The scope of a study sets the boundaries for the research by stating an explanation of the limit and extent of the project (Oguduvwe, 2013). Osaze stated (as cited in Ogudvwe, 2013, p. 86), the scope of a research proposal should briefly outline the immediate purpose of the study, state the research question, state the theoretical foundation, relate the study to research, describe the research design,

depict a flow chart of the study, state necessary resources, and discuss possible applications for the study's results.

The purpose of this study was to conduct hypothesis testing following the research question: What is the difference in ELA PARCC scale scores between ED students who participated in the EDP and students who did not participate in the EDP for the 2016/2017 school year? The study was bounded by the research variables. In this case, the dependent variable will be ED students' achievement scores in ELA on the 2016/2017 PARCC assessments and the independent variable will be attendance at the local district's EDP. The theoretical foundation of the study was Carroll's model of school learning. In its simplest form, Carroll's (1963) model suggested that a student would learn something when he/she is provided the appropriate amount of time needed. Research in the areas of learning time, poverty, and after school programs provide educators with a road map for improving academic achievement by ED students through extended learning programs. To frame the study, I utilized a static-group comparison, quasi-experimental research design. The research population consisted of 74 ED students broken into two nominal categories. The posttest was the SY 16/17 PARCC assessment in ELA.

Group A X _____ O
 Group B _____ O

Figure 1. Static-group comparison, quasi-experimental design. *Note.* Group A represents students who attended the extended learning program at the local district. Group B did not. X represents the treatment and O represents the posttest. The space between the X and O is the duration of the treatment. Adapted from "Research Design: Qualitative, Quantitative, and Mixed Methods Approaches" by J.W. Creswell, 2014, Sage Publications, p. 172.

A paired samples t test determined if statistical significance exists between two groups not the amount of difference. Conducting the test involved a multi-step process depicted in the following flow chart:

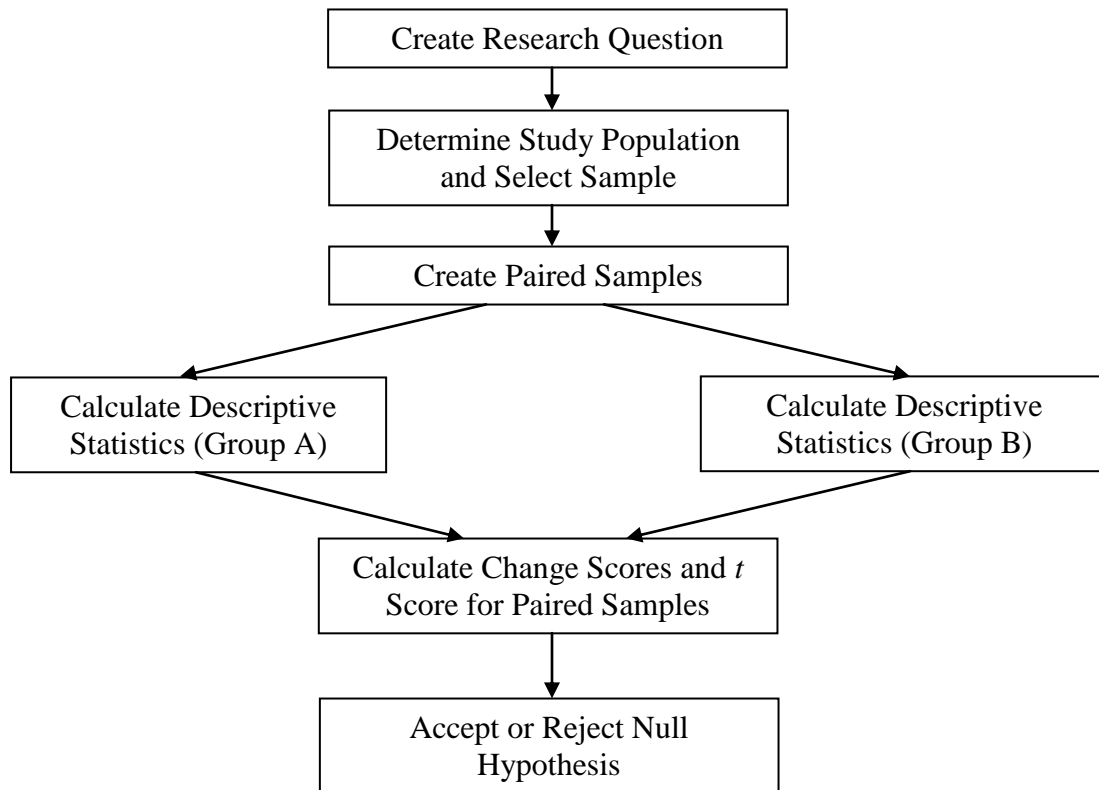


Figure 2. Paired samples t -test flow chart. *Note.* Group A represents students who did not attend the extended learning program at the district under study. Group B represents students who did attend the program.

Protection of Participant Rights'

In an analysis of secondary data, ethical issues can develop concerning protection of participant rights and participant consent. Data with no individualized, distinguishing characteristics presents no concerns for participants (Tripathy, 2013). Data for this study was delivered with subject names attached. In order to protect participant rights, I changed names to randomly selected identifying numbers. Additionally, I complied with all requirements listed Walden University's Institutional Review Board confidentiality agreement, found in the appendix of this document. Because this data is not available publicly, I sought permission from the data's owners (Tripathy, 2013). To do so, I have completed a data use agreement and received a letter of cooperation with the local school district, also found in the Appendix B and C of this document.

Data Analysis Results

To answer the research question: what is the difference in ELA PARCC scale scores between ED students who participated in the EDP and students who did not participate in the EDP for the SY 2016/2017 while controlling for grade level and Lexile[®] reading score?, I gathered multiple data points from the local school district. These data points included PARCC assessment scores in ELA for 2017, student Lexile[®] scores, student grade levels, and participation records for the district's EDP. I used this data to calculate descriptive statistics detailing measures of spread and central tendency. I also conducted inferential statistics to test the null hypothesis that there will be no significant difference between ELA PARCC scale scores of ED students participating in the EDP and ED students who did not participate in the EDP as measured by the post test scores of

ELA on PARCC assessments during SY 2016/2017 while controlling for grade level and Lexile[®] reading score, utilizing a paired samples *t* test.

Descriptive Statistics

Table 11 displays descriptive statistics of all 74 students eligible for participation in the study. PARCC scores of ELA from the 2017 assessment were used for calculations.

Table 11

Aggregated Descriptive Statistics

<i>M</i>	<i>SD</i>	<i>V</i>
734.95	29.43	866.21

Note. *N*=74.

Of the 74 students eligible to participate in the study, 35 attended the EDP during SY 2016/2017 and 39 did not. Table 12 displays the disaggregated, descriptive statistics scores of both groups of students using the PARCC scores of ELA from the 2017 assessment.

Table 12

Disaggregated Descriptive Statistics

EDP	<i>N</i>	<i>M</i>	<i>SD</i>	<i>V</i>
Yes	35	734.77	28.77	827.83
No	39	735.10	30.39	923.30

Prior to conducting to inferential statistical analysis, 28 pairs were created in order to control for grade level and reading ability as measured by Lexile[®] scores. First, students were separated by attendance in the district's EDP, then grouped by grade level, and lastly paired with the closest corresponding Lexile[®] score. Those students who did not fit within the parameters of a paired sample were excluded from the study. Table 13 displays grade level, Lexile[®] level, scaled PARCC score from the 2017 assessment of ELA, and participation in district EDP.

Table 13

Paired Samples

Pair	Grade	Lexile® Level	PARCC Score	EDP
1	3	195	764	No
	3	220	731	Yes
2	3	10	733	No
	3	40	716	Yes
3	3	255	736	No
	3	295	719	Yes
4	3	160	733	No
	3	255	757	Yes
5	3	110	697	No
	3	185	759	Yes
6	3	580	787	No
	3	585	744	Yes
7	4	480	717	No
	4	345	719	Yes
8	4	500	758	No
	4	370	782	Yes
9	4	500	780	No
	4	455	756	Yes

(table continues)

Pair	Grade	Lexile® Level	PARCC Score	EDP
10	4	585	754	No
	4	490	739	Yes
11	4	410	745	No
	4	335	758	Yes
12	5	335	730	No
	5	225	737	Yes
13	5	565	782	No
	5	365	741	Yes
14	5	585	776	No
	5	420	753	Yes
15	6	470	679	No
	6	370	701	Yes
16	6	530	720	No
	6	505	730	Yes
17	6	605	720	No
	6	655	730	Yes
18	6	740	749	No
	6	830	766	Yes
19	7	1050	802	No
	7	1050	779	Yes

(table continues)

Pair	Grade	Lexile® Level	PARCC Score	EDP
20	7	335	744	No
	7	335	688	Yes
21	7	415	709	No
	7	445	701	Yes
22	7	540	694	No
	7	535	726	Yes
23	7	645	737	No
	7	570	735	Yes
24	7	665	732	No
	7	600	685	Yes
25	7	670	748	No
	7	660	745	Yes
26	7	680	744	No
	7	675	770	Yes
27	7	720	742	No
	7	680	696	Yes
28	8	220	712	No
	8	185	688	Yes

Prior to conducting a paired samples t test, I verified that the data met all four requirements for validity. Those four requirements are one dependent variable measured

on a continuous scale, one independent variable measured on a dichotomous scale, absence of significant outliers, and normal distribution of the between groups as measured on the dependent variable (Laerd Statistics, 2013a).

The dependent variable, PARCC test scores of ELA on the spring 2017 assessment, is measured on a continuous scale, meeting the first requirement. The second requirement is met because the independent variable is attendance at the district's EDP during SY 2016/2017, a variable that is answered dichotomously yes or no. To test whether any data points are significant outliers, I calculated a range that is 1.5 times higher and lower than the interquartile of all scores (Jelen, 2011). For this sample, the lower end of the range is 663 and the higher end of the range is 812. All points in the dataset fell within this range, satisfying the third requirement. To determine sample normality, I conducted a Shapiro-Wilk test on the dataset. The purpose of this test was to provide a statistical evaluation of a sample where the null hypothesis affirms normality (Shapiro & Wilk, 1965). The table below details findings from a Shapiro Wilk Test using the study's dataset:

Table 14

Shapiro-Wilk Test

Samples	W Statistic	Significance Level	Critical Value
56	.985	.05	.958

Note. $p = .717$

Because the critical value was lower than the calculated W statistic, the null hypothesis was accepted and the sample was considered to be derived from a normal distribution, thereby satisfying the fourth requirement of a paired samples t test.

Inferential Statistics

With the requirements of the paired samples t test met, I conducted hypothesis testing using a paired samples t test. Kim (2015) stated the formula for equating a t statistic as:

$$\frac{\bar{X} - \Delta}{S / \sqrt{n}}$$

where \bar{X} equals the mean of change scores between groups, Δ is the hypothesized difference (0 in this study), S is the sample standard deviation of the differences, and n is the sample size. Applying the data to the equation produced the t and p values listed in table 15. As the calculated t score (1.14) is lower than the critical t value (1.70) for the sample size and the p value (.1310) is greater than the established significance level (.05), the null hypothesis is accepted. Therefore, there was no significant difference between ELA PARCC scale scores of ED students participating in the EDP and ED students who did not participate in the EDP as measured by the post test scores of ELA on PARCC assessments during SY 2016/2017 while controlling for grade level and Lexile[®] reading score.

Table 15

Paired Samples t Test Analysis

EDP	Mean	Observations	t Statistic	Critical t Value
Yes	733.96	28		
No	740.14	28		
			1.14	1.70

Note. $p = .1310$

Additionally, one can infer that simply increasing instructional time, per Carol's model of school learning, did not increase academic achievement.

Summary

After receiving IRB approval (# 01-25-18-0128274), I gathered secondary data pursuant to university standards and procedures set forth in the data use agreement. This data included student grade levels, student Lexile[®] scores as calculated in the fall of 2016, student ELA PARCC test scores for the spring 2017 administration, and attendance records for the district's EDP for SY 2016/2017.

Tables 11, 12, and 13 provide descriptive statistics of the collected data including aggregated and disaggregated sample means, standard deviations, variances, and sample pairings. Table 14 presents the findings of a Shapiro Wilk test used to validate the normality of the sample data. Table 15 presents the findings of the paired samples t test to conduct hypothesis testing.

Based on the results of inferential statistical analysis, the null hypothesis was accepted, meaning that there was no significant difference in ELA PARCC scores

between ED students who attended the EDP and those who did not. In relation to the problem statement, the district's EDP is not helping to close the ED/NED achievement gap.

Project Deliverable

Based on data analysis, the local district's EDP does not appear to be closing the ED/NED achievement gap. As a culminating project for this study, I presented the local district board with a policy recommendation, known also a white paper. Pershing (2015) described the white paper as an essay that uses proven facts persuasively to recommend a solution to a problem. For this study, I created and presented a white paper that followed a problem and solution format (Pershing, 2015). The body of the white paper followed Kemp's (2005) 9 stage process:

1. Assess needs
2. Plan
3. Acquire information
4. Organize content
5. Design
6. Write
7. Illustrate
8. Revise
9. Publish

The content of the white paper informed the local school district on the state of its EDP and recommendations for closing the ED/NED achievement gap.

Section 3: The Project

Introduction

Informed by the findings of the data analysis, I created a white paper to be shared with the local school district. This document included a description of the problem addressed in this study: an achievement gap between ED and NED students. To address the problem, the district used federal Title I monies to provide an EDP for eligible students. Data analysis of student ELA PARCC assessment scores from SY 2016/2017 indicated that students who attended the EDP during the corresponding school year did not score higher on the assessment. After conducting a paired samples *t* test, I accepted the null hypothesis of the research question which stated that there was no significant difference between ELA PARCC scale scores of ED students participating in the EDP and ED students who did not participate in the EDP as measured by the posttest scores of ELA on PARCC assessments during SY 2016/2017 while controlling for grade level and Lexile[®] reading score.

The white paper presented a review of scholarly literature. This information included research findings regarding the effectiveness of EDPs, methods for developing successful EDPs, and alternatives to EDPs. An additional literature review informed program recommendations in the white paper. Recommendations included a replacement program that may better address the local problem.

The goal of the project was to provide the school district with relevant scholarly literature regarding the effectiveness of EDPs so that local school officials can make research-based decisions regarding their program.

Rationale

According to university guidelines, the four genres of a project are evaluation report, curriculum plan, professional development curriculum, and policy recommendation. When evaluating my choice of a project, I was able to quickly eliminate curriculum plan and professional development curriculum. In order to decide between the remaining two options, I reviewed the research question and data analysis. Based on university descriptions, I determined that a policy recommendation, or white paper, would be the most impactful project for the local district.

Pershing (2015) stated that white papers provide “useful ideas and information for readers to use in understanding issues, to solve a particular problem” (p. 2). The local district is facing the problem of an achievement gap between ED and NED students. To solve the problem, local officials started an EDP for eligible students. Of the 35 students who attended the EDP in 2016, all were classified as ED. Inferential statistical analysis of student ELA PARCC scores indicated that ED students who attended the EDP did not perform better on the test than those ED students who did not attend the EDP while controlling for grade and reading level as measured by Lexile[®] scores.

A white paper provided local school officials with scholarly resources related to EDPs. Using this information may provide school administrators with strategies that will improve student academic achievement.

Review of the Literature

The literature review for this section of the study provides the research foundation for the culminating project, a policy recommendation or white paper. By combining this

research with the quantitative findings in Section 2, I developed a white paper that describes the local problem, presents potential solutions, and advocates for a specific remedy.

To conduct the research, I used Google Scholar, ERIC, EBSCO, Education Research Complete, and the Walden University Library to search for literature addressing the topics of writing a white paper, improving after school programs, Response to Intervention (RTI) programs, and making data-driven decisions in education. Where practical, the literature review included peer-reviewed journal articles written since 2012. In some instances, older literature was used to provide historic, contextual, or supporting information to current topics.

Writing a White Paper

White papers are a form of informational text used in various industries for various purposes (Willerton, 2013). In its simplest form, a white paper is a persuasive essay that utilizes logic and facts to recommend and advocate a specific solution to a defined problem (Pershing, 2016; Sakamuro, Stolley, & Hyde, 2015). They are written for official purposes and provide information to a targeted audience (Maxson, 2005; Sakamuro et al., 2015). Pershing (2016) stated that a well-written white paper should be roughly 1,500 and 3,000 words long.

Multiple authors recommended various formats to follow when writing a white paper. While some recommendations were unique to certain authors, some were presented in multiple studies. Common among the authors was presentation of a problem (Pershing, 2016; Sakamuro, Stolley, & Hyde, 2010). Maxson (2005) added that white

paper authors should justify why the problem should be solved. Also common in the literature was explanation of a solution to influence decision making (Maxson, 2005; Pershing, 2016; Sakamuro et al., 2010). Use of visual graphics was recommended by multiple authors. These included graphs, charts, subheadings, and displays of evidence (Maxson, 2005; Sakamuro et al., 2010).

Researchers differed when offering specific frameworks for writing white papers. Maxson (2005) advocated writing in a linear manner by first attracting the audience, then engaging the reader, informing the reader, and finally convincing the reader. The author also detailed a 3-30-3 rule. In this scenario, the writer must get the reader's attention in the first three seconds, engage the reader in the next thirty seconds, and convince the reader in the last three minutes (Maxson, 2005). Kemp (2005) recommended a nine step process that involved conducting a needs assessment, planning, acquiring information, organizing content, designing, writing, illustrating, reviewing, and publishing.

This project was appropriate to address the specific research problem. By delivering a white paper to district officials, I can help local administrators view the data that informs the problem statement and statistical conclusion. Following Maxson (2005), the project logically leads the reader of the white paper into drawing a conclusion.

Improving Afterschool Programs

Researchers have conducted studies finding methods of improving afterschool programs. A review of the literature detailing this research revealed multiple common recommendations for improving existing afterschool programs. While the previous

literature review regarding afterschool programs focused on programming, this review will focus on program improvement.

Determining goals was an important method to improving afterschool programs. Huang and Dietel (2011) found that goals should be clear, rigorous, assessable, and supported by program leadership. Program goals should establish a clear, predetermined focus on achieving specific outcomes (Granger, Durlak, Yohalem, & Reisner, 2007). With clear goals established, educators are able to improve programs by aligning activities to those outcomes (Granger et al., 2007; Bridgman, 2008). Kennedy, Wilson, Vallardes, and Bronte-Tinkew (2008) found that establishing goals for student attendance and retention also led to program improvement.

Another method of improving afterschool programming was providing for program evaluation and assessment. Multiple authors (Durlak, Mahoney, Bohnert, & Parente, 2010; Huang & Dietel, 2011; Yohalem & Granger, 2011) expressed the importance of evaluation in improving the effectiveness of afterschool programs. Prior to evaluating a program, educators needed to develop appropriate ways to measure high quality practice (Yohalem & Granger, 2011). Huang and Dietel (2011) found that use of formative and summative assessments were impactful. Formative evaluations were typically conducted internally by program staff and evaluated data with the goal of developing strategies for program improvement (Huang & Dietel, 2011). The most effective summative assessments were conducted by independent third-party organizations and often addressed accreditation issues. These evaluations were perceived by teachers to be more effective because they were conducted by unbiased evaluators

(Huang & Dietel, 2011). Observational assessments also helped improve programs. These assessments produced qualitative data that allowed evaluators to conduct improvement planning and develop targeted training for staff. (Yohalem & Granger, 2011). The most effective assessments were standards-aligned and outcomes-based (Durlak, Weissberg et al., 2010; Granger et al., 2007). Using these types of assessments led to clearer goals making content clearer and more detailed (Granger et al., 2007). Data analysis also found that research-based instruments were more effective in defining successful practice (Yohalem & Granger, 2011). Kennedy et al. (2007) recommended inclusion of student surveys to provide wider perspectives for program improvement. Surveys provided program developers with information regarding students' preferred activities and revealed factors that prevented students from attending the program (Kennedy et al., 2007).

Professional development and teacher training often led to improvements in afterschool programs. Effective strategies in this effort included coaching (Yohalem & Granger, 2011), recruitment of pre-trained staff (Kennedy et al., 2007), and on-site training (Bridgman, 2008). Yohalem and Granger (2011) stressed the importance of securing and reserving adequate funding for teacher training.

Improved social environments correlated to improved program outcomes (Bridgman, 2008; Yohalem & Granger, 2011). Durlak, Mahoney et al. (2010) described positive outcomes associated with positive social ecologies in afterschool programs. Characteristics included positive interactions between students and staff, welcoming atmosphere, group participation, and active learning (Durlak, Mahoney et al., 2010).

Along with certain commonalities, individual researchers determined specific methods of improving afterschool programs. Bridgman (2008) recommended student-centered learning activities, improved curricular materials, project-based learning, and community partnerships. Kennedy et al. (2007) found that providing transportation, locating programs within communities, and providing support for students to balance home and afterschool responsibilities improved program outcomes. They also suggested offering financial incentives for students with outstanding attendance and providing vocational training (Kennedy et al., 2007). Huang and Dietel (2011) recommended a highly educated staff, an involved program director, collaboration with day time teachers, use of technology, use of standards-based program curriculum, and parental involvement.

Data-Driven Decision Making in Education

With the introduction of increased school accountability and growing technology, educators are turning to data-driven decision making (DDDM) models to enhance professional practice and increase student achievement. A review of the current literature of the subjected revealed recommended action plans, advantages in the field of education, and challenges to implementation.

Data use in educational settings is often derived from industrial and manufacturing uses (Marsh, Pane, & Hamilton, 2006). The No Child Left Behind Act of 2001 (NCLB) required extensive use of student achievement data to evaluate schools and drive instruction (Mandinach, 2012; Marsh et al., 2006). Multiple authors described the basic process of DDDM in schools. Common factors found in the research were collection of data, analysis, interpretation, development of hypothesis, and transformation

in to action plan (Bongiorno, 2011; Mandinach, 2012). Information became workable knowledge once educators were able synthesize the data and apply that knowledge to improve student outputs (Marsh et al., 2006). Data analysis was not linear, but part of an on-going, cyclical evaluation process (Marsh & Farrell, 2015). Educators used data to inform decisions regarding curriculum, instruction, and professional development (Loeb, 2012; Marsh et al., 2006).

Marsh, Pane, and Hamilton (2006) conducted a qualitative study that used surveys, focus groups, and document reviews to analyze educators' perceptions regarding the use of data to improve student achievement. The authors found that effective school officials used multiple types of data to make decisions, including input data (demographics or expenditures), process data (quality of instruction), output data (student achievement scores), and satisfaction data (staff and student surveys (Marsh et al., 2006). This idea of multiplicity of data was supported by Bongiorno (2011) who stated that educators should collect and prepare a variety of data points. Marsh et al. (2006) also determined that a majority of Florida school principals relied on output data, using a value-added approach, which determines the effectiveness of a treatment on achievement scores as measured by growth. Districts also found success using commercially generated, formative assessments. These tests generated accurate information, returned results sooner, provided helpful information. Sixty percent of teachers in the study indicated that commercially produced, formative assessments were more valuable in the evolution of instructional practice than high-stakes, summative assessments (Marsh et al., 2006).

Research in the area of DDDM suggested multiple methods for improving a school's capacity to use data to improve student achievement. Bongiorno (2011) recommended that teachers collaborate with other teachers, school districts establish a vision for data use, and that leaders provide support in the form of training and time. Successful schools created written data plans that listed explicit goals and established data-teams to serve as mentors and teacher leaders (Bongiorno, 2011). Teachers empowered students to learn from their own data. Doing so required accurate explanations of assessment criteria, timely feedback, and explanatory tools such as charts or graphs (Bongiorno, 2011). Marsh and Farrell (2015) found that districts improved their ability to use data in a meaningful way after assessing data literacy, providing adequate supports, and following a theoretical model. Additionally, they recommended increased technology, supplemental financial support, and greater accountability (Marsh & Farrell, 2015). District leadership played an integral in effective data use by providing support and selecting a common digital platform for the collection of data (Bongiorno, 2011). In an elementary school in Boston, teachers increased their capacity to use data to drive instructional improvements through teacher collaboration (Steele & Boudett, 2008). Collaboration allowed to teachers to gain a deeper understanding of student achievement and develop realistic methods of improving instruction. Effective school leaders facilitated positive collaboration by developing data teams, designating time, and establishing procedures for data use (Steele & Boudett, 2008).

Research stressed the significance of professional development. In order to efficiently use data to drive instruction, school districts needed to provide ample support

to staff (Bogiorno, 2011). The most common forms of professional development centering on the topic of data analysis were workshops and training delivered by district leadership (Marsh, Pane, & Hamilton, 2006). While teachers had access to abundant data, they often did not understand how to use it properly (Marsh & Farrell, 2015). Marsh, Pane, and Hamilton (2006) found that successful schools provided time for training, the allocation of appropriate resources, and the collection of user-friendly data.

Not all research on the subject DDDM yielded positive findings. Loeb (2012) was critical of the over-reliance on data usage because curricular needs varied in different settings; decision makers ignored logical conclusions; teachers deferred too often to data over logic; and decisions were predetermined then supported by selective data rather than being factually driven. Additionally, too many studies that claimed to draw causal conclusions were only able to prove correlation and relied too heavily on secondary data over the collection of primary data for testing a specific hypothesis (Loeb, 2012). A longitudinal study of Canadian and American educators concluded that teachers had difficulty translating data into instructional improvements (Hora, Bouwa-Gearhart, & Park, 2014). The same study found that some teachers viewed DDDM as managerial interference in instructional decisions which led to lack of staff commitment and failure to recognize data use a professional responsibility (Hora et al., 2014). Administrators were reluctant to commit to wide-scale use of data because they believed doing so was too labor intensive and too costly (Mandinach, 2012). They also feared an over-reliance on data use in lieu of logic and professional intuition (Mandinach, 2012).

Largely absent from the body of literature on DDDM are quantitative studies testing the effectiveness of data use as an intervention. My research found one study from the Netherlands that determined increased elementary student achievement in mathematics by students participating in a data-based intervention program when compared to similar students who did not participate in the program (van Geel, Keuning, Visscher, & Fox, 2016). As described in the above paragraphs, the literature largely described methods of including DDDM into professional practice, suggestions for improving use of DDDM, barriers to use of DDDM, and potential pitfalls of DDDM.

Response to Intervention

RTI is an instructional approach to providing at-risk students with interventions designed to meet identified educational needs. Teachers screen students for academic and behavioral issues, monitor progress, and provide interventions drawn from assessments (Fletcher & Vaughn, 2009). Systematic screening was most successfully utilized in early grades (Cakiroglu, 2015). Research described RTI in multiple subject areas, but educators used RTI mostly to address deficiencies in early reading (Denton, 2012).

While descriptions of RTI programs differed by author, several common program aspects were present throughout the literature. RTI used a multi-tiered approach to identify and remediate students with learning needs (Denton, 2012; Fletcher & Vaughn, 2009). Instruction began in general education classrooms and increased in time and intensity as students move from Tier 1 to Tier 2 and to Tier 3 (Cakiroglu, 2015; Fletcher & Vaughn, 2009). Tier 1, the least intense, provided students with instruction, screening, and group intervention (Denton, 2012). Tier 1 interventions included phonemic

awareness, phonics, recognition of sight words, vocabulary and independent reading (Denton, 2012). Tier 2 interventions were delivered mostly by general education teachers within their own classrooms, a reading specialist, or a paraprofessional with specialized training (Denton, 2012). Tier 3 students received intensified highly individualized instruction in small group or individualized setting (Cakiroglu, 2015).

Also common in the literature was the importance of early intervention in providing RTI services. Cakiroglu (2015) stated that early intervention was critical for students with poor academic skills. Services were more successful in raising student achievement levels when delivered at younger ages (Denton, 2012; Fletcher & Vaughn, 2009; Hall & Mahoney, 2013). Older students required more, intensified instruction to overcome learning deficits (Fletcher & Vaughn, 2009).

Authors described two RTI models: problem solving and standard protocol. In a problem solving model, teachers developed interventions that targeted specific student needs as determined by multiple assessments (Cakiroglu, 2015). The standard protocol method required teachers to screen all students with standardized assessments (Cakiroglu, 2015; Fletcher & Vaughn, 2009). Those students identified as at-risk were assessed more frequently following a scheduled protocol (Fletcher & Vaughn, 2009). In a study of 72 students from an urban elementary school, Denton et al. (2013) found that the problem solving method produced higher levels of student achievement.

The literature identified common aspects of successful RTI programs. Universal screening, using a valid, research-based instrument predicted successful identification of students in need of intervention (Cakiroglu, 2015; Fletcher & Vaughn, 2009). Specifically,

assessments that were curriculum-based and compared student performance to grade level norms were the most efficient tools for educators (Fletcher & Vaughn, 2009). Denton (2012) found that assessments were most effective in providing teachers with progress feedback when given 1 to 4 times per month.

According to Denton et al. (2013), research indicated that at-risk children can learn to read when provided high quality instruction in a small group or individualized settings. The literature for this review stressed the importance of quality instruction in an effective RTI model. Best practice instruction was evidence-based and derived from systematic monitoring (Cakiroglu, 2015). Students with reading difficulties benefitted from direct instruction, extended guided reading periods, and lesson planning that promoted active involvement (Denton, 2012). Students who qualified for Tier 2 interventions improved reading ability when supplemental services were provided 3-5 times weekly for 20-40 minutes per instructional period (Denton, 2012). Adequate professional development was also necessary for RTI programs to be successful. Hall and Mahoney (2013) stated that professional development goals needed to align with desired program outcomes. After studying a middle school RTI program, Ciullo et al. (2016) determined that extensive professional development was needed for program improvement and student success.

Not all research regarding RTI yielded positive results. While elementary programs have been significantly researched, few studies have been conducted at the middle school and secondary level (Ciullo et al., 2016; Fletcher & Vaughn, 2009). Programs were difficult to establish at these levels because of scheduling conflicts,

inadequate access to reliable screening tools, substantial reading discrepancies, and emphasis on testing (Ciullo et al., 2016; Denton, 2012). In the body of research, authors have failed to establish a common language for program aspects (Cakiroglu, 2015). Additionally, research has not indicated that RTI programs have been successful in improving student achievement in subject areas such as math and science (Cakiroglu, 2015; Fletcher & Vaughn, 2009). Ciullo et al. (2016) conducted a qualitative study of three middle schools that used an RTI model to improve student reading achievement. Using the Writing and Reading Observational Tool (WROT), they concluded that teachers in the observed schools did not provide comprehensive instruction, students did not participate in peer reading sessions, and that the program under study did not increase high school readiness for students (Ciullo, et al. 2016). Following a quantitative study, Hall and Mahoney (2013) concluded that professional development failed to improve teachers' capacity to provide appropriate interventions when seminars were too generic and did not provide specific ways to address student needs. Fletcher and Vaughn (2009) stated challenges to the success of RTI included a lack of a prevention component, minimal research in Tier 3 interventions, and high rates of failure among students participating in Tier 3 programs.

To increase the effectiveness of RTI programs, Denton (2012) recommended that further research be conducted on effective interventions for population subgroups, Tier 3 methodologies, and assessments to gauge intervention responsiveness. Cakiroglu (2015) also recommended that schools expand their use of RTI to identify students with emotional problems and provide interventions to English Language Learners. Expanding

and improving the use of RTI programs may positively impact academic achievement by at-risk students (Denton, 2012).

Project Description

The proposed project is a position paper, or white paper, describing the existing problem at the local district, presenting research in the area under study, displaying data that describes the problem and tests the research hypothesis, and recommending solutions to the problem. The project will be presented to the Superintendent and Board of Education members of the local school district.

Resources, Supports, Potential Barriers, and Potential Solutions to Barriers

Needed resources and existing supports. In order to write the white paper, I drew from previous portions of this study. The literature review of white papers provided a framework. Following Kemp's (2005) 9 step sequential process, I conducted a needs assessment, planned for writing the white paper, acquired information, organized content, designed the white paper, wrote it, illustrated, revised, and published.

To conduct the needs assessment, I reviewed the problem statement and supporting data found in section 1. While organizing the project, I combined Maxson's (2005) recommendations with Kemp's (2005) framework. This included planning to engage the reader, informing the reader, and convincing the reader (Maxson, 2005). I acquired the needed information throughout the sections 1 through 3. I engaged the reader by stating and displaying data related to the local problem located in section 1. Next, I informed the reader with the results from the data analysis found in section 2. Finally, I utilized the literature review from section 3 to convince the reader to follow the

recommended solutions presented in the white paper. To complete the final steps, design, write, illustrate, revise, and publish, I utilized Microsoft Word.

All of the needed resources were readily available to me. Having completed all of the research, gathered and organized articles, conducted descriptive and inferential data analysis, I reviewed and arranged these available resources in a manner that allowed me to write an effective white paper.

Potential barriers. After evaluating the literature in section 3, I recommended, through the white paper, that the local district discontinue the EDP and utilize Title I monies to fund a school wide RTI program. Multiple potential barriers to this recommendation exist. The first is fiscal. For SY 2017/2018, the local district received \$85,493.00 in Title I grant money (M. Parry, personal communication, March 9, 2018). Assuming equal funding for SY 2018/2019, the district would need to provide professional development for existing staff and hire a specialized teacher to provide Tier 3 interventions to eligible students. The average cost of a teacher, including salary and benefits, is between \$75,000 and \$100,000, depending upon experience (M.Parry, personal communication, March 9, 2018). Given that cost, the local district would face difficulty paying for all aspects needed to implement an effective RTI program. Another potential barrier could be teacher buy-in. Teacher resistance is often the leading reason for ineffective school reform (Zimmerman, 2006). Yoon (2016) stated that teacher buy in with a reform was affected by five factors: whether teachers believed the reform was beneficial to their school; whether the reform helped them become better teachers; whether they were personally motivated to make the reform work; whether they believed

the reform could be implemented in their classroom; and whether they understood how the model improves student achievement. The final potential barrier would be scheduling. Presently, each student in the district is scheduled for 90 minutes of reading, 90 minutes of math, 45 minutes of science, 45 minutes of social studies, 45 minutes of an elective, and 45 minutes for lunch/recess (D. Bramley, personal communication, March 9, 2018). Implementing an effective RTI program would require a period of time each day within the existing daily schedule.

Solutions to potential barriers. To effectively implement an RTI program, the local district would need to address the potential barriers noted in the above section. To meet the fiscal challenges, the district may need to fund some of the program through the general fund. The most likely method of doing so would be to fund professional development through the district's general budget.

School leadership plays a significant role in increasing teacher buy in (Zimmerman, 2006). Yoon (2016) suggested that school leadership can use data to improve performance and connect teachers to a particular reform. In the local district, administrators can provide professional development, conduct assessment throughout the school year, and share results with teachers to increase teacher efficacy.

To address potential scheduling issues, district leadership will need to creatively schedule time for an RTI program. Using Denton's (2012) recommendations as a guide, district administration should create 30 minute blocks each time for RTI. Time can be taken proportionally from each existing period.

Implementation Timeline

The local school district holds public Board of Education meetings twice monthly (M. Parry, personal communication, March 9, 2018). Prior to a meeting, I will present the white paper to the district Superintendent of Schools and discuss my recommendations. Doing so will allow him to consider my findings and determine whether he will place presentation of the white paper to the Board on the agenda for a meeting. Items for consideration need to be added one week prior to a meeting (M. Parry, personal communication, March 9, 2018).

If the Superintendent and Board of Education approve the recommendations of the white paper, I will meet with the district Director of Curriculum and Instruction. During this meeting, he and I will discuss full implementation, including fiscal, personnel, scheduling considerations. The master schedule for a school year is completed prior to the end of May in the previous school year (D. Bramley, personal communication, March 9, 2018). Prior to public presentation, with approval from the Superintendent, I will discuss the projects findings and recommendations with the district teaching staff at the May faculty meeting.

In order to hire a specialized teacher to provide Tier 3 interventions to eligible students using Title I funds during a school year, the district will need to begin its recruitment and hiring process. With all recommendations of the white paper in place, the local district can begin full implementation.

Roles and Responsibilities

As the researcher and author of the white paper that will potentially guide a significant shift in the local district's educational program, I will have multiple responsibilities. Prior to implementation, I will need to present the findings and recommendations of the white paper to the Superintendent and Board of Education in a manner that demonstrates accuracy, sincerity, and consideration. If granted approval, I will need to prepare a logistical discussion with the Director of Curriculum and Instruction that includes consideration of barriers discussed in this study. I will also need to provide on-going program evaluation.

Other educators in the local district will have vital roles in implementing the project. The Superintendent of Schools will need to evaluate the white paper to determine whether the recommendations will be appropriate for the district. If so, he will need to recommend the presentation of the white paper to the Board of Education. While implementation of the project would not be a policy decision, and therefore not actionable by vote of the Board, members may comment and add personal recommendations.

Each year, the local district completes the grant for Title I funding during June of the preceding school year. (M. Parry, personal communication, March 9, 2018). The educational portion of the grant is written by the Director of Curriculum and Instruction and the budgetary portion is completed by the School Business Administrator (D. Bramley, personal communication, March 9, 2018). If the recommendations of the white

paper are accepted, the Title I grant will need to be written in a manner that will reflect the local district's new supplemental program.

District teaching staff will play a significant role in implementing the project. Staff will participate in professional development, assess student learning, and provide specific interventions. Important among the teaching staff will be the one teacher assigned to provide intense Tier 3 interventions to eligible students. District administration will need to provide on-going support, supervision, evaluation, and training.

Project Evaluation Plan

Evaluation Type

The project evaluation will be formative and summative. Formative assessment is an on-going process that allows evaluators to obtain feedback during a program's implementation by identifying evolving processes as they occur, providing timely feedback, and allowing for adjustments (Pell Institute, 2018). For the recommended RTI program, formative assessments can include student benchmarks, staff surveys, and stakeholder questionnaires. Summative assessment occurs after the completion of the program cycle with the goals of determining whether objectives were met, improvements needed, program impact, and future resources needed (Pell Institute, 2018). Specific summative assessments will include student ELA PARCC scores on the 2018/2019 administration, staff evaluation scores, and community surveys. This evaluation plan is justified because it allows the district administration to evaluate data related to the problem statement. Additionally, quantitative data gathered can be used to conduct

inferential statistical analysis in a manner similar to that used to evaluate the district's EDP. Administrators can then compare the effectiveness of each program.

Project Goals

The problem statement for this study highlighted an achievement gap that exists in the local school district between ED and NED students as measured by state assessments including NJASK and PARCC. The short term goal of this project was to evaluate the district's EDP, and make recommendations on how to better address the local problem. Based upon a data analysis and literature review, the white paper recommended replacing the EDP with an RTI program to be delivered during the regular instructional day. The long term goal of the project will be to close the achievement gap between ED and NED students in the local school district. By participating in a research-based program, ED students will have a greater opportunity to succeed.

Framed by the problem statement and aligned to the research question, the proposed program evaluation will allow district decision makers to conduct a cyclical evaluation of efforts designed to close the achievement gap between ED and NED students. Evaluation of these efforts should not be considered an annual binary test of pass or fail, but an evolving task that combines data analysis and literature review with multiple formative and summative assessments. Stakeholders include students, teachers, district administration, and community members.

Project Implications

Social Change Implications

Throughout this country, academic achievement gaps exist based on SES (Huang, 2015). Despite attempted reforms, these gaps continue to exist (Amendum & Fitzgerald, 2013). Because of these gaps, children living poverty face long-term negative effects including lower incomes and persistent poverty (Goins, 2014). For students in the local district living in poverty, this project recommended that district officials provide an educational program that is data-driven, research-based, and may help to reduce the local achievement gap between ED and NED students. District students will be more prepared to overcome the educational adversity correlated to poverty.

Importance to Stakeholders

Locally, multiple stakeholders will benefit from an improved program design intended to reduce the ED/NED achievement gap. The community will be improved by a higher achieving school district. Research has indicated that highly rated schools improved local property values (Harney, 2013). Many community members are also parents/guardians of the students potentially impacted by the new program. Higher achievement by their students would be a source of pride and satisfaction. The project may have a positive impact on teaching staff as well. Teaching a successful program will increase teacher's self-efficacy, job satisfaction, and internal motivation (Canrinus, E.T., Helms-Lorenz, M, Beijaard, D., Buitink, J, & Hofman, A., 2012). District administration, too would be positively impacted by a successful RTI. As social justice leaders, school administrators have the authority to make decisions that will impact students for years.

The project will have the greatest importance to students of the local district because the recommended program can help increase student achievement. As described in Tables 1 and 2, an achievement gap has existed for, at least, the past six years despite district efforts to mitigate the problem. By analyzing the existing program and researching a replacement, the project provided district officials with a program that offers a new opportunity for ED students attain higher levels of academic achievement.

Conclusion

Based upon the findings of the data analysis in section 2 and literature review from this section, I developed a white paper that recommended that the local district replace its EDP with an RTI program to help close the achievement gap between ED and NED students. Section 3 presented a rationale, justification, delivery timetable, and evaluation plan for the project deliverable.

Guided by the problem statement and findings of the data analysis, I conducted a literature review that included the topics writing a white paper, DDDM in education, improving EDP's, and RTI programs. This literature review framed the body and findings to be presented in the white paper. Section 3 also discussed the impact of the project on multiple stakeholders as well as ways to evaluate the project's effectiveness.

Section 4 will be the concluding section of this study and will be reflective in nature.

Section 4: Reflections and Conclusions

Introduction

This quantitative project study examined the manner in which an urban school district addressed an achievement gap between ED and NED students. Specifically, the district used Title I grant funds to support an EDP. Using Carroll's (1963) model of school learning as a theoretical framework, inferential statistical analysis tested the research question: What is the difference in ELA PARCC scale scores between ED students who participated in the EDP and ED students who did not participate in the EDP for the SY 2016/2017 while controlling for grade level and Lexile[®] reading score?

After conducting a paired samples *t* test, I accepted the null hypothesis that stated: There will be no significant difference between ELA PARCC scale scores of ED students participating in the EDP and ED students who did not participate in the EDP as measured by the posttest scores of ELA on PARCC assessments during SY 2016/2017 while controlling for grade level and Lexile[®] reading score. As a deliverable, I used this data analysis and two literature reviews to create a white paper for the local district that explains the problem statement, grounds the discussion in the literature, states alternatives to the current program, and makes a recommendation for a change in how schools address the needs of ED students. In Section 4 I address the project's strengths and weaknesses along with recommendations for alternate approaches and future research. In Section 4 I also examine my reflections as a scholar and researcher. This section and the study will conclude with a final statement that summarizes the essence of the study.

Project Strengths and Limitations

Strengths

Prior to this study, the local school district had not conducted a summative evaluation of its EDP. While the district was spending time and resources to address the problem that was the focus of this study, ED students were not making progress in closing the achievement gap between themselves and their NED counterparts.

Strengths of this project were the data-driven conclusions and research-based recommendations that were provided to decision makers at the local school district. The research design tested the differences of mean scores of ED students who attended the EDP and ED students who did not attend the EDP while controlling for grade level and reading ability. Using control variables added validity to the research findings. The project deliverable presented a tangible recommendation for program change that was grounded in scholarly literature. The project also offered the local district a framework for a cyclical evaluation.

The ultimate strength of this project is its potential to affect change for students in the local district. The literature examined the impact of poverty on students and details some of its long term affects. If the local district can improve its solution to the district's ED/NED achievement gap based upon the recommendations of this project, then the project has the potential to improve the academic achievement of ED students.

Limitations

Research indicated the EDPs had a positive effect on nonacademic matters such as behavior, attendance, attitudes towards school, and positive relationships with staff

(Afterschool Alliance, 2015; Durlak, Weissberg et al., 2010; Rhea, 2013). One limitation of the project was that it did not measure how the EDP affected any of those positive factors.

Another project limitation was the research design. Experimental studies determine whether a treatment influences a variable outcome (Creswell, 2014). The design for this study was quasi-experimental, meaning that subjects were assigned nonrandomly to treatment groups (Creswell, 2014). The best design for determining statistical effect is a true experimental design (Szafran, 2007). A true experiment tests the effect of a treatment on randomly assigned groups (Creswell, 2014). Because the subjects in the study were children, a true experimental design would have created ethical and practical dilemmas (Szafran, 2007). Therefore, a quasi-experimental design was chosen.

Because the district under study has a small student population and the sample size for the study was 74 students, threats to external validity existed. Therefore, the results of this project should not be generalized to a larger population and should be used only to examine one program in the local district.

Recommendations for Alternative Approaches

In the district under study, an achievement gap exists between ED and NED students as measured by state assessments. After conducting a quantitative analysis of the program, I concluded that the district's EDP had not been successful in closing this gap. The deliverable project described research on topics related to this study and offered an alternative solution to address the problem. This solution was an RTI program that would be implemented during the school day. By employing a specialized teacher to provide

eligible students with appropriate interventions, the local district can address the needs of a greater number of at-risk students.

Viewing the data in Table 1 and Table 2, a reader could conclude that an overall academic achievement problem exists. Framing the problem statement in these terms would shift the focus of study from a specific program to broader, schoolwide factors such as curriculum, instruction, and content. Potential solutions for a broader problem could include new curricula in state-tested areas, new instructional techniques that utilize research-driven best practices, and content materials that fully align with current standards.

Scholarship, Project Development and Evaluation, and Leadership and Change

Throughout the process of conducting research and completing the project, I learned much about evaluating programs and drawing conclusions in education. By completing a literature review, I learned that a researcher can derive possible answers to problems from existing solutions. I also learned the importance of being thorough in making each decision in the process of completing a study. For this study, that meant examining multiple frameworks for a literature review, multiple research designs, and multiple options for a deliverable project. The greatest lesson that I learned from making mistakes during this study was benefit of finding the proper way to complete a study. Not only did the process of trial and error introduce me to vast amounts of research and many research designs, it allowed me to complete a project that may help the local district address its ED/NED achievement gap. Had I completed my project hastily or improperly, students in the district under study could have been negatively impacted.

As a scholar, practitioner, and project developer, I have grown immeasurably. Completing the research, developing the project, and writing about it in a scholarly manner have clearly been the most challenging academic pursuits of my lifetime of learning. I was forced to examine the methods in which I make decisions related to educational programming. Prior to this journey, I often made decisions based upon things that I thought to be true. After completing this project and making research-based, data-driven decisions, I will make determinations based upon knowledge supported by scholars.

I have also developed a new set of skills as an academic writer. From my first course, each instructor forced me to write in a manner that is informative and scholarly. These new skills have allowed and will allow me to present information that is concise, thoughtful, and respected by others.

From a personal growth perspective, this process challenged me to define my own limitations. The number of obstacles, both internal and external, has been great. And while quitting was an option that stayed right in front of me, I pushed past these obstacles by learning, not solely the answers, but how to find them. In my professional life, I have confidence that I have been guided by competent and caring University staff who contributed to my personal improvement as a scholar. I have learned that challenges present an opportunity for deep learning.

Reflection on Importance of the Work

The work for this project holds importance for the local district and the researcher. The project deliverable, a white paper, provided the local district with

research that can lead to an improved educational program for ED students. Changes recommended in the project have the potential to address the local problem and help close the achievement gap between ED and NED students. For me, the process of completing the project was an invaluable learning experience. I have developed new skills as a researcher and writer that will transfer to my professional life. As a researcher, I have learned the importance of combining a review of peer-reviewed literature with a careful data analysis to support conclusions and effectuate change.

Implications, Applications, and Directions for Future Research

Implications for Social Change

This study has the potential to create social change directly and indirectly. For individual ED students in the local school district, the project has the potential to improve their academic achievement. The district had implemented an EDP to help close the achievement gap between ED and NED students. The conclusion of the data analysis and hypothesis testing was that the EDP was not helping ED students perform better on state assessments in ELA. The recommendation of the project is to consider an alternate program. If the local board accepts the recommendation and institutes a new program that can improve ED academic achievement, the students will have a greater opportunity of becoming successful adults. As the local district has a high number of ED students, the potential for social change is great.

Theoretical Implications

The theoretical framework for this study was Carroll's model of school learning. This theory stated that student learning was a product of providing enough time necessary

for students to understand a concept (Carroll, 1963). In the district under study, data analysis found that simply providing supplemental time did not improve student achievement, proving that Carroll's theory did apply in this context. The theoretical implications of these findings would suggest that improving quality of instruction would be a more significant factor to increased achievement than supplemental time alone.

Recommendations for Future Practice

Research revealed that EDPs can have multiple positive effects on students. While the culminating recommendation of this study was to replace the district's EDP with an RTI program during the school day, I believe that ED students in the district under study would benefit from a revised EDP as well. I recommend that district administration review their current practices and compare those to the research-based best practices identified in the literature. Additionally, I recommend that district administration review existing budgeting practices to determine if providing a different EDP is possible. Given fiscal limitations, this iteration of an EDP could be shorter in time or occur during the summer.

Recommendations for Future Research

The findings of the data analysis and recommendations of the project create two avenues for future research by the local district. If the district decides to institute an RTI program to help close the ED/NED achievement gap, administration should conduct an on-going evaluation of the program. Additionally, the district should continue to conduct research on EDPs in the event that creating a new program becomes possible.

On a wider scale, scholars and educators should continue researching methods of closing the ED/NED achievement gap and mitigating the impact of poverty on students. The literature review for this study identified successful and unsuccessful practices. In the district under study, an EDP was not successful in closing the district's ED/NED achievement gap. One of the conclusions from the research is there exists no "one size fits all" intervention or program that successfully closes achievement gaps. I recommend that future research focus on the interrelation between intervention and context. By continuing to build a wider research base, educators can compare study settings to their own to assist in developing successful programs. Additional research should also be conducted on Carroll's model of school learning. Carroll (1989) recommended that further research should measure equality and diversity of opportunity. Specifically, researchers should focus their studies on the diversity of instruction provided during supplemental learning periods.

Conclusion

In the district under study, an achievement gap exists between ED and NED students. The potential harm for ED students because of this gap can be lifelong. This study evaluated an EDP that the district instituted to help close this gap. The data analysis revealed that ED students participating in the program did not score higher on the PARCC assessment of ELA during the SY 16/17 than ED students who did not participate in the program. The project deliverable for the study was a white paper that presented the problem, supporting data, analysis, and recommendation for a different course of action to help close the ED/NED achievement gap.

Improvements to the school's educational program can have a large effect on students in the local district. Because the school serves a high percentage of ED students, such improvements are an educational and social imperative.

References

- Afterschool Alliance. (2015). *Evaluations backgrounder: A summary of formal evaluationson afterschool programs' impact on academics, behavior, safety, and family life*. Retrieved from Afterschool Alliance website:
<http://www.afterschoolalliance.org/>
- Amendum, S. J., & Fitzgerald, J. (2013). Does structure of content delivery or professional development matter for student reading growth in high-poverty settings. *Journal of Literacy Research, 45*(4), 465-502.
doi:10.1177/1086296X13504157
- American Psychological Association. (2017). *The standards for educational and psychological testing*. Retrieved May, 12, 2017 from American Psychological Association website: <http://www.apa.org/science/programs/testing/standards.aspx>.
- American Psychological Association. (2009). *Publication manual of the American Psychological Association*. Washington, DC: American Psychological Association.
- Bartz, D. E. (2016). Revisiting James Coleman's epic study entitled equality of educational opportunity. *National Forum of Educational Administration and Supervision Journal, 34*(4), 1-10.
- Battey, D. (2012). Good mathematics teaching for students of color and those in poverty: The importance of relational interactions within instruction. *Educational Studies in Mathematics, 82*, 125-144. doi:10.1007/s10649-012-9412-z

- Berry, B., & Hess, F. (2013). Expanded learning, expansive teaching leadership. *Phi Delta Kappan*, 94(5), 58-61. doi:10.1177/003172171309400513
- Bohrnstedt, G., Kitmitto, S., Ogut, B., Sherman, D., and Chan, D. (2015). *School Composition and the Black–White Achievement Gap: Methodology Companion* (NCES 2015-032). U.S. Department of Education, Washington, DC: National Center for Education Statistics. Retrieved from <http://nces.ed.gov/pubsearch>
- Bongiorno, D. (2011). *Using student achievement data to support instructional decision making*. Retrieved from http://www.naesp.org/sites/default/files/Student%20Achievement_blue.pdf
- Borman, G. D., Grigg, J., & Hanselman, P. (2016). An effort to close achievement gaps at scale through self-affirmation. *Educational Evaluation and Policy Analysis*, 38(1), 21-42. doi:10.3102/0162373715581709
- Bridgman, A. (2008). Improving after-school programs in an climate of accountability. *Social Policy Report Brief*, 22(2), 1-2. Retrieved from <https://eds-a-ebsohost-com.ezp.waldenulibrary.org/eds/pdfviewer/pdfviewer?vid=2&sid=f7335d5c-1dba-4b9f-b4cc-1e47858ce71b%40sessionmgr4009>
- Brown, R. S., & Coughlin, E. (2007). *The predictive validity of selective benchmark assessments used in the mid-Atlantic region*. State College, PA: Regional Education Laboratory.
- Cakiroglu, O. (2015). Response to intervention: Early identification of students with disabilities. *International Journal of Early Childhood Special Education*, 7(1), 170-182. Retrived from <http://www.int-jecse.net/article-details/2015/7/1/8>

- Carrinus, E.T., Helms-Lorenz, M., Beijaard, D., Buitink, J., & Hoffman, A. (2012). Self-efficacy, job satisfaction, motivation, and commitment: Exploring the relationships between indicators of teachers' professional identify. *European Journal of Psychology of Education*, 27(1), 115-132. doi:10.1007/s10212-011-0069-2
- Carroll, J. (1963). A model of school learning. *Teachers College Record*, 64(1), 723-733.
- Carroll, J. (1989). The Carroll model: A 25 year retrospective and prospective view. *Educational Reseracher*, 18(1), 26-31. doi:10.3102/0013189X018001026
- Cheng, H.G. & Phillips, M.R. (2014). Secondary analysis of existing data: Opportunities and implementation. *Research Methods in Psychiatry*, 26(6), 371-375. doi:10.11919/j.iss.1002-0829.214171
- Ciullo, S., Lembke, E.S., Carlisle, A., Thomas, C.N., Goodwin, M., & Judd, L. (2016). Implementation of evidence-based literacy programs in middle school response to intervention: An observation study. *Learning Disability Quarterly*, 39(1), 44-57. doi:10.177/0731948714566120
- Coleman, J. (1966). *Equality of opportunity*. Washington, DC: U.S. Government Printing Office. Retrieved from <https://files.eric.ed.gov/fulltext/ED012275.pdf>
- Colgren, C., & Sappington, N. E. (2015). Closing the achievement gap means transformation. *Education Leadership Review of Doctoral Research*, 2(1), 24-33. Retrieved from <https://files.eric.ed.gov/fulltext/EJ1105741.pdf>
- Common Core State Standards Initiative. (2017). Development process. Retrieved from <http://www.corestandards.org/about-the-standards/development-process/>

- Conradi, K., Amendum, S. J., & Liebfreund, M. D. (2016). Explaining variance in comprehension for students in a high-poverty setting. *Reading & Writing Quarterly, 32*(5), 427-453. doi:10.1080/10573569.2014.994251
- Coolidge, F. (2007). *Statistics: A gentle introduction*, Lincoln, NE: Sage Publications.
- Cordray, D., Pione, G., Brandt, C., Molefe, A., & Toby, M. (2012). *The impact of the measurement of academic progress (MAP) on student reading achievement* (NCEE 2013-4000). Washington, DC: National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education.
- Creswell, J. W. (2014). *Research design: qualitative, quantitative, and mixed methods approaches*. Los Angeles, CA: Sage Publications.
- Cunnington, M., Kantrowitz, A., Harnett, S., & Hill-Ries, A. (2014). Cultivating common ground: Integrating standards-based visual arts, math and literacy in high-poverty urban classrooms. *Journal for Learning through the Arts, 10*(1), 1-24. Retrieved from <https://escholarship.org/uc/item/0377k6x3>
- Darlington-Hammond, L. (2011). Soaring systems: high flyers all have equitable funding, shared curriculum, and quality teaching. *American Educator, 34*(4), 20-23. Retrieved from <https://eric.ed.gov/?id=EJ909932>
- Del Razo, R., & Renee, M. (2013). *Expanding equity through more and better learning time*. Providence, RI: Brown University, Annenberg Institute for School Reform.

- Dell'Angelo, T. (2016). The power of perception: Mediating the impact of poverty on student achievement. *Education and Urban Society*, 48(3), 245-261.
doi:10.1177/0013124514531042
- DiGiacomo, D., Prudhomme, J., Jones, H., Welner, K., & Kishner, B. (2016). Why theory matters: an examination of contemporary learning time reforms. *Educational Policy Analysis Archives*, 24(44), 1-23. doi:10.14507/epaa.24.2334
- Denton, C.A. (2012). Response to intervention for reading difficulties in the primary grades: Some answers and lingering questions. *Journal of Learning Disabilities*, 45(3), 232-243. doi:10.1177/0022219412442155
- Denton, C.A., Tolar, T.D., Flecher, J.M., Barth, A.E., Vaughn, S., & Francis, D.J. (2013). Effects of tier 3 intervention for students with persistent reading difficulties and characteristics of inadequate responders. *Journal of Educational Psychology*, 105(3), 633-648. doi:10.1037/a0032581
- Durlak, J.A., Mahoney, D.L., Bohnert, A.M., & Pasente, M. E. (2010). Developing and improving after-school programs to enhance youth's personal growth and adjustment: A special issue of AJCP. *American Journal of Community Psychology*, 45(3-4). doi:10.1007/s10464-010-9298-9
- Durlak, J.A., Weissberg, R.P., & Pachan, M. (2010). A meta-analysis of afterschool programs that seek to promote personal and social skills in children and adolescents. *American Journal of Community Psychology*. 45(3), 294-309.
doi:10.1007/s10464-010-9300.6

- Egalite, A. J. (2016). How family background influences student achievement. *Education Next*, 16(2), 71-78. Retrieved from <https://eric.ed.gov/?id=EJ1093068>
- Elementary and Secondary Education Act of 1965, P.L. 81-874, 20 U.S.C. § 70 (1965).
- Etikan, L., Musa, S.A., & Alkassim, R.S. (2016). Comparison of convenience sampling and purposive sampling. *American Journal of Theoretical and Applied Statistics*, 5(1), 1-4. doi:10.11648/j.ajtas.20160501.11
- Evans, G. W., & Cassells, R. C. (2014). Childhood poverty, cumulative risk exposure, and mental health in emerging adults. *Clinical Psychological Science*, 2(3), 287-296. doi:10.1177/2167702613501496
- Faitar, G. M., & Faitat, S. L. (2012). The influence of ability tracking on the performance of minority learners. *Journal of Instructional Pedagogy*, 7, 1-9. Retrieved from <https://files.eric.ed.gov/fulltext/EJ1097090.pdf>
- Farbman, D.A. (2015). The case for improving and expanding time in school: A review of key research and practice. *National Center on Time and Learning*. Retrieved from <https://eric.ed.gov/?id=ED561994>
- Fischer, C., Berliner, D., Marliave, R., Cahen, L., & Dishaw, M. (2015). Teaching behaviors, academic learning time, and student achievement: an overview. *Journal of Classroom Interaction*, 50(1), 6-24. Retrieved from <https://eric.ed.gov/?id=EJ1100414>
- Fletcher, J.M., & Vaughn, S. (2009). Response to intervention: Preventing and remediating academic difficulties. *Child Development Perspectives*, 3(1), 30-37, doi:10.1111/j.1750-8606.2008.00072.x

- Fowler, D. J. (2016). Using data to close the achievement gap. *Principal Leadership*, 16(7), 54-57.
- Froiland, J.M. & Worrell, F.C. (2017). Parental autonomy support, community feeling, student expectations as contributors to later achievement among adolescents. *Educational Psychology*, 30(3), 261-271. doi:10.1080/01443410.2016.1214687
- Fruith, V. & Wray-Lake, L. (2013). The role of mentor type in predicting educational attainment. *Journal of Youth and Adolescence*, 42(9), 1459-1472.
doi:10.1007/s10964-012-9817-0
- G*Power (Version 3.1) [computer software] (2017). Dusseldorf, Germany: Henrich-Heine. Available from <http://www.gpower.hhu.de/en.html>
- Goins, P. (2014). *Impact of child poverty on educational success*. Washington, DC: The Council of State Governments.
- Gordon, M. S., & Cui, M. (2016). The intersection of race and community poverty and its effects of adolescents' academic achievement. *Youth and Society*, 1-19,
doi:10.1177/0044118X16646590
- Graham, S. E., & Provost, L. (2012). *Mathematics achievement gaps between suburban students and their rural and urban counterparts*. Durham, NH: Carsey Institute.
- Granger, R., Durlak, J.A., Yohalem, N., Reisner, E. (2007). *Improving after-school quality*. New York, NY: William T. Grant Foundation, Retrieved from <http://3bhuf2134ms42er36k19to8a.wpengine.netdna-cdn.com/wp-content/uploads/sites/13/2015/04/Improving-After-School-Program-Quality.pdf>

- Hagans, K. S., & Good, R. H. (2013). Decreasing reading differences in children from disadvantaged backgrounds: The effects of an early literacy intervention. *Contemporary School Psychology, 17*(1), 103-117. doi:10.1007/BF03340992
- Haig, T. (2014). Equipping school to fight poverty: a community hub approach. *Educational Philosophy and Theory, 46*(9), 1018-1035. Retrieved from <https://eric.ed.gov/?id=EJ1037607>
- Hall, C. & Mahoney, J. (2013). Response to intervention: Research and practice. *Contemporary Issues in Education Research, 6*(1), 273-278. Retrieved from <https://files.eric.ed.gov/fulltext/EJ1073194.pdf>
- Hall, K. W., Williams, L. M., & Daniel, L. G. (2010). An afterschool program for economically disadvantaged youth: perceptions of parents, staff, and students. *Research in the Schools, 17*(1), 12-28. Retrieved from <https://eric.ed.gov/?id=EJ906003>
- Halpern, R. (2002). A different kind of child development institution: the history of after-school programs for low-income children. *Teachers College Record, 104*(2), 178-211. doi:10.1177/0042085914549361
- Hanushek, E. A. (2016). What matters most for student achievement. *Education Next, 16*, 19-26. Retrieved from <https://eric.ed.gov/?id=EJ1092964>.
- Harding, H. R., Harrison-Jones, L., & Rebach, H. M. (2012). A study of the effectiveness of supplemental services for title I students in Baltimore City public schools. *Journal of Negro Education, 81*(1), 52-66. doi:10.7709/jnegroeducation.81.1.0052

- Harney, K.R. (2013, October 4). School quality is tied to home prices in new study. But other factors may affect values. *The Washington Post*. Retrieved from https://www.washingtonpost.com/realestate/school-quality-is-tied-home-prices-in-new-study-but-other-factors-may-affect-values/2013/10/02/f7b12e24-2aa4-11e3-8ade-a1f23cda135e_story.html?utm_term=.455ab2565450
- Herbers, J. E., Cutuli, J. J., Supkoff, L. M., Heistad, D., Chan, C.-K., Hinz, E., & Masten, A. S. (2012). Early reading skills and academic achievement trajectories of students facing poverty, homelessness, and high residential mobility. *Education Researcher, 41*(9), 366-374. doi:10.3102/0013189X12445320
- Hirsch, B. (2011). Learning and development in after-school programs. *Phi Delta Kappan, 92*(5), 66-69. doi:10.1177/003172171109200516
- Hoekstra, R., Kiers, H.A., & Johnson, A. (2012). Are assumptions of well known statistical techniques checked and why (not)? *Frontiers in Psychology, 3*, 137. doi:10.33.89/fpsyg.2012.00137
- Holiday, M.R., Cimetta, A., Cutshaw, C.A., Yaden, D., & Marx, R.W. (2014). Protective factors for school readiness among children in poverty. *Journal of Education for Students Placed At-Risk, 19*(3) 125-147. Retrieved from <https://eric.ed.gov/?id=EJ1047633>
- Holstead, J., & Doll, K. (2014). Serving english language learners afterschool. *Mid-Western Educational Researcher, 27*(4), 383-389. Retrieved from <https://eric.ed.gov/?id=EJ1086394>

- Hora, M.T., Bouwma-Gearhart, J., Park, H.J. (2014). *Using practice-based research to frame and focus pedagogical reform: Exploring the use of data and other information to guide instructional decision-making* (WCER Working Paper No. 2014-3). Retrieved from https://wcer.wisc.edu/docs/working-papers/Working_Paper_No_2014_03.pdf
- Hoy, W.K. & Miskel, C.G. (2013). *Education administration: Theory, research, and practice*. New York, NY: McGraw-Hill.
- Huang, D. & Dietel, R. (2011). *Making afterschool programs better* (Policy Brief-11). Retrieved from https://cresst.org/wp-content/uploads/huang_MAPB_v5.pdf
- Huang, F. L., Moon, T. R., & Boren, R. (2014). Are the reading rich getting richer? Testing for the the presence of the Matthew effect. *Reading & Writing Quarterly*, 30(2), 95-115. doi:10.1080/10573569.2013.789784
- Huang, H. (2015). Can students themselves narrow the socioeconomic status-based achievement gap through their own persistence and learning time? *Education Policy Analysis Archives*, 23(108), 1-36. doi:10.14507/epaa.v23.1977
- Hynes, K., & Sanders, F. (2011). Diverging experiences during out-of-school time: the race gap in exposure to after-school programs. *Journal of Negro Education* , 80(4), 464-476. Retrieved from <https://www.jstor.org/stable/41341153>
- Ivankova, N. V., Creswell, J. W., & Stick, S. L. (2006). Using mixed methods sequential exploratory design: from theory to practice. *Field Methods*, 18(3), 3-20. doi:10.1177/1525822X05282260

- Jez, S., & Wasserman, R. (2015). The impact of learning time on academic achievement. *Education and Urban Society, 47*(3), 284-306. doi:10.5116/ijme.57a6.f141
- Jansen, H. (2010). The of qualitative survey research and the its position in the field of social science research methods. *Qualitative Social Research, 11*(2), 1-15. doi:10.17169/fqs-11.2.1450
- Jelen, B. (2011). Three ways to highlight outliers. *Technology Excel*. Retrieved from <http://sfmagazine.com/wp-content/uploads/sfarchive/2011/02/EXCEL-Three-Ways-to-Highlight-Outliers.pdf>
- Johnson, K. F., Gupta, A., & Rosen, H. (2013). Improving reading comprehension through holistic intervening and tutoring during after-school with high risk minority elementary school students. *Mentoring & Tutoring: Partnership in Learning, 21*(4), 431-443. doi:10.1080/13611267.2013.855861
- Johnston, M.P. (2014). Secondary data analysis: A method of the time has come. *Qualitative and Quantitative Methods in Libraries, 3*, 619-626. Retrieved from http://www.qqml.net/papers/September_2014_Issue/336QQML_Journal_2014_Johnston_Sept_619-626.pdf
- Kemp, A. (2005). *White paper: How to achieve marketing goals by explaining technical ideas*. Arvada, CO: Impact Technical Publications.
- Kena, G., Hussar, W., McFarland, J., de Brey, C., Musu-Gillette, L., Wang, X., . . . Dunlop Velez, E. (2016). *The condition of education 2016*. Washington, DC: U.S. Department of Education.

- Kennedy, E., Wilson, B. Vallardes, S., Bronte-Tinkew, J. (2007). Improving attendance and retention in out-of-school time programs. *Child Trends*, 17, 1-9. Retrieved from <http://www.nova.edu/projectrise/forms/improving-attendance-retention.pdf>
- Kidron, Y., & Lindsay, T. (2014). *The effects of increased learning time on student academic and non-academic outcomes: findings for a meta-analytic review*. Washington, DC: U.S. Department of Education, Institute of Education Services.
- Kim, T.K. (2015). T test as a parametric statistic. *Korean Journal of Anesthesiology*, 68(6), 540-546. doi:10.4097/kjae.2015.68.6.540
- Kimberlin, C.L., & Winterstein. (2008). Validity and reliability of measurement in instruments used in reseearch. *American Journal of Health-System Pharmacy*, 65(23). doi:10.2146/ajhp070364.
- Kraft, M. A., Papay, J. P., Johnson, S. M., Charner-Laird, M., Ng, M., & Reinhorn, S. (2015). Educating amid uncertainty: The organizational support teachers need to serve students. *Educational Administration Quarterly*, 51(3), 753-790. doi:10.1177/0013161X15607617.
- Laerd Statistics. (2013a). *Descriptive and Inferential Statistics*. Retrieved from Statistics and Software Tutorial Guides: <https://statistics.laerd.com>
- Laerd Statistics. (2013b). *Measures of spread*. Retrieved from Statistics and Software Tutorial Guides: <https://statistics.laerd.com>
- Laerd Statistics. (2015). *Paired-samples t-test using SPSS statistics*. Retrieved from Statistics and Software Tutorial Guides: <https://statistics.laerd.com>

- Lam, G. (2014). A theoretical framework of the relation between socio-economic status and academic achievement. *Education, 134*(3), 326-331. Retrieved from <https://eric.ed.gov/?id=EJ1034279>
- Leefatt, S. (2015). The key to equality: why we must prioritize summer learning to narrow the achievement gap. *Brigham Young University Education and Law Journal, (2)*, 549-584. Retrieved from <https://digitalcommons.law.byu.edu/cgi/viewcontent.cgi?article=1374&context=elj>
- Lennon, C. & Burdick, H. (2014). *The lexile framework as an approach for reading measurement and success*. Durham, NC: MetaMetrics. Retrieved from https://cdn.lexile.com/cms_page_media/135/The%20Lexile%20Framework%20for%20Reading.pdf
- Leos-Urbel, J. (2015). What works after school? The relationship between after-school program quality, program attendance, and academic outcomes. *Youth & Society, 47*(5), 684-706. doi:10.1177/0044118X13513478
- Life Cycle of a Test Item (2014, December). Retrieved from <file:///D:/Documents%20and%20Settings/slarkin/My%20Documents/Downloads/PARCClifecycle.pdf>
- Little, C. A., & Hines, A. H. (2006). Time to read: advancing achievement after school. *Journal of Advanced Academics, 18*(1), 8-33. doi:10.4219/jaa-2006-350
- Loeb, S. (2012). In light of the limitations of data-driven decision making. *Educational Finance and Policy, 7*(1), 1-7. doi:10.1162/EDFP.a00051

- Lopez, J., & Rivera, P. (2015). Increasing time and enriching learning for greater equity in schools: perspective and two community funders. *Voices in Urban Education, 40*, 52-64. Retrieved from <https://files.eric.ed.gov/fulltext/EJ1056982.pdf>
- Lund, T. (2012). Combining quantitative and qualitative approaches: some arguments for mixed methods research. *Scandinavian Journal of Educational Research, 56*(2), 155-165. doi:10.1080/00313831.2011.568674
- Mallett, C. A. (2016). The school-to-prison pipeline: Disproportionate impact on vulnerable children and adolescents. *Education and Urban Society, 1-30*. doi:10.1177/0013124516644053
- Mandinach, E.B. (2012). A perfect time for data use: Using data-driven decision making to inform practice. *Educational Psychologist, 47*(2), 71-85. doi:10.1080/00461520.2012.667064
- Manikandan, S. (2011). Measures of central tendency: The mean. *Journal of Pharmacology and Pharmatheapeutics, 2*(2). 140-142, doi:10.410.03/0976-500X.81920
- Marsh, J.A. & Farrell, C.C. (2015). How leaders can support teachers with data-driven decision making: A framework for understanding capacity building. *Educational Management Administration & Leadership, 43*(2), 269-289. doi:10.1177/1741143214537229
- Marsh, J.A., Pane, J.F., Hamilton, L.S., (2006). Making sense of data-driven decision making (Report No. OP-170-EDU). Santa Monica, CA: Rand Education. doi:10.7249/OP170

- Maxson, D. (2005). Eight rules for creating great white papers. Retrieved from <http://www.idemployee.id.tue.nl/g.w.m.rauterberg/lecturenotes/Eight-Rules-for-Writing-Great-White-Papers.pdf>
- McFarland, M. J., & Hayward, M. D. (2014). Poverty and awakening cortisol in adolescence: The importance of timing in early life. *Society and Mental Health, 4*(1), 21-37. doi:10.1177/2156869313500278
- Midkiff, B., & Cohen-Vogel, L. (2015). Understanding local instructional responses to federal and state accountability mandates: a typology of extended learning time. *Peabody Journal of Education, 90*(1), 9-26. doi:10.1080/0161956X.2015.988522
- Milligan, L. (2016). Insider-outsider-inbetweener? Research positioning, participative, methods, and cross-cultural educational research. *Compare: A Journal of Comparative and International Education, 46*(2), 235-250. doi:10.1080/03057925.2014.928510
- Milner, R. (2015). *Rac(e) in to class: Confronting poverty and race in school and classrooms*. Cambridge, MA: Harvard University Press.
- Mirra, N. & Rogers, J. (2015). The negative impact of community stressors on learning time: Examining inequalities in California high schools. *Voices in Urban Education, 40*(1), 15-17. Retrieved from <https://eric.ed.gov/?id=EJ1056760>
- Model Content Frameworks. (2012, August). Retrieved from <http://parcc-assessment.org/resources/educator-resources/model-content-frameworks>. 105-117.

- New Jersey Department of Education (2015). *Historical Context: Overview of New Jersey's Statewide Testing Program*. Retrieved from <http://www.nj.gov/education/assessment/history.shtml>
- New Jersey Department of Education (2016). *Income Eligibility Guidelines*. Retrieved from <http://www.nj.gov/agriculture/divisions/fn/pdf/form127.pdf>
- New Jersey Department of Education. (2017). *Every Student Succeeds Act, New Jersey State Plan*. Retrieved from <http://www.state.nj.us/education/ESSA/plan/plan.pdf>
- New Jersey Department of Education (2017). *2016-2017 Enrollment Data*. Retrieved from <http://www.nj.gov/education/data/enr/enr17/county2.htm>
- Niehaus, K., Rudasill, K. M., & Adelson, J. L. (2012). Self-efficacy, intrinsic motivation, and academic outcomes among Latino middle school students participating in an after-school program. *Hispanic Journal of Behavioral Sciences*, 34(1), 118-136. doi:10.1177/0739986311424275
- No Child Left Behind Act of 2001, P.L. 107-110, 20 U.S.C. § 6319 (2002).
- Oguduvwe, J.I. (2013). Nature, scope, and role of research proposal in scientific investigations. *Journal of Humanities and Social Science*, 17 (2), 83-87. Retrieved from <http://iosrjournals.org/iosr-jhss/papers/Vol17-issue2/L01728387.pdf>
- Onwuegbuzie, A. J., & Combs, J. P. (2011). Data analysis in mixed research: a primer. *International Journal of Education*, 3(1), 1-25. doi:10.5296/ije.u3il.618
- Parks, A., & Wallin, P. (2012). Sweating the small stuff and missing the point: A critical analysis of the charter school movement. *US-China Education Review*, B8, 712-720. Retrieved from <https://files.eric.ed.gov/fulltext/ED536403.pdf>

- Partnership for Assessment of Readiness for College and Careers. (2015). *Guide to English language arts/literacy released items: Understanding scoring*. Washington, DC.
- Partnership for Assessment of Readiness for College and Careers. (2017a). ELA test specification documents. Retrieved from <http://parcc-assessment.org/assessments/test-design/ela-literacy/>
- Partnership for Assessment of Readiness for College and Careers. (2017b). *Final technical report for 2016 administration*. Washington, DC.
- Partnership for Assessment of Readiness for College and Careers. (2017c). Item development. Retrieved from <http://parcc-assessment.org/assessments/test-design/>
- Partnership for Assessment of Readiness for College and Careers. (2017d). *Score report interpretation guide*. Washington, DC.
- Pell Institute. (2018). Evaluation approaches and types. Retrieved from <http://toolkit.pellinstitute.org/evaluation-101/evaluation-approaches-types/>
- Pershing, J.A. (2015). White paper. *Performance Improvement*. 54(8), 2-3.
doi:10.1002/pfi21505
- Petrilli, M. J., & Wright, B. L. (2016). America's mediocre test scores: Education crisis or poverty crisis? *Education Next*, 16(1), 46-52. Retrieved from http://educationnext.org/files/ednext_XVI_1_petrilli_wright.pdf
- Quinn, R., & Steinberg, M. (2015). Can state policy deliver adequate funding? *State Education Journal*, 15(2), 37-41. Retrieved from <https://eric.ed.gov/?id=EJ1066385>

- Randsell, S. (2012). There's still no free lunch: Poverty as a composite of SES predicts school-level reading comprehension. *American Behavioral Sciences*, 56(7), 908-925. doi:10.1177/0002764211408878
- Ratcliff, N. J., Costner, R. H., Carroll, K. L., Jones, C. R., Sheehan, H. C., & Hunt, G. H. (2016). Causes and solutions to the achievement gap: teachers' perceptions. *Teacher Educators' Journal*, 9, 97-111. Retrieved from <https://eric.ed.gov/?id=EJ1095644>
- Rhea, A. (2013). *A snapshot of after-school program research literature* (Research Watch: Data and Accountability Department Report No. 13.10). Cary, NC: Wake County Public School System. Retrieved from <https://files.eric.ed.gov/fulltext/ED559197.pdf>
- Robinson, K. (2013). Early disparities in mathematics gains among poor and non-poor children. *Elementary School Journal*, 114(1), 24-47. doi:10.1086/670737
- Rodgers, M., Grays, M.P., Fulcher, K.H., Jurich, P. (2012). Improving academic program assessment. *Innovative Higher Education*. 38(5), 383-395. doi:10.1007/s10755-012-9245-9
- Rosenbaum, S., & Blum, R. (2015). How healthy are our children? *The Future of Children*, 25(1), 11-34. Retrieved from <https://jhu.pure.elsevier.com/en/publications/how-healthy-are-our-children-3>
- Rossi, P.H., Freeman, H.E., & Lipsey, M.W. (1999). *Evaluation: A systemic approach*. Thousand Oaks, CA: Sage Publications.

Sakamuro, S., Stolley, K., Hyde, C. (2010). White paper: Organization and other tips.

Purdue Owl. Retrieved from <https://owl.english.purdue.edu/owl/resource/546/02/>

Sakamuro, S. Stolley, K., Hyde, C. (2015). White paper: Purpose and audience. *Purdue*

Owl. Retrieved from <https://owl.english.purdue.edu/owl/owlprint/546/>

Salkind, N.J. (2010). *Encyclopedia of research design*. Thousand Oaks, CA: Sage

Publications. doi:10.4135/978142961288

Sallee, M., & Boske, C. (2013). There are no children here: The case of an inner-city

school addressing issues facing children and families living in poverty. *Journal of*

Cases in Educational Leadership. 16(2), 61-70. doi:10.1177/1555458913487036

Sandoval-Hernandez, A., Aghaksiri, P., Wild, J., & Rutkowski, R. (2013). Does

increasing student learning time increase student learning? *IEA's Policy Brief*

Series, No.1, Amsterdam, International Association of Education Achievement,

http://www.iea.nl/policy_briefs.html

Schippers, V. (2014). No preschooler left behind: The need for high quality early

intervention for children born into poverty. *Multicultural Education*, 22(1), 41-45.

Retrieved from <https://eric.ed.gov/?id=EJ1065374>

Schulte, A. C., & Stevens, J. J. (2015). Once, sometimes, or always in special education:

mathematics growth and achievement gaps. *Excpetional Children*, 81(3), 370-

387. doi:10.1177/0014402914563695

- Shapiro, S.S. & Wilk, M.B. (1965). An analysis of variance test for normality. *Biometrika*, 52(3), 591-611. Retrieved from <https://pdfs.semanticscholar.org/1f1d/9a7151d52c2e26d35690dbc7ae8098beee22.pdf>
- Smith, M., Holiday, T., & Wright, P. (2017). *Charting new pathways*. Durham, NC: MetaMetrics. Retrieved from <https://metametricsinc.com/research-publications/charting-new-growth-pathways/>
- Soiferman, L.K. (2010). Compare and contrast inductive and deductive research approaches. Retrieved from <https://files.eric.ed.gov/fulltext/ED542066.pdf>
- Springer, K., & Diffily, D. (2012). The relationship between intensity and breadth of after-school program participation participation, and academic achievement: evidence from short-term longitudinal study. *Journal of Community Psychology*, 40(7), 785-798. doi:10.1002/jcop.21478
- Steele, J.L. & Boudett, K.P. (2008). The collaborative advantage. *Educational Leadership*, 66(4), 54-59. Retrieved from <https://content.ebscohost.com/ContentServer.asp?T=P&P=AN&K=508020403&S=R&D=eue&EbscoContent=dGJyMMTo50SeprA4y9fwOLCmr1Cep65Sr6y4SLWWxWXS&ContentCustomer=dGJyMPGs0q1qK5IuePfgeyx43zz2bAA>
- Steven, S.S. (1946). On the theory of scales of measurement. *Science*, 103, 677-680. doi:10.1126/science.103.2684.677

Strauss, V. (2014, May 5). Pearson, of course, wins huge Common Core testing contract.

The Washington Post. Retrieved from

https://www.washingtonpost.com/news/answer-sheet/wp/2014/05/05/pearson-of-course-wins-huge-common-core-testing-contract/?utm_term=.b766db101f4c

Subedi, D. (2016). Explanatory sequential mixed method design as the third research community of knowledge claim. *American Journal of Educational Research*, 4(7), 570-577. doi:10.12691/education-4-7-10

Sullivan, G.M. (2011). A primer on the validity of instruments. *Journal of Graduate Medical Education*, 3(2). doi:10.4300/JGME-D-11-00075.1

Szafran, R.F. (2007). Assessing program outcomes when participation is voluntary:

Getting more out of a static-group comparison. *Practical Assessment, Research, & Evaluation*, 12 (8), 1-11. Retrieved from

<http://pareonline.net/getvn.asp?v=12&n=8>

Tang, W., Cui, Y., & Babenko, O. (2014). Internal consistency: Do we really know what it is and how to assess it? *Journal of Psychology and Behavioral Sciences* 2(2), 205-220. Retrieved from

http://jpbsnet.com/journals/jpbs/Vol_2_No_2_June_2014/13.pdf.

- Thompson, R. A., & Haskins, R. (2014). Early stress gets under the skin: Promising initiatives to help children facing chronic adversity. *The Future of Children*, 24(1), 1-8. Retrieved from <http://mha.ohio.gov/Portals/0/assets/Initiatives/TIC/ChildrenYouthAdolescents/Early%20Stress%20Gets%20under%20the%20Skin%20Promising%20Initiatives.pdf>
- Tracy, A., Surr, W., & Richer, A. (2012). *The assessment of afterschool program practices tool (APT): Findings from the APT validation study*. Wellesley, MA: National Institute on Out-of-School Time. Retrieved from <https://eric.ed.gov/?id=ED539180>
- Tripathy, J.P. (2013). Secondary data: Ethical issues and challenges. *Iranian Journal of Public Health*, 42 (10), 1478-1479. Retrieved from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4441947/>
- Trochim, W.M.K. (2006). Research methods knowledge base. Retrieved from the Web Center for Social Research Methods website: <https://www.socialresearchmethods.net>
- Turner, H., Rubie-Davies, C. M., & Webber, M. (2015). Teacher expectations, ethnicity, and the achievement gap. *New Zealand Journal of Educational Studies*, 50, 55-69. doi:10.1007/s40841-015-0004-1
- United State Census Bureau. (September 8, 2015). *Income and poverty in the United States: 2014*. Retrieved from <https://www.census.gov/library/publications/2015/demo/p60-252.html>

- United States Department of Education. (October 5, 2015). *Improving basic skills programs operated by LEA's (Title I, Part A)*. Retrieved from <https://www2.ed.gov/programs/titleiparta/index.html>
- United State Department of Education. (2016). *Annual Earnings of Young Adults*. Retrieved from National Center for Education Statistics: https://nces.ed.gov/programs/coe/indicator_cba.asp
- Valant, J., & Newark, D. A. (2016). The politics of achievement gaps: U.S. public opinion on race-based and wealth-based differences in test scores. *Educational Researcher*, 45(6), 331-346. doi:10.3102/0013189X16658447
- Van Geel, M., Keunning, T., Visscher, A., Fox, J.P. (2016). Assessing the effects of a school-wide data-based decision-making intervention on student achievement growth in primary schools. *American Educational Research Journal*, 53(2), 360-394. doi:10.3102/0002831216637346
- Velten, J. & Mokhtari, K. (2016). Challenges inherent in the design and implementation of after-school programs for middle-grade underachieving readers. *Texas Journal of Literacy Education*, 4 (1), 1-7. doi:10.1080/19415530903043631
- Verstegen, D. A. (2015). Doing a analysis of equity and closing the achievement gap. *Education Policy Analysis Archives*, 23(41), 1-20. doi:10.14507/epaa.v23.1809
- Walsh, M. E., Madaus, G., Raczek, A., Dearing, E., Foley, C., An, C. L.-S., & Beaton, A. (2014). A new model for student support in high-poverty urban elementary school: Effects on elementary and middle school academic outcomes. *American Educational Research Journal*, 51(4), 704-737. doi:10.3102/0002831214541669

- Wang, P. (2009). The inter-rater reliability in scoring composition. *English Language Teaching*, 2(3), 39-43. Retrieved from <https://files.eric.ed.gov/fulltext/EJ1083076.pdf>.
- Webb, M., & Thomas, R. (2015). Teachers' perception of educators' and students' role in closing the achievement gap. *National Forum of Teacher Education Journal*, 25(3), 1-7. Retrieved from <http://www.nationalforum.com/Electronic%20Journal%20Volumes/Webb,%20Mary%20Teachers%20Perceptions%20NFTEJ%20V25%20N3%202015.pdf>
- Webb, M., & Thomas, R. (2015). Teachers' perception of educators' and students' role in closing the achievement gap. *National Forum of Teacher Education Journal*, 25(3), 1-7. Retrieved from <http://www.nationalforum.com/Electronic%20Journal%20Volumes/Webb,%20Mary%20Teachers%20Perceptions%20NFTEJ%20V25%20N3%202015.pdf>
- Webb, N.M., Shavelson, R.J., & Haertel, E.H. (2006). Reliability coefficients and generalization theory. *Handbook of Statistics*. 26, 1-48. doi:10.1016/S0169-7161(06)26004-8
- Williams, C. (2007). Research methods. *Journal of Business and Economic Research*. 5(3), 65-73.
- Willerton, R. (2012). Teaching white papers through client projects. *Business and Professional Quarterly*, 76(1), 105-113. doi:10.1177/1080569912454713

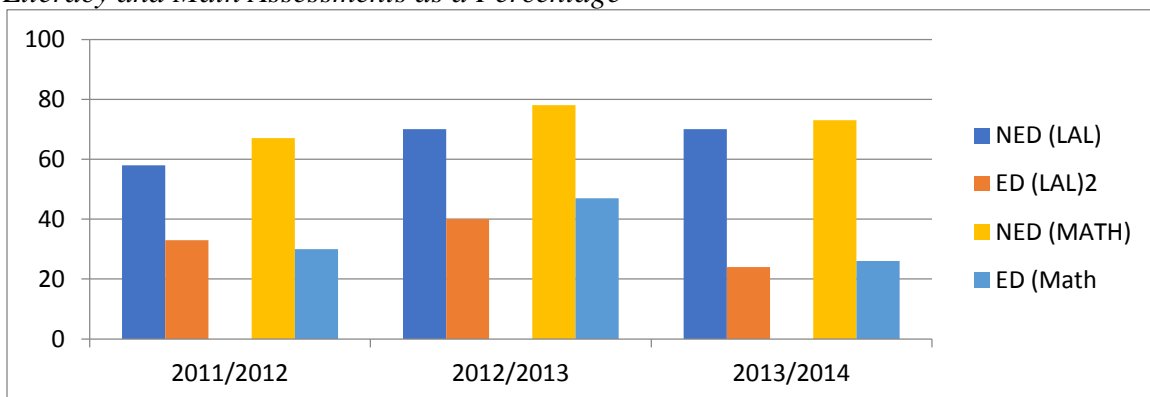
- Wisdom, J. & Creswell, J. (2013). *Mixed methods: Integrating qualitative and quantitative data collection and analysis while studying patient-centered medical home models*. Rockville, MD: Agency for Home Healthcare Research.
- Yohalem, N. & Granger, R.C. (2011). Improving the quality and impact of afterschool and summer programs: Lessons learned and future directions. *Expanding Minds and Opportunities*. Retrieved from http://www.expandinglearning.org/sites/default/files/em_articles/6_improvingthequality.pdf
- Yoon, S.Y. (2016). Principal's data-driven practice and its influence of teacher buy-in and student achievement in comprehensive school reform models. *Leadership and Policy in Schools, 15*(4), 500-523. doi:10.1080/15700763.2016.1181187
- Zimmerman, J. (2006). Why some teachers resist change and what principals can do about it. *NASSP Bulletin, 90*(3), 238-249. doi:10.1177/0192636506291521

Appendix A: The Project

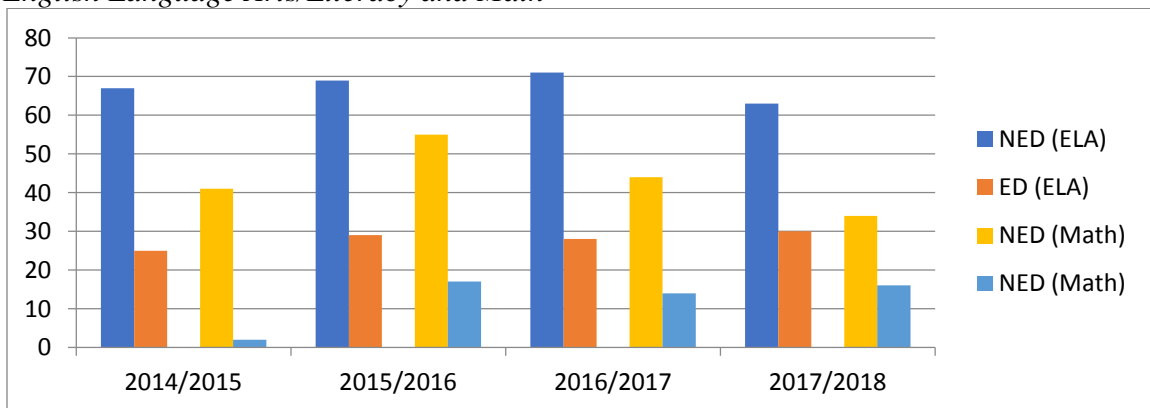
Local Problem

At a local school district, students have historically performed below state average on statewide assessments as reported by the New Jersey Department of Education (NJDOE). When disaggregated, these assessment scores reveal an achievement gap between economically disadvantaged students (ED) and noneconomically disadvantaged students (NED). The graphs below display comparative student performance on the New Jersey Assessment of Skills and Knowledge (NJASK) and the Partnership for Assessment for College and Career Readiness (PARCC).

Comparative Proficiency Rates of NED and ED Students on NJASK Language Arts Literacy and Math Assessments as a Percentage



Comparative Proficiency Rates of NED and ED Students on the PARCC Assessments of English Language Arts/Literacy and Math



Despite attempted reforms, an achievement gap based on socio-economic status (SES) also exists nationally (Huang, 2015). Reforms include increased support for ED students (Amerndum & Fitzgerald, 2013), increased attention to early learning programs (Schippers, 2014), and teacher training (Battey, 2012). As a results, ED students are more likely to drop out of high school, earn less income, have greater rates of absenteeism, and be persistently poor (Goins, 2014).

Background

To help address the problem, the local school district has used Title I grant money to fund an extended day program (EDP). Title I provides financial assistance to school districts with high rates of poverty (USDOE, 2015). Districts must use this money to provide supplemental services to those students identified as being most at-risk of failing to meet state proficiency standards (NJDOE, 2015). In previous school years, the district uses Title I funds to purchase professional development services, additional technology, and classroom reduction instructors (B. McBride, personal communication, February 11, 2011). In 2011, the NJDOE determined that the district had misused these funds and was required to create a corrective action plan to address the following findings:

1. The district reserved Title I funds for non-eligible private schools.
2. The district did not conduct mandatory parent meetings.
3. The district did not inform parents of selection criteria.
4. The district did not have a Title I parental involvement policy.
5. The district did not document Title I spending.
6. The district spent Title I funds on non-eligible students.

Along with developing a corrective plan, the district was required to refund ineligible purchases totaling approximately \$86,000 (R. Cicchino, personal communication, December 20, 2011). In response, the district began offering an EDP during SY 13/14 (P. Collum, personal communication, December 1, 2013).

During SY 16/17, the local district's EDP offered 40 hours increased learning time in two hour increments after school. Students were grouped in classes of 8-10 and were taught mathematics and ELA by certified, district teachers (S. Richert, personal communication, July 14, 2015). Eligibility for this program was based on achievement scores, teacher recommendation, and parental request (S. Larkin, personal communication, June 29, 2015). All 35 students who attended the program were classified as during SY 16/17.

Review of Literature

Poverty

In 2014, the United States Census Bureau (USCB) reported that the official poverty rate for the United States was 14.8% (USCB, 2015). Currently, 64% of the local district's students receive free or reduced lunch. Research showed that impoverished students had limited access to health care, poor food security, and inadequate childcare (Walsh et al., 2014). They were also susceptible to hopelessness, fatalism, despair, domestic violence, and unpredictable lives (Lam, 2014). These factors negatively impacted capacity for reasoning, stress reactivity, decision-making, and learning (Rosenbaum & Blum, 2015). They grew to become fearful and anxious around adults and displayed increased behavior problems (Thompson & Haskins, 2014).

Poverty also creates difficulties for hardships for adult, increasing its impact on children. An adult's lack on income limits a families' ability to invest money, time, and energy to children's educational development (Walsh et al., 2014). Impoverished parents were less likely to buy books, regulate television watching, and engage in meaningful dialogues (Lam, 2014). Because stress related to poverty, impoverished parents were more likely to engage in harsh parenting and create toxic learning environments in the home (Lam, 2014; Haig, 2014).

Research found biological effects of poverty as well. Poor children were more likely to suffer from chronic infections and asthma (Walsh et al., 2014). Stressors including hunger, unstable housing, lack of dental care, caring for a family member, economic stressors, immigration issues, community violence, and safety concerns led to increased absenteeism and decreased achievement by children living in poverty (Mirra & Rogers, 2015). Chronic stress from living in poverty increased children's level of the steroid hormone cortisol, which impacted development of the hippocampus, hypothalamus, amygdale, and prefrontal cortex (Thompson & Haskins, 2014). Multiple researchers linked these biological factors with defects in working memory, poor academic achievement, erratic emotional restraint, difficulty with focus, and Poor impulse control (McFarland & Hayward, 2014; Rosenbaum & Blum, 2014). While the research pointed clearly to detriments in children's academic social and emotional development, effective schools provided programs and services to ameliorate the negative outcomes associated with poverty.

Achievement Gap

A range of strategies exist for improving academic achievement among ED students. Schools were successful in raising academic achievement when they provided supports to ED students that were grounded in non-academic needs, addressed students' strengths and weaknesses, tended to social/emotional health, and were part of the schools' core functions (Walsh et al., 2014). Instructional practices focused more on problem solving, thinking, and discussing and less on routine completion (Battey, 2012). Positive teacher factors included years in district, years in teaching, and high self-efficacy (Goins, 2014).

Despite the efforts of educators and researchers, student achievement gaps, leaving some students at a disadvantage. Assessment data from the U.S. Department of Education (USDOE) indicated that reading achievement gaps between high poverty schools and low poverty schools have remained static since 2005 (Kena et al., 2016). Beginning with Coleman's (1966) report, *Equality of Opportunity*, researchers have studied the achievement gap between various at-risk sub-groups. This information became more important to schools when the No Child Left Behind Act (NCLB) required schools to publicly present disaggregated achievement scores of subgroups including ethnic/racial, SES, English language learners, and special education (Schulte & Stevens, 2015). Because of this new accountability, schools have used multiple interventions in an attempt to close these achievement gaps.

Researchers have identified in and out of school factors that contribute to student achievement gaps. In school factors include de facto school segregation (Valant &

Newark, 2016), low teacher expectations (Webb & Thomas, 2015), and poor technology (Graham & Provost, 2012). Out of school factors included family education, parental incarceration, and family structure (Bartz, 2016).

Data-driven strategies exist for closing achievement gaps. Research identified a set of common attributes among successful teachers including extensive training, high expectations, data-driven decisions, attention to non-academic needs, strong relationships with students, and cultural competency (Bartz, 2015). School leaders helped close gaps by promoting school-wide programs and strategies that addressed needs of at-risk learners. These strategies involved standards-based instruction, academic supports, college preparation instruction, credit recovery programs, and blended learning (Williams, 2011). In successful schools, teachers emphasized achievement, offered student choices, frequently assessed student progress, used data-driven decisions, and provided effective early literacy programs (Fowler, 2016).

Data Analysis

The purpose of the data analysis was to determine the effect that the local district's EDP had on student achievement. To create a more focused snapshot, I analyzed ELA data only. The guiding question of this analysis was: What is the difference in the ELA PARCC scaled scores between ED students who participated in the EDP during SY 16/17 and ED students who did not. To conduct inferential analysis, I utilized a paired samples *t* test, controlling for grade level and reading ability as measured in Lexile[®] scores.

During SY 16/17, 130 students were classified as ED based upon eligibility for free or reduced lunch. To be eligible for free lunch, a household of four must earn less than \$31,3590 annually and to be eligible for reduced lunch a family of four must earn less than \$44,955 (NJDOE, 2016). Of the ED 130 students, 74 were in grades 3-8, took the PARCC assessment of ELA, were enrolled in the local district for the entire academic year, were eligible to attend the EDP, and received a Lexile[®] score in September of 2016. Those 74 students were grouped into paired samples based on grade level and reading ability.

Descriptive statistics summarize, present raw data, and allow for simple interpretation through measures of central tendency and measures of spread (Laerd, 2013a). The measures include statistical mean, standard deviation, and variance (Creswell, 2014). Central tendency is a single statistical value that best describes a set of numbers (Manikandan, 2011). In this analysis, central tendency is represented by statistical mean, the average of the numbers in the dataset. Measures of spread are used in conjunction with central tendency to validate mean scores and indicate how well individual scores represent a sample population (Laerd, 2013b). This analysis will display variance and standard deviation as measures of spread. Variance assigns a score that measures variation of group scores from the mean. Small variance indicates that numbers are closely clustered to the average score while a larger variance score indicates the opposite. Standard deviation measures the spread of continuous scores within a dataset (Laerd, 2013b). Inferential statistical analysis involves drawing conclusions about a population from a smaller sample. This process includes developing a hypothesis,

selecting a statistical test, gathering data, and conducting hypothesis testing (Coolidge, 2006). The hypothesis of this data analysis was: There will be no significant difference ELA PARCC scores of ED students participating in the EDP and ED students who did not participate in the EDP while controlling for grade level and Lexile[®] scores.

Descriptive Statistics

The table below displays descriptive statistics of all 74 students eligible for participation in the study of the district's EDP. PARCC scores of ELA from the 2017 assessment were used for calculations.

Table A1

Aggregated Descriptive Statistics

<i>M</i>	<i>SD</i>	<i>V</i>
734.95	29.43	866.21

Of the 74 students eligible to participate, 35 attended the EDP during SY 16/17 and 39 did not. The table below displays the disaggregated scores of groups using the PARCC scores of ELA from the 2017 assessment.

Table A2

Disaggregated Descriptive Statistics

EDP	<i>N</i>	<i>M</i>	<i>SD</i>	<i>V</i>
Yes	35	734.77	28.77	827.83
No	39	735.10	30.39	923.30

Inferential Statistics

I conducted hypothesis testing using a paired samples t test. Applying the data to the formula that calculates t scores produced a score (1.14) which is lower the critical value (1.70). Therefore, inferential statistical analysis revealed that attending the EDP during SY 16/17 did not improve student achievement in ELA as measured by PARCC scores while controlling for grade level and Lexile[®] scores.

Table A3

Paired Samples t Test Analysis

EDP	Mean	Observations	t Statistic	Critical t Value
Yes	733.96	28		
No	740.14	28		
			1.14	1.70

Discussion

Options

Given the findings of the data analysis, the local district administration and Board of Education should consider one of the three following options in regards to the manner they choose to spend Title I grant money:

1. Leave the existing EDP as is
2. Make improvements to the existing EDP
3. Use grant money to fund a different supplemental program

The first option requires no additional action. Research pointed to multiple methods of improving EDP's. Research-based improvements to the current program could include clear goal setting (Huang & Dietel, 2011), program assessment (Yohalem & Granger, 2011), professional development (Bridgman, 2008), and improved social environments (Yohalem & Granger, 2011). Other recommended improvements include student-centered activities, project-based learning, community partnerships (Bridgman, 2008), use of technology, standards-based curriculum, and increased parental involvement (Huang & Dietel, 2011).

Other supplemental instructional programs exist that would be allowable uses under Title I legislation. Among these programs is Response to Intervention (RTI). RTI is an instructional approach that provides at-risk students with interventions designed to meet identified educational needs. Teachers screen students for academic and behavioral issues, monitor progress, and provide interventions drawn from assessments (Fletcher & Vaughn, 2009). RTI uses a multi-tier approach to identifying and remediating students with learning needs (Denton, 2012). Instruction begins in general education classes and intensifies as students move from Tier 1 to Tier 2 to Tier 3 (Cakiroglu, 2015). Tier 1, the least intense, provides students with instruction, screening, and group intervention (Denton, 2012). Tier 2 interventions are more personalized and are delivered by general education teachers, a reading specialist, or a paraprofessional with specialized training (Denton, 2012). Tier 3 students receive highly individualized instruction in a small group or individual settings (Cakiroglu, 2015).

Recommendations

After reviewing data analysis and research pertaining to the subject, I recommend that the local district utilize its Title I funding to implement an RTI model program to serve at-risk students during the school day. Specifically, I recommend that the district use Title I grant money to pay for a specialized teacher to provide Tier 3 interventions. This recommendation is based on several factors. First, the problem driving this study is an achievement gap between ED and NED students. While numerous factors contribute to the district's ED/NED achievement gap, that gap has not narrowed since the district instituted an EDP in SY 13/14 as displayed in the chart on page 1. The second factor is participation in the program. During the year under study, SY 16/17, roughly 130 students were eligible to receive Title I-funded services. Only 35 did. The final factor is effectiveness of program. Research presented potential methods of improving the current EDP, but, in its current form, the program failed to improve academic achievement among its participants.

Implementation

At-risk children can learn to read when provided high quality instruction in small group or individualized settings (Denton et al., 2013). Beginning in SY 18/19, I recommend that the district use Title I grant money to fund an RTI program. Specifically, the district should implement a problem solving RTI program in which teachers develop interventions that target specific needs of students as determined by multiple assessments (Cakiroglu, 2015). Teachers should also conduct universal screening of students using a valid, research-based instrument (Fletcher & Vaugh, 2009). Assessments should

standards-based and compare student performance to grade level norms (Fletcher & Vaughn, 2009). Assessments are most effective in providing feedback to teachers and driving instruction when given 1 to 4 times per month (Denton, 2012). Students in RTI programs benefit from direct instruction, extended guided reading periods, and lesson planning that promotes active student engagement (Denton, 2012). Adequate professional development, aligned with program goals, will also be necessary to create a successful RTI program (Hall & Mahoney, 2013).

Potential obstacles. Potential obstacles to implementation will be cost, teacher buy-in, and scheduling. For SY 2017/2018, the district received \$85,493 in Title I grant money (M. Parry, personal communication, March 9, 2018). Assuming equal funding for SY 2018/2019, the district would need to provide professional development for existing staff and hire a specialized teacher to provide Tier 3 intervention. The average cost of a teacher, including salary and benefits, is between \$75,000 and \$100,000, depending upon experience and chosen benefits package (M. Parry, personal communication March 9, 2018). Another potential obstacle could be teacher buy-in. Teacher resistance is a leading reason for ineffective school reform (Zimmerman, 2006). The final potential obstacle would be scheduling. Currently, each student in the district is scheduled for 90 minutes of reading, 90 minutes of math, 45 minutes of science, 45 minutes for social studies, 45 minutes of an elective, and 45 minutes for lunch/recess (D. Bramley, personal communication, March 9, 2018). Implementing an effective RTI program would require a period of time each day within the existing total daily schedule.

Solutions to obstacles. To effectively implement an RTI program, the local district would need to address the potential obstacles listed in the above section. To meet the fiscal challenges of providing a professional development and a specialized teacher, the district may need to fund some of the program through the general budget. The most likely method of doing so would be to pay for the professional development piece from the operating budget.

School leadership plays a significant role in increasing teacher buy-in (Zimmerman, 2006). Administrators can use data to improve performance and connect teachers to a particular reform (Yoon, 2016). District leadership can provide professional development, conduct program assessment throughout the school year, and share results with teachers to increase efficacy.

To address potential scheduling problems, district administration will need to creatively schedule time for an RTI program. Using Denton's (2012) recommendations as a guide, district administration should create 30 minute blocks. Time can be taken proportionally from each existing period.

Conclusion

Since 2013/2014, the district provided eligible students with additional learning time through an EDP. Further study could be conducted to determine the impact of extended learning time on those individual students. However, when dealing with finite resources, we should make decisions that can have that greatest overall affect. Based on the results of inferential statistical analysis, I recommend that district implement a new program for Title I eligible students. Specifically, I recommend moving to an RTI model,

using Title I funds to hire a specialized teacher to provide Tier 3 interventions to identified students. Additionally, I recommend that the district conduct formative and summative program assessments. Formative assessment is an on-going process that allows evaluators to obtain feedback during a program's implementation by identifying evolving processes as they occur, providing timely feedback, and allowing for adjustments (Pell Institute, 2018). For the recommended RTI program, formative assessments can include student benchmarks, staff surveys, and stakeholder questionnaires. Summative assessment occur after the completion of the program cycle with the goals of determining whether objectives were met, improvements needed, impact, and future resources needed (Pell Institute, 2018). Specific summative assessments will include student ELA PARCC scores on the 2018/2019 administration, staff evaluation scores, and community surveys. This information can become part of an on-going assessment/improvement cycle.

References

- Amendum, S. J., & Fitzgerald, J. (2013). Does structure of content delivery or professional development matter for student reading growth in high-poverty settings. *Journal of Literacy Research, 45*(4), 465-502.
doi:10.1177/1086296X13504157
- Bartz, D. E. (2016). Revisiting James Coleman's epic study entitled equality of educational opportunity. *National Forum of Educational Administration and Supervision Journal, 34*(4), 1-10.
- Battey, D. (2012). Good mathematics teaching for students of color and those in poverty: the importance of relational interactions within instruction. *Educational Studies in Mathematics, 82*, 125-144. doi:10.1007/s10649-012-9412-z.
- Bridgman, A. (2008). Improving after-school programs in an climate of accountability. *Social Policy Report Brief, 22*(2), 1-2. Retrieved from <https://eds-a-ebsohost-com.ezp.waldenulibrary.org/eds/pdfviewer/pdfviewer?vid=2&sid=f7335d5c-1dba-4b9f-b4cc-1e47858ce71b%40sessionmgr4009>
- Cakiroglu, O. (2015). Response to intervention: Early identification of students with disabilities. *International Journal of Early Childhood Special Education, 7*(1), 170-182. Retrived from <http://www.int-jecse.net/article-details/2015/7/1/8>
- Coolidge, F. (2007). *Statistics: A gentle introduction*, Lincoln, NE: Sage Publications.
- Creswell, J. W. (2014). *Research design: qualitative, quantitative, and mixed methods approaches*. Los Angeles, CA: Sage Publications.

- Denton, C.A. (2012). Response to intervention for reading difficulties in the primary grades: Some answers and lingering questions. *Journal of Learning Disabilities*, 45(3), 232-243. doi:10.1177/0022219412442155
- Denton, C.A., Tolar, T.D., Flecher, J.M., Barth, A.E., Vaughn, S., & Francis, D.J. (2013). Effects of tier 3 intervention for students with persistent reading difficulties and characteristics of inadequate responders. *Journal of Educational Psychology*, 105(3), 633-648. doi:10.1037/a0032581
- Fletcher, J.M., & Vaughn, S. (2009). Response to intervention: Preventing and remediating academic difficulties. *Child Development Perspectives*, 3(1), 30-37, doi:10.1111/j.1750-8606.2008.00072.x.
- Fowler, D. J. (2016). Using data to close the achievement gap. *Principal Leadership*, 16(7), 54-57.
- Goins, P. (2014). *Impact of child poverty on educational success*. Washington, DC: The Council of State Governments.
- Graham, S. E., & Provost, L. (2012). *Mathematics achievement gaps between suburban students and their rural and urban counterparts*. Durham, NH: Carsey Institute.
- Haig, T. (2014). Equipping school to fight poverty: a community hub approach. *Educational Philosophy and Theory*, 46(9), 1018-1035. Retrieved from <https://eric.ed.gov/?id=EJ1037607>
- Hall, C. & Mahoney, J. (2013). Response to intervention: Research and practice. *Contemporary Issues in Education Research*, 6(1), 273-278. Retrieved from <https://files.eric.ed.gov/fulltext/EJ1073194.pdf>

- Huang, H. (2015). Can students themselves narrow the socioeconomic status-based achievement gap through their own persistence and learning time? *Education Policy Analysis Archives*, 23(108), 1-36. doi:10.14507/epaa.v23.1977
- Huang, D. & Dietel, R. (2011). *Making afterschool programs better* (Policy Brief-11). Retrieved from https://cresst.org/wp-content/uploads/huang_MAPB_v5.pdf
- Kena, G., Hussar, W., McFarland, J., de Brey, C., Musu-Gillette, L., Wang, X., Zhang, J., Rathbun, A., Wilkinson-Flicker, S., Dilberti, M., Barmer, A., Bullock Mann, F., & Dunlop Velez, E. (2016). *The condition of education 2016*. Washington, DC: US Department of Education.
- Laerd Statistics. (2013). *Descriptive and inferential statistics*. Retrieved from Statistics and Software Tutorial Guides: <https://statistics.laerd.com>
- Lam, G. (2014). A theoretical framework of the relation between socio-economic status and academic achievement. *Education*, 134(3), 326-331. Retrieved from <https://eric.ed.gov/?id=EJ1034279>
- Manikandan, S. (2011). Measures of central tendency: The mean. *Journal of Pharmacology and Pharmatheapeutics*, 2(2). 140-142, doi:10.410.03/0976-500X.81920
- McFarland, M. J., & Hayward, M. D. (2014). Poverty and awakening cortisol in adolescence: The importance of timing in early life. *Society and Mental Health*, 4(1), 21-37. doi:10.1177/2156869313500278

- Mirra, N. & Rogers, J. (2015). The negative impact of community stressors on learning time: Examining inequalities in California high schools. *Voices in Urban Education, 40*(1), 15-17. Retrieved from <https://eric.ed.gov/?id=EJ1056760>
- New Jersey Department of Education (2015). *Historical Context: Overview of New Jersey's Statewide Testing Program*. Retrieved from <http://www.nj.gov/education/assessment/history.shtml>
- New Jersey Department of Education (2016). *Income Eligibility Guidelines*. Retrieved from <http://www.nj.gov/agriculture/divisions/fn/pdf/form127.pdf>
- Pell Institute. (2018). Evaluation approaches and types. Retrieved from <http://toolkit.pellinstitute.org/evaluation-101/evaluation-approaches-types/>.
- Rosenbaum, S., & Blum, R. (2015). How healthy are our children? *The Future of Children, 25*(1), 11-34. Retrieved from <https://jhu.pure.elsevier.com/en/publications/how-healthy-are-our-children-3>
- Schippers, V. (2014). No preschooler left behind: The need for high quality early intervention for children born into poverty. *Multicultural Education, 22*(1), 41-45. Retrieved from <https://eric.ed.gov/?id=EJ1065374>
- Schulte, A. C., & Stevens, J. J. (2015). Once, sometimes, or always in special education: mathematics growth and achievement gaps. *Excpetional Children, 81*(3), 370-387. doi:10.1177/0014402914563695

- Thompson, R. A., & Haskins, R. (2014). Early stress gets under the skin: Promising initiatives to help children facing chronic adversity. *The Future of Children*, 24(1), 1-8. Retrieved from <http://mha.ohio.gov/Portals/0/assets/Initiatives/TIC/ChildrenYouthAdolescents/Early%20Stress%20Gets%20under%20the%20Skin%20Promising%20Initiatives.pdf>
- United State Census Bureau. (September 8, 2015). *Income and poverty in the United States: 2014*. Retrieved from <https://www.census.gov/library/publications/2015/demo/p60-252.html>
- United States Department of Education. (October 5, 2015). *Improving basic skills programs operated by LEA's (Title I, Part A)*. Retrieved from <https://www2.ed.gov/programs/titleiparta/index.html>
- Valant, J., & Newark, D. A. (2016). The politics of achievement gaps: U.S. public opinion on race-based and wealth-based differences in test scores. *Educational Researcher*, 45(6), 331-346. doi:10.3102/0013189X16658447
- Walsh, M. E., Madaus, G., Raczek, A., Dearing, E., Foley, C., An, C. L.-S., & Beaton, A. (2014). A new model for student support in high-poverty urban elementary school: Effects on elementary and middle school academic outcomes. *American Educational Research Journal*, 51(4), 704-737. doi:10.3102/0002831214541669

- Webb, M., & Thomas, R. (2015). Teachers' perception of educators' and students' role in closing the achievement gap. *National Forum of Teacher Education Journal*, 25(3), 1-7. Retrieved from <http://www.nationalforum.com/Electronic%20Journal%20Volumes/Webb,%20Mary%20Teachers%20Perceptions%20NFTEJ%20V25%20N3%202015.pdf>
- Williams, C. (2007). Research methods. *Journal of Business and Economic Research*, 5(3), 65-73.
- Yohalem, N. & Granger, R.C. (2011). Improving the quality and impact of afterschool and summer programs: Lessons learned and future directions. *Expanding Minds and Opportunities*. Retrieved from http://www.expandinglearning.org/sites/default/files/em_articles/6_improvingthequality.pdf
- Yoon, S.Y. (2016). Principal's data-driven practice and its influence on teacher buy-in and student achievement in comprehensive school reform models. *Leadership and Policy in Schools*, 15(4), 500-523. doi:10.1080/15700763.2016.1181187
- Zimmerman, J. (2006). Why some teachers resist change and what principals can do about it. *NASSP Bulletin*, 90(3), 238-249. doi:10.1177/0192636506291521

Appendix B: Letter of Cooperation

New Hanover Township School District
122 Fort Dix St
Wrightstown, NJ 08562

10/15/17

Dear Scott Larkin,

Based on my review of your research proposal, I give permission for you to conduct the study entitled Impact of Supplemental Instructional Time on Economically Disadvantaged Students at an Urban Elementary School within the New Hanover Township School District. As part of this study, I authorize you to collect test data from the 2016/2017 PARCC assessment of English language arts/literacy for all students who were classified as economically disadvantaged for the corresponding school year, student Lexile[®] scores, student grade levels in SY 2016/2017, and student participation in the district's extended school day program. I also authorize you to present your findings to the Board of Education. Individuals' participation will be voluntary and at their own discretion.

We understand that our organization's responsibilities include: providing the staff lounge as the area for a secured box to submit paper surveys and print copies of necessary student records and assessment data. We reserve the right to withdraw from the study at any time if our circumstances change.

I understand that the student will not be naming our organization in the doctoral project report that is published in Proquest.

I confirm that I am authorized to approve research in this setting and that this plan complies with the organization's policies.

I understand that the data collected will remain entirely confidential and may not be provided to anyone outside of the student's supervising faculty/staff without permission from the Walden University IRB.

Sincerely,

Dr. Richard Wiener Superintendent of School
New Hanover Township School District
122 Fort Dix St
Wrightstown, NJ 08562
(609) 723-2139

Appendix C: Data Use Agreement

DATA USE AGREEMENT

This Data Use Agreement (“Agreement”), effective as of 5/8/17 (“Effective Date”), is entered into by and between Scott Larkin (“Data Recipient”) and New Hanover Township School District (“Data Provider”). The purpose of this Agreement is to provide Data Recipient with access to a Limited Data Set (“LDS”) for use in research in accord with the HIPAA and FERPA Regulations.

1. Definitions. Unless otherwise specified in this Agreement, all capitalized terms used in this Agreement not otherwise defined have the meaning established for purposes of the “HIPAA Regulations” codified at Title 45 parts 160 through 164 of the United States Code of Federal Regulations, as amended from time to time.
2. Preparation of the LDS. Data Provider shall prepare and furnish to Data Recipient a LDS in accord with any applicable HIPAA or FERPA Regulations

Data Fields in the LDS. **No direct identifiers such as names may be included in the Limited Data Set (LDS).** The researcher will also not name the organization in the doctoral project report that is published in Proquest. In preparing the LDS, Data Provider or shall include the **data fields specified as follows**, which are the minimum necessary to accomplish the research: School Year 2016/2017 PARCC assessment of English language arts/literacy for students classified as economically disadvantaged during the corresponding school year, student Lexile[®] scores, student grade levels in SY 2016/2017, and student participation in district extended school day program.

3. Responsibilities of Data Recipient. Data Recipient agrees to:
 - a. Use or disclose the LDS only as permitted by this Agreement or as required by law;
 - b. Use appropriate safeguards to prevent use or disclosure of the LDS other than as permitted by this Agreement or required by law;
 - c. Report to Data Provider any use or disclosure of the LDS of which it becomes aware that is not permitted by this Agreement or required by law;
 - d. Require any of its subcontractors or agents that receive or have access to the LDS to agree to the same restrictions and conditions on the use and/or disclosure of the LDS that apply to Data Recipient under this Agreement; and
 - e. Not use the information in the LDS to identify or contact the individuals who are data subjects.
4. Permitted Uses and Disclosures of the LDS. Data Recipient may use and/or disclose the LDS for its research activities only.

5. Term and Termination.

- a. Term. The term of this Agreement shall commence as of the Effective Date and shall continue for so long as Data Recipient retains the LDS, unless sooner terminated as set forth in this Agreement.
- b. Termination by Data Recipient. Data Recipient may terminate this agreement at any time by notifying the Data Provider and returning or destroying the LDS.
- c. Termination by Data Provider. Data Provider may terminate this agreement at any time by providing thirty (30) days prior written notice to Data Recipient.
- d. For Breach. Data Provider shall provide written notice to Data Recipient within ten (10) days of any determination that Data Recipient has breached a material term of this Agreement. Data Provider shall afford Data Recipient an opportunity to cure said alleged material breach upon mutually agreeable terms. Failure to agree on mutually agreeable terms for cure within thirty (30) days shall be grounds for the immediate termination of this Agreement by Data Provider.
- e. Effect of Termination. Sections 1, 4, 5, 6(e) and 7 of this Agreement shall survive any termination of this Agreement under subsections c or d.

6. Miscellaneous.

- a. Change in Law. The parties agree to negotiate in good faith to amend this Agreement to comport with changes in federal law that materially alter either or both parties' obligations under this Agreement. Provided however, that if the parties are unable to agree to mutually acceptable amendment(s) by the compliance date of the change in applicable law or regulations, either Party may terminate this Agreement as provided in section 6.
- b. Construction of Terms. The terms of this Agreement shall be construed to give effect to applicable federal interpretative guidance regarding the HIPAA Regulations.
- c. No Third Party Beneficiaries. Nothing in this Agreement shall confer upon any person other than the parties and their respective successors or assigns, any rights, remedies, obligations, or liabilities whatsoever.
- d. Counterparts. This Agreement may be executed in one or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument.
- e. Headings. The headings and other captions in this Agreement are for convenience and reference only and shall not be used in interpreting, construing or enforcing any of the provisions of this Agreement.

IN WITNESS WHEREOF, each of the undersigned has caused this Agreement to be duly executed in its name and on its behalf.

DATA PROVIDER

DATA RECIPIENT

Signed: _____

Signed: _____

Print Name: Dr. Richard Wiener_____

Print Name: Scott Larkin

Print Title: Superintendent of Schools_____

Print Title: Researcher

Appendix D: Confidentiality Agreement

CONFIDENTIALITY AGREEMENT

Name of Signer: Scott Larkin

During the course of my activity in collecting data for this research: “Impact of Increased Learning Time on Economically Disadvantaged Students at an Urban Elementary School,” I will have access to information, which is confidential and should not be disclosed. I acknowledge that the information must remain confidential, and that improper disclosure of confidential information can be damaging to the participant. By signing this Confidentiality Agreement I acknowledge and agree that:

1. I will not disclose or discuss any confidential information with others, including friends or family.
2. I will not in any way divulge, copy, release, sell, loan, alter or destroy any confidential information except as properly authorized.
3. I will not discuss confidential information where others can overhear the conversation. I understand that it is not acceptable to discuss confidential information even if the participant’s name is not used.
4. I will not make any unauthorized transmissions, inquiries, modification or purging of confidential information.
5. I agree that my obligations under this agreement will continue after termination of the job that I will perform.
6. I understand that violation of this agreement will have legal implications.
7. I will only access or use systems or devices I’m officially authorized to access and I will not demonstrate the operation or function of systems or devices to unauthorized individuals.

Signing this document, I acknowledge that I have read the agreement and I agree to comply with all the terms and conditions stated above.

Signature:

Date: