The Effect of Preschool Education on At-Risk Students' Early Literacy Skills

Sarah E. Monfore
B.S., Central Missouri State University, 2002
M.S., University of Central Missouri, 2008

Submitted to the Graduate Department and Faculty of the School of Education of Baker University in partial fulfillment of the requirements for the degree of Doctor of Education in Educational Leadership.

Denis Yoder
Denis Yoder, Ed.D.,
Major Advisor

Brian Henry
Brian Henry, Ed.D.

Anna McGraw
Anna McGraw, Ed.D.

Date Defended: September 27, 2023

Abstract

A growing priority across the nation is to provide all young children the best possible start in life by capitalizing on the years between birth and the compulsory age to begin school (Morgan, 2019; Raikes et al., 2023). Even though research shows that high-quality early childhood education programs are impactful, there are many young children who do not participate (Morgan, 2019). The purpose of this quantitative study was to examine the latent impact of participation in a one-year preschool program in a public-school setting on the early literacy skill scores of preschool eligible students upon entering kindergarten. The researcher selected a quasi-experimental design and utilized three years of archived data to address the research questions and test the hypotheses. The participants selected for the study were preschool eligible students in District A, a large public-school district in a diverse Midwest metropolitan area. Students were determined eligible based on District A's screening process which included the family demonstrating at-risk characteristics. The results of the first analysis indicated a statistically significant difference between the scores of eligible students who participated in preschool versus eligible students who did not participate. The students who participated in the one-year preschool education in a public-school setting produced higher scores on the FastBridge earlyReading assessment. The second analysis revealed a statistically significant difference between the students' assessment scores in Cohorts 1 and 3 compared to Cohort 2. The mean assessment score for all students was higher in Cohorts 1 and 3 than in Cohort 2. The third analysis demonstrated that eligible students who participated in preschool on average produced a higher score than students who were eligible but did not participate. The findings in this study provide relevant information

about the positive effects of early childhood education on early literacy skill scores and should be considered by District A, other public-school districts with similar demographics, and organizations that support early childhood education programs.

Dedication

This work of heart is dedicated to my best boys, Matthew and Miles. I hope you always believe in yourself, have the confidence to pursue your dreams, and discover a passion to guide you during life's work. You are my greatest love.

Acknowledgements

To my husband, Monte, and my boys, Matthew and Miles, this study is our success. Without your support, encouragement, and patience, I would not have been able to complete this dissertation. Thank you for giving me time and for taking care of "all the things" so I could work. You are my greatest love.

To my mom, for your unwavering support and unconditional love. You are the one I seek when I need to be reminded of my worth, ability, and purpose. I am eternally grateful for the countless times you've picked me up, dusted me off, and sent me on my way. And Randy, you are the one I didn't know I needed. Thank you for your love, encouragement, and occasional reminders to "get to work."

To my friend, Kami, for your confidence in me when I couldn't see it, your patience as you listened (again and again), the distractions when I needed them (shoes and shopping), and reminders to "just get it done." Thank you for being my friend, work wife, and cheerleader.

To my advisor, Dr. Yoder, thank you for the many times you welcomed me back without question and helped me see that I could achieve this goal. You took the time to get to know me and provided the connection I needed to sustain this work. I am grateful for your support of my topic and your willingness to learn about my passion.

To Dr. Waterman, your brilliance is a language that I will not master, but I am grateful for your patience and instruction. Thank you for taking the time to learn about my family and for sharing about yours. And thank you for the perfectly timed bird walks when I needed a moment to breathe.

To Dr. Henry, thank you for participating in my committee and supporting this study. I appreciate your time, attention, and contribution.

To Dr. McGraw, thank you for agreeing to be on my committee. What an honor to have you, my friend Anna, beside me during this work. You are one of my favorites and I am forever grateful for your friendship.

Table of Contents

List of Tables

List of Figures

Chapter 1

Introduction

The research surrounding early childhood education and the importance of the years between birth and the compulsory age to begin school is bountiful (Morgan, 2019). The National Education Association (2021) shared that students in early childhood programs are 1) "less likely to repeat a grade, 2) less likely to be identified as having special needs, 3) more prepared academically for later grades, 4) more likely to graduate from high school, and 5) more likely to be higher earners in the workforce" (para. 2). Early childhood education is also a mechanism for school districts to "accelerate learning since learning gaps are largest when they [young children] arrive in kindergarten" (Learning Policy Institute, 2021a, p. 1).

The HighScope Perry Preschool Study is the longest early childhood research project and spanned sixty years after initiation in 1962 in Michigan (HighScope, n.d.-a; n.d.-b). The purpose of the Perry Preschool Study was to determine if access to "high-quality education could have a positive impact on preschool children and the communities where they live" (HighScope, n.d.-a, para 1). The research results shared the long-term value of preschool education for children from low-income families and their communities (HighScope, n.d.-a). Although the research was initially conducted from 1962-1967, it became a longitudinal study (HighScope, n.d.-a). The most recent update on the study sample, published in 2005, shared positive, lasting outcomes 40 years after the study initiated (HighScope, n.d.-a). The students involved in the study showed positive effects in the areas of education, economic performance, crime prevention, family relationships, and health (Schweinhart, 2022).

An analysis of the results of more than 100 studies regarding the effects of early childhood education conducted by Camilli, Vargas, Ryan, and Barnett (2010) found significant effects for children who participated in preschool, with the most significant effects on the area of cognition. The meta-analysis also shared that "There is much current interest in the impact of early childhood education programs on preschoolers and, in particular, on the magnitude of cognitive and affective gains for children considered at risk of school failure in the early grades" (Camilli, Vargas, Ryan, & Barnett, 2010, p. 580). Despite the research supporting the positive outcomes for young children, the early childhood education landscape is plagued by challenges such as a lack of funding and programming structures that continue to limit opportunities for children, especially those from low-income families (Barnett & Frede, 2010).

Background

District A, a large public-school district in a major metropolitan area in the Midwest, was the location for the present study. The student enrollment included students in pre-kindergarten through 12th grade (District A, n.d.). There were multiple elementary, middle, and high schools, and the enrollment included students from diverse socioeconomic backgrounds, cultures, and ethnicities (District A, n.d.). Table 1 outlines student demographic information from recent school years.

Table 1

District A Demographic Information (Percentages)

Demographics	2018-2019	2019-2020	2020-2021	2021-2022
Preschool enrollment	3.4	3.4	2.6	3.6
Mobility rate[a]	24.9	22.2	19.1	
Free and reduced lunch	47.3	47.1	38.8	32.4
Attendance rate[b]	89.8	87.1	98.3	81.5

Note. Adapted from *District/charter report card* by Missouri Department of Elementary and Secondary Education, n.d. https://apps.dese.mo.gov/MCDS/Visualizations.aspx?id=29

[a] The mobility rate was not available for the 2021-2022 school year. [b] The attendance rate is based on the percentage of students demonstrating a 90% or above rate of attendance for the school year.

District A offered preschool programs to eligible early childhood-age students residing in district boundaries. Still, the rate of early childhood students receiving services was low compared to the total K-12 grade population. As early as 2014, the mayor of one of the municipalities within District A boundaries shared his support for increased early childhood education services through a proposed tax increase and gathered support from community agencies to share awareness about needed community preschool opportunities (Robertson, 2014a, 2014b). In addition, the state department of education introduced state aid reimbursement for a portion of district students ages three to five years old when they are eligible for free and reduced lunch price (Missouri Department of Elementary and Secondary Education, 2022). The funding was initiated for fully accredited school districts for reimbursement beginning in the 2018-2019 fiscal year, but the state limited the reimbursement opportunity to four percent of the districts'

free and reduced price lunch population, as calculated in each district's average daily attendance (Missouri Department of Elementary and Secondary Education, 2022).

As a result, when creating the district's strategic plan with assistance from approximately 30 stakeholders and approval by the board of education in 2017, the action steps included the topic of early childhood education (District A, 2017). The first strategy within the strategic plan stated that the district would "explore Pre-K accessibility to families and maximize materials, curriculum, training, and resources for early childhood programs" (District A, 2017, p. 2). The district's commitment to emphasizing preschool education for young learners within District A's community required locating multiple funding sources, including a continued allocation of Title I, Part A Federal Grant funding.

Due to the COVID-19 pandemic, District A utilized online learning during part of the spring semester of the 2019-2020 school year. The following school year, 2020-2021, students had an option to return to in-person learning with face mask restrictions or participate in the district's online learning academy for students attending kindergarten through grade 12 (District A, 2020). As a result of the pandemic-related changes, many students in kindergarten through grade 12 selected the online learning academy and preschool-age students, without an online learning academy option, declined the in-person preschool program (District A Administrator, personal communication, August, 2020). Although the COVID-19 pandemic is not the primary component of the study, it could provide insight to the results of the analyses.

Statement of the Problem

Morgan (2019) stated that there is a vast amount of research and discussion about the importance of early childhood education (i.e., preschool education). However, preschool education is not federally mandated or funded (Morgan, 2019). As a result, school districts are challenged to determine if early childhood education is a priority when preschool education is competing with other priorities in a public-school district. The Learning Policy Institute (2021a) stated "Early childhood education (ECE) programs provide one of the highest returns on investment of any educational spending. Quality ECE programs can help reduce special education placements and improve children's readiness to learn" (para. 3). District A allocated Title I, Part A Federal Grant Funding to educate eligible early childhood pre-kindergarten students and committed to exploring preschool accessibility to families in the community (District A, 2017). A formal evaluation of the effects of the current preschool program in District A had not been conducted. It is important for school districts, policymakers, and community agencies to know the effect of preschool education on students' early literacy skills as considerations are made to enhance preschool education opportunities and locate funding to support the preschool programs.

Purpose of the Study

The purpose of this quasi-experimental quantitative study was to examine the latent impact of participation in a one-year preschool program in a public-school setting on the early literacy skill scores of preschool eligible students upon entering kindergarten. First, the researcher utilized three years of archived data to compare early literacy skill mean scores between students who were eligible for and participated in

preschool and those who were eligible and did not participate. Next, a purpose was to determine the extent of the differences in the overall mean scores among the three cohorts, which were composed of preschool eligible students. Finally, a purpose was to determine the extent that the pattern of differences in the mean scores between students who were eligible for and participated in a preschool program and those who did not, was affected by the cohort (Cohort 1, Cohort 2, Cohort 3).

Significance of the Study

Lunenburg & Irby (2008) defined the significance of a study as the claim that the study significantly advances the field. In addition, the authors explained the significance as an opportunity to explain how the study is worthy of research (Lunenburg & Irby, 2008). The current study examined the impact of participation in a one-year preschool program in a diverse public-school setting on participants' early literacy skill scores upon entering kindergarten. A comparison of early literacy skill scores was conducted to determine the effect of preschool instruction on early literacy skill acquisition. The researcher also sought to determine the difference in early literacy skill mean assessment scores among cohort years. Additionally, the researcher investigated if the pattern of differences in mean assessment scores between students who participated in preschool and students who did not participate, was affected by cohort.

Although a large body of research supports the positive impact of preschool education on young learners, a high percentage of children in the United States do not attend preschool (Morgan, 2019). In addition, Morgan (2019) shared that the challenge to locate affordable, high-quality preschool opportunities for low-income families is greater than for other socio-economic classes. An evaluation of the District A preschool

program had not been previously conducted to determine the academic effect of participation in preschool education on student achievement in kindergarten. The results of the present study provided valuable preschool insights for District A and other school districts of comparable size and demographics.

The study findings allowed for the evaluation of District A's early childhood preschool program by researching student achievement as a result of the preschool participants' early childhood education participation. Results from this study could be utilized to guide ongoing program improvements, professional practices, district policy, and guidance for the future allocation of funds to support expanded preschool opportunities within the school district. The present study also contributed to the body of research regarding the effects of preschool education on the acquisition of early literacy skills.

Delimitations

Delimitations are described as the "self-imposed boundaries set by the researcher on the purpose and scope of the study" (Lunenburg & Irby, 2008, p. 134). Prior to initiating the study, the researcher set the following delimitations to narrow the focus of this study: (a) the population was limited to identified at-risk students eligible for preschool education and residing within the boundaries of District A, (b) the study was limited to the fall assessment scores of the kindergarten school year for each cohort, and (c) early literacy skills were measured utilizing the FastBridge earlyReading assessment composite score.

Assumptions

Lunenburg and Irby (2008) defined assumptions as "postulates, premises, and propositions that are accepted as operational for purposes of the research" (p. 135). The researcher made the following assumptions related to the study: (a) the preschool experiences, instruction, and exposure to early literacy skills in each classroom were commensurate, (b) the at-risk preschool population was representative of the criteria created by District A using Federal Title I, Part A guidance, (c) students put forth their best effort when participating in the assessment, and (d) the assessment was administered with fidelity and guidelines were followed.

Research Questions

Creswell (2014) explained research questions as "signposts" for the study that "narrow the purpose statement to predictions about what will be learned or questions to be answered in the study" (p. 139). The present study was guided by the following research questions:

RQ1. To what extent is there a difference in the early literacy skill scores, as measured by the fall kindergarten FastBridge earlyReading assessment, between students who were eligible for and participated in a preschool program compared to eligible students who did not participate?

RQ2. To what extent is there a difference in the early literacy skill scores, as measured by the fall kindergarten FastBridge earlyReading assessment, among the three cohorts, which were composed of preschool eligible students?

RQ3. To what extent is the pattern of differences in the early literacy skill scores, as measured by the fall kindergarten FastBridge earlyReading assessment, between

students who were eligible for and participated in a preschool program compared to eligible students who did not participate, affected by cohort (Cohort 1, Cohort 2, Cohort 3)?

Definition of Terms

The terms used within this study have been defined below to provide clarity for the reader.

At-risk students. The term, at-risk, is often used in education to describe students and their families (Moore, 2006). The term is frequently used to explain "poor life outcomes" and students who are at-risk of failing in the educational system, although it lacks a clear and consistent definition (Moore, 2006, p. 2). Moore described characteristics of the students, and their families, that are often associated with the term at-risk, including poverty, criminal history and incarcerated parent(s), families with English as a second language, students in the foster care system, and parents using drugs or alcohol (2006). In addition, Moore (2006) explained that the term is "a concept that reflects a chance or a probability" rather than a certainty (p. 3).

Through the Elementary and Secondary Education Act of 1965 and reissued Every Student Succeeds Act, the *Non-Regulatory Guidance, Expanding Opportunities to Support our Youngest Learners* includes the following list of criteria that results in students being automatically eligible for services in an early childhood preschool classroom using Title I federal funding:

- children who participated in Head Start, received services supported by the Comprehensive Literacy State Development Grants program within Literacy Education for All, Results for the Nation (LEARN) (formerly known as Striving

Readers Comprehensive Literacy Program), or attended a Title I preschool program at any time in the prior two years;

- children who received services under Title I, Part C (migrant education) in the prior two years;
- preschool-age children experiencing homelessness; and
- children who are in a local institution or attending a community day program for neglected or delinquent children and youth (U.S. Department of Education, Office of Elementary and Secondary Education, 2017, p. 9).

Cohort 1. The students in Cohort 1 were eligible to attend a one-year preschool program in a public-school setting during the 2018-2019 school year and attended kindergarten during the 2019-2020 school year. Throughout the study, when discussing the preschool year or kindergarten year, the preschool year is designated with a P, and the kindergarten year with a K.

Cohort 2. The students in Cohort 2 were eligible to attend a one-year preschool program in a public-school setting during the 2019-2020 school year and attended kindergarten during the 2020-2021 school year. Throughout the study, when discussing the preschool year or kindergarten year, the preschool year is designated with a P, and the kindergarten year with a K.

Cohort 3. The students in Cohort 3 were eligible to attend a one-year preschool program in a public-school setting during the 2020-2021 school year and attended kindergarten during the 2021-2022 school year. Throughout the study, when discussing the preschool year or kindergarten year, the preschool year is designated with a P, and the kindergarten year with a K.

Early childhood education. Early childhood education is the educational programming that occurs from birth to 8 years old (University of Massachusetts Global, n.d.). Formal and informal structures exist, and various funding sources, such as federal, state, and private funds, are used to support the programs (University of Massachusetts Global, n.d.). Variations of the term may include but are not limited to, preschool, preschool education, early learning, early education, early childhood, or early intervention, which may be used interchangeably. Early intervention is a broad term used to describe a wide range of activities intended to promote a young child's development (Ramey & Ramey, 1998). It is most often utilized to describe services and supports for children with disabilities but may be used to describe interventions utilized to support young children at risk of a disability (Ramey & Ramey, 1998). For the purpose of this study, preschool was the term used to describe the early childhood education services provided to eligible students in District A.

Early childhood preschool placement rubric. The early childhood preschool placement rubric, Appendix A, was created by District A to support the determination of eligible students in accordance with the guidance shared in the *Non-Regulatory Guidance, Expanding Opportunities to Support Our Youngest Learners* from the U.S. Department of Education, Office of Elementary and Secondary Education (2017). The early childhood preschool placement rubric includes the results of a developmental screening and an at-risk questionnaire completed collaboratively by school district staff and the parent or guardian. The questionnaire included at-risk characteristics outlined in the guidance from the U. S. Department of Education, Office of Elementary and Secondary Education (2017). The *Non-Regulatory Guidance, Expanding Opportunities*

to Support Our Youngest Learners described criteria for students who were automatically eligible due to circumstances such as a) children who previously participated in Head Start or various other federal programs, b) children experiencing homelessness, and c) children in an institution or other program for neglected or delinquent children (U. S. Department of Education, Office of Elementary and Secondary Education, 2017). Some of the other at-risk characteristics that were considered, but did not result in automatic eligibility, were low income, single parent household, incarcerated parent, and children with an Individualized Education Program (U. S. Department of Education, Office of Elementary and Secondary Education, 2017).

Early literacy skills. Early literacy skills include conventional literacy skills (such as reading comprehension, reading fluency, decoding, and spelling) and the prerequisite, foundational skills that are required to progress toward subsequent skill levels (National Institute for Literacy, 2008). Alphabet knowledge, phonological awareness, writing letters and digits, and phonological memory are examples of skills addressed during the early literacy phase of development. A variety of terms may be used to describe the early phase of literacy development, such as emerging literacy, preliteracy, emergent reading and writing, early reading, predictive literacy, or early literacy skills (National Institute for Literacy, 2009).

Eligible students. The parents of preschool-age students residing within District A boundaries completed the screening process designed by District A. The results of the student developmental screening and family history intake questions demonstrate meeting one or more of the criteria, which established whether students were "most at-risk of failing to meet the State's challenging academic standards" (U.S. Department of

Education, Office of Elementary and Secondary Education, 2017, p. 9). The eligible students were offered a spot in the one-year preschool program at a classroom in a school closest to their home residence. The parents/guardians were asked to accept the spot and begin the enrollment process or decline the spot.

FastBridge earlyReading assessment. According to Illuminate Education (2022), the FastBridge earlyReading English assessment is an assessment of essential early reading skills such as concepts of print, phonemic awareness, phonics, and fluency. The assessment is designed for students receiving preschool education services through first grade (Illuminate Education, 2022). The FastBridge earlyReading assessment was utilized in this study to measure students' early literacy skills (Illuminate Education, 2022). The assessment, containing four subtests, was administered during the fall testing period of the kindergarten year for Cohorts 1, 2, and 3 (Christ & Colleagues, 2018).

Title I, Part A. A local education agency may choose to use Title I funds to provide preschool education opportunities for eligible students. Title I funds are allocated through the reauthorized Every Student Succeeds Act (ESSA) and provides "protections for our most vulnerable students and directing federal resources toward programs and strategies that help all students thrive" (U.S. Department of Education, Office of Elementary and Secondary Education, 2017, p. 4).

Organization of the Study

This chapter introduced the study and provided a statement of the problem. The effect of participation in preschool on the early literacy skill scores of at-risk students was the purpose of the study. The data sample included three cohorts of eligible students across their preschool and kindergarten years and measured their assessment scores as

they entered kindergarten. Chapter 2 presents a review of literature about preschool education, including the history of early childhood education in the United States, a review of national policy and funding for early childhood education, attributes of high-quality preschool education, and research about early literacy skills. Chapter 3 describes the methodology of the research design, including the selection of participants, method of measurement, data collection procedures, and data analysis and hypothesis testing. Chapter 4 reports the research results, including a description of the statistics and hypothesis testing. Finally, Chapter 5 presents a summary of the study, major findings, findings related to the literature, implications for action, and recommendations for future research.

Chapter 2

Review of the Literature

Children's experiences in life and relationships with others shape how the brain grows and dramatically impact a child's health, development, and later life outcomes. (Centers for Disease Control and Prevention, n.d.-a; Centers for Disease Control and Prevention, n.d.-b). The brain grows rapidly before birth and during the early years, which makes the early years a critical time for development (Centers for Disease Control and Prevention, n.d.-a; Centers for Disease Control and Prevention, n.d.-b). Early childhood education is the educational programming that occurs from birth to 8 years old and is "intended to effect developmental changes in children," (Encyclopedia of Children's Health, n.d., para. 1; University of Massachusetts Global, n.d.). Early childhood education is comprised of formal and informal structures and utilizes a variety of funding sources such as federal, state, and private funding to improve student life outcomes and academic success in later years (Encyclopedia of Children's Health, n.d.; University of Massachusetts Global, n.d.). However, even though research shows that high-quality early childhood education programs are impactful, there are many young children who do not participate (Morgan, 2019).

The programs available to support early childhood education may be referred to using a variety of terms, such as preschool, early education, early childhood, early learning, pre-kindergarten, and early intervention which may be used interchangeably (Raikes et al., 2023). Early intervention is a broad term used to describe a wide range of activities intended to promote a young child's development (Ramey & Ramey, 1998). A thorough evaluation of the family and child's strengths and areas of growth should be

considered and utilized to determine the services and supports needed to aid in the student's developmental growth (Ramey & Ramey, 1998). Although "early intervention" is most often utilized to describe services and supports for children with disabilities (i.e., treatment programs), the term may be used to describe interventions utilized to support young children at risk of a disability (i.e., preventative programs) (Ramey & Ramey, 1998). Early intervention is one component in a wide array of program types and terms used to describe early childhood education services (Raikes et al., 2023; Ramey & Ramey, 1998). The literature review for this study includes research about the history of early childhood education, an in-depth description of early childhood education, an explanation of the attributes of high-quality early childhood education programs, and a review of early literacy skills.

The Evolution of Early Childhood Education

A culture or society's treatment of its young people has a significant impact on how it will develop, flourish, and be perceived by outsiders (Shonkoff, Meisels, & Zigler, 2000). There are many children born with disadvantages, such as improper nutrition and healthcare, a family unable to provide care and support, disabilities, or economic challenges (Shonkoff et al., 2000). The goal of early childhood education is to support the development of young children and their families (Shonkoff et al., 2000). Although there is research supporting the positive effects of early childhood education, continued barriers are present that limit the effectiveness, availability, and consistency of programs for all children (Shonkoff et al., 2000). A review of the history is an important step to understanding the challenges of present day early childhood education and its continued evolution (Lascarides & Hinitz, 2013; Shonkoff et al., 2000).

As early as the seventeenth and eighteenth centuries, writings about concepts related to early childhood education set the stage for more current philosophies about the education of young children (Shonkoff et al., 2000). Between the years 1700 and 1850, the Industrial Revolution in Britain greatly impacted families and children as many women and children in the working class labored in the mills and factories, which limited the education of children in poor families (Lascarides & Hinitz, 2013). During this time, the American colonies were guided by Puritan philosophy, which relied on spiritual beliefs and strict discipline during children's early years (Shonkoff et al., 2000). Kindergarten, in its first form, was introduced in Germany in the early 1800's (Shonkoff et al., 2000). Experimental kindergarten programs were introduced across the United Stated in the mid-nineteenth century and were funded primarily through private and philanthropic efforts (Shonkoff et al., 2000). Due to industrialization, urbanization, and the desire to support low-income children and immigrants, there was increased support for kindergarten in public schools during the late 19th and early 20th centuries (Shonkoff et al., 2000). The inclusion of kindergarten as a regular component of the public-school system received official recommendation from the National Education Association after the opening of the first public-school kindergarten in St. Louis, Missouri in 1872 (Shonkoff et al., 2000). At the present time of this study, kindergarten is recognized as part of the public-school system, although the requirements for kindergarten participation vary among the states, and attendance is required in only 17 states (Fischer, Jamieson, Silva-Padron, Peisach, & Weyer, 2023; Shonkoff & Meisels, 2000).

Nursery schools, an idea originating in England, were introduced in the United States in the 1920s and were initially founded by wealthy women or women with wealthy

husbands or friends (Lascarides & Hinitz, 2013). Nursery schools in the United States were created to support learning opportunities for children not yet school age and focused on providing services for the working poor (National Academies of Sciences, Engineering, and Medicine Gap, 2023). The Depression of the 1930s led to the increase in nursery schools to assist unemployed teachers and women working in defense plants during World War II (Shonkoff et al., 2000). In addition, child care centers were created and federally funded while women supported war efforts (Shonkoff et al., 2000). The focus of the child care centers, the safety and care for children, was in contrast to the purpose of the nursery schools, which focused on supplementing young children's opportunity for learning (National Academies of Sciences, Engineering, and Medicine, 2023). After the conclusion of the war when federal funding for child care centers was discontinued, many centers were closed, and the remaining nursery schools and child care centers grew more and more exclusive to those who could afford private tuition (Shonkoff et al., 2000). After the war ended, many women left the workforce to stay home to raise their children (Shonkoff et al., 2000; Swadener, 1995). Images in the media shifted from "Rosie the Riveter to domestic bliss," (Swadener, 1995, p. 414).

The years from 1900-1950 are considered the progressive era with a focus on fulfilling the "promise of American life – the ideal of government by, of, and for the people," through increased federal activity and policy (Lascarides & Hinitz, 2013, Chapter 12, para. 1). The national government's obligation to advance the welfare of all the country's children was first acknowledged with the establishment of the Children's Bureau in 1912 (Lascarides & Hinitz, 2013). In 1935, the Social Security Act was passed and included three components that emphasized the significance of a federal commitment

to the welfare of mothers and their children (Shonkoff et al., 2000). In 1961, Public Law 88-165 was approved for federal funding to support children with mental retardation and in 1968, Public Law 90-538 (Handicapped Children's Early Education Assistance Act) provided funds to support the education of eligible infants, preschoolers, and their parents (Shonkoff et al., 2000). Concerns about the issues facing the nation's young people who were socially, culturally, and economically disadvantaged grew under the Johnson administration and led to the approval of Project Head Start and the Elementary and Secondary Act of 1965 (Lascarides & Hinitz, 2013).

The foundation of Head Start was the conviction that early experiences have a significant influence on later development. The creators believed that intervention, through early childhood services and family support, could mitigate the effects of their impoverished environments (Shonkoff et al., 2000). Education, administration, social services, health services, parent involvement, and career development are the primary components of the Head Start program (Lascarides & Hinitz, 2013). Early Head Start was a new initiative created by the Reauthorization Act of 1994 and addressed the crucial time of development from conception to the age of three years by providing early childhood education for infants and toddlers (Shonkoff et al., 2000).

Public Law 92-424, which was passed in 1972, required all Head Start programs to set aside at least 10% of their enrollment for children with disabilities (Shonkoff et al., 2000). The focus on children with special needs continued throughout the twentieth century and into the twenty-first century through new and reauthorized legislation (Shonkoff et al., 2000). Public Law 94-142, the Education for All Handicapped Children Act, was passed in 1975 and provided a right to a free and appropriate public education

for all children who are school age; however, early intervention services for infants and toddlers was incentivized for states, but not mandated (Shonkoff et al., 2000). This legislation expanded the reach of students eligible for special services and added the legal responsibility for inclusion in the least restrictive environment in lieu of isolation in separate schools or institutions (Shonkoff et al., 2000). The Education for All Handicapped Children Act was reauthorized in 1986 to include infants and toddlers with special needs (U.S. Department of Education, n.d.-a). The law was amended in 1983, 1990, and 1997 to address transition programs for students aging out of the public-school system (U.S. Department of Education, n.d.-a). In 1990, the Education for All Handicapped Children Act was renamed the Individuals with Disabilities Education Act (IDEA) and the reauthorized version of 1997 included changes to several topics including adding a process for dispute resolution between families and education agencies (U.S. Department of Education, n.d.-a). The reauthorization of IDEA in 2004 included guidance for early intervening services for students without a determined disability, but who needed additional support in the general education setting (U.S. Department of Education, n.d.-a).

During the late twentieth century and the early twenty-first century, school readiness and accountability were themes throughout the decades (Essa & Burnham, 2019; Shonkoff et al., 2000). The conversations about early childhood education remained as research continued to show positive outcomes for students, particularly those in at-risk categories (Essa & Burnham, 2019). In addition, family changes such as an increase in single-parent households, teenage pregnancy, and females in the workplace resulted in a demand for and prioritization of child care and early childhood education

opportunities (Essa & Burnham, 2019). Contemporary research posits common barriers within the field of early childhood education including governance challenges, policy and funding, program structural features, workforce and teacher professional development, and quality and monitoring (Phillips et al., 2017). The COVID-19 pandemic exposed the delicate state of early education programs due to closures related to the pandemic, many programs were financially unable to remain open (Learning Policy Institute, 2021b). As a result, and at the time of this study, there are fewer opportunities for families when selecting early childhood education program for their children (Learning Policy Institute, 2021b). The federally funded early childhood education programs available at the present time of this study are identified below.

Head Start. This early childhood education program is designed for preschool-age children (ages 3 years to 5 years) with a family income below the poverty level (Learning Policy Institute, 2021b). Head Start programs are required to reserve 10% of their enrollment for students with disabilities and provide wrap-around services to support the health, education, social, and economic structures of the family (Learning Policy Institute, 2021b).

Early Head Start. The Early Head Start program requirements are similar to the Head Start program, but is designed for infants, toddlers, and pregnant women (Learning Policy Institute, 2021b).

Child Care Development Block Grant. In order to support parental work and child development, the Child Care Development Block Grant (CCDBG) gives states money that families can use at certain privately or publicly run child care programs for children from birth to age 12 (Learning Policy Institute, 2021b).

Individuals with Disabilities Act Part C. Part C of the Individuals with Disabilities Act (IDEA) uses federal funding to support states' programs to provide early intervention services to eligible infants and toddlers with disabilities (Learning Policy Institute, 2021b).

Individuals with Disabilities Act Part B-619. This funding provides specialized programs and services for preschool-age children with disabilities within each state (Learning Policy Institute, 2021b).

Preschool Development Grant Birth through 5. Part of Every Student Succeeds Act (2015), the Preschool Development Grant Birth through 5 (PDG-B5) is a grant program intended to align current programs, improve parent choice, grow new programs, encourage collaboration between programs, and utilize data to create services to meet the needs of the community (Learning Policy Institute, 2021b).

Title I – Non-regulatory guidance. School districts may choose to use Title I funds to establish and implement high-quality early childhood education programs using the *Non-Regulatory Guidance* provided by the U.S. Department of Education (U.S. Department of Education, n.d.-b).

In 2022, the National Institute for Early Education Research (NIEER) published the twentieth edition of the State of Preschool Yearbook, which celebrated an increase in enrollment in early childhood education since the decline in 2020-2021 due to the COVID-19 pandemic (Friedman-Krauss et al., 2023). Although the enrollment numbers did not return to the pre-pandemic totals, growth was shown during the 2021-2022 school year and NIEER referred to it as "a year of partial recovery" (Friedman-Krauss et al., 2023, p. 5). In the State of Preschool 2022, Friedman-Krauss et al. (2023), shared that

over 1.5 million students attended preschools that were state funded, which is 8% (130,558 children) less than in 2019-2020. In addition, Friedman-Krauss et al. (2023) emphasized the progress that has occurred in the 20 years since the first publication of the State Preschool Yearbook. Although expansion in early childhood education programs and progress towards quality standards has been noted across the nation, the progress is slow and stagnant in some areas (Friedman-Krauss et al., 2023). Table 2 reveals a comparison of 2001-2002 and 2021-2022.

The history of educating young children before they enter traditional schooling years has had a significant impact on contemporary early childhood education services (Shonkoff et al., 2000). Some of the components that were evident during the early programs and continue to be priorities include the following: a curriculum focused on the child, opportunities for socialization beyond the family, an understanding of child development, and a commitment to education in the early years for improved outcomes later in life (Shonkoff et al., 2000). Shonkoff, Meisels, and Zigler (2000) claimed that these historical priorities, accompanied by contemporary research, funding, and philosophies will continue to shape the evolution of early childhood education programs.

Table 2

State-Funded Preschool Then and Now

Criteria	2001-2002	2021-2022
States with pre-k	38	45
Number of children enrolled	695,383	1,526,116
Percentage of 3-year-olds enrolled	2.7	6.4
Percentage of 4-year-olds enrolled	14	32
Total state pre-k spending (2022 dollars)	4.52 billion	9.90 billion
State pre-k spending per child enrolled (2022 dollars)	6,532	6,571
Number of states with school-day programs (or longer)	9	20
Number of states meeting all 10 quality benchmarks	0	5

Note. Adapted from *The State of Preschool 2022: State Preschool Yearbook*, by A. H. Friedman-Krauss, W. S. Barnett, K. S. Hodges, K. A. Garver, G. G. Weisenfeld, B. A. Gardiner & T. M. Jost, 2023, p. 8. National Institute for Early Education Research.

Early Childhood Education Research

The former governor of Georgia, Senator Zell Miller, referred to preschool as "the most important grade" and numerous studies have supported the positive effects of preschool on young students' readiness for, and success, in school (Barnett & Hustedt, 2003). Barnett and Hustedt (2003) also stated that, despite the evidence, programs for young children are not consistently available for students of all socio-economic backgrounds, and lack consistency in quality. Initial early research was based on early childhood education programs that started in the 1960s and 1970s, The Perry Preschool Study, The Caroline Abecedarian Project, and the Chicago Longitudinal Study, which demonstrated that early childhood education can have positive results in the lives of

young children (Meloy, Gardner, & Darling-Hammond, 2019). A review of the most prominent early studies about the effect of early childhood education, Project Head Start, The Perry Preschool Study, The Caroline Abecedarian Project, and the Chicago Longitudinal Study, are included in the present literature review.

More recent evaluations of state programs have also found lasting and significant positive effects from early childhood education (Meloy et al., 2019). In response to the positive effects from studies, Meloy et al. (2019) stated that "public preschool has been held up as an intervention with the potential to level the playing field for all children, especially those living in poverty, by the time they start school" [kindergarten] (p. 8). However, some research has shown mixed results regarding the retention of positive effects, which leads to confusion and uncertainty, especially when advocating for policy changes and funding allocations (Meloy et al., 2019). It is important to note, when reviewing evidence that shows mixed results, that there is a great deal of variability in the preschool programs being researched and the research methods utilized within each study (Meloy et al., 2019). The mixed results may indicate that the performance of the treatment group and comparison group "converges" as the students age through elementary school (Meloy et al., 2019, p. 24). Still, Meloy et al. (2019) stated that it is possible for preschool's academic benefits to carry over into elementary and middle school, but the inconsistent results across programs highlight how crucial it is to fully understand research methodologies and to invest in quality programs in order to support long-term gains.

The Tennessee Prekindergarten Program is a study that resulted in mixed results between the short- and long-term positive effects (Lipsey, Farran, & Durkin, 2018). The

study focused on the Tennessee voluntary prekindergarten program, which served low-income children (Lipsey et al., 2018). A randomized control trial was utilized across two cohorts designated to describe two school years (2009-2010 and 2010-2011) (Lipsey et al., 2018).

The short-term results of the study demonstrated positive effects in literacy, language, and math skills during the preschool year and greater readiness for kindergarten grade level work upon entering kindergarten (Lipsey et al., 2018). However, the control group (students who did not participate in preschool) produced similar results to the randomized sample (students who attended preschool) on achievement tests by the end of kindergarten (Lipsey et al., 2018). Additionally, the results showed that in second and third grades, the control group outperformed the randomized sample on achievement tests (Lipsey et al., 2018). The researchers stated that there is a need for a "robust body of research before firm conclusions are drawn" and recommended continued attention to the field of research on preschool program elements that are critical to the quality of preschool programs (Lipsey et al., 2018, p. 21).

Perry Preschool Study. The Perry Preschool Study was initiated in 1962 in the Ypsilanti, Michigan school district where the researchers ran a preschool program for young children through 1967 (Schweinhart, 2022). The experiment sample contained 123 low-income African American children who were randomly assigned to the preschool group or the group that did not attend preschool (Schweinhart, 2022). The preschool group attended a half-day program (two and a half hours each weekday) for two years (Ventures, 2021). The project employed certified teachers who implemented a consistent curriculum in addition to weekly home visits (Ventures, 2021). During the home visits,

the teachers gained parent involvement and encouraged curriculum carryover into the home environment (Ventures, 2021).

The researchers postulated that the preschool experience of children continues to be the best explanation for subsequent group differences in their performance over the years due to the random assignment strategy (Schweinhart, 2022). In addition to data collection with both groups on an annual basis between the ages of 3 years and 11 years, the researchers also collected data with the groups at the ages of 14, 15, 19, 27, and 40 (Schweinhart, 2022). The following themes were investigated throughout the study to determine the effects of the program: education, economic performance, crime prevention, family relationships, and health (Schweinhart, 2022).

The results of the study show that the program group (students who attended preschool) consistently out-performed the no-program group (students who did not attend preschool) in all the areas (Schweinhart, 2022). Based upon the Perry Preschool Study, high-quality preschool programs benefit young children in poverty in their cognitive and social growth as well as academic achievement, economic performance, and a reduced likelihood of committing crimes as adults (Schweinhart, 2022). Figure 1 represents the major findings after the follow-up with the sample at the age of 40 years.

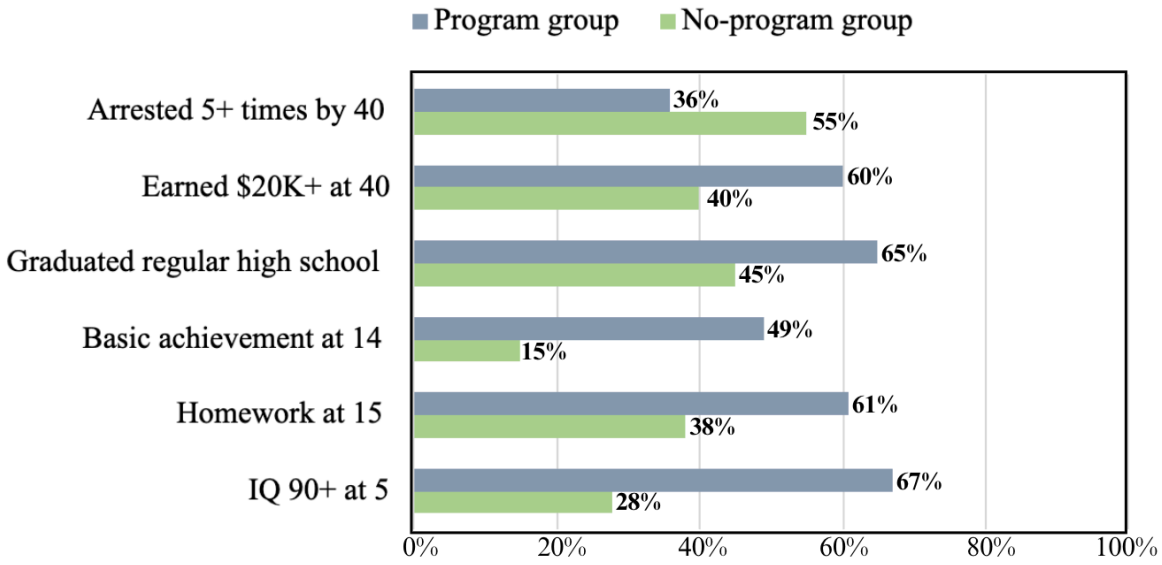

Figure 1. Major findings from the Perry Preschool Study at 40. Adapted from *The High/Scope Perry Preschool Study Through Age 40* by L. J. Schweinhart, 2023. Copyright 2023 by National Institute for Early Education Research. Copyright 2023 by HighScope.

Project Head Start. The Head Start program was initiated in 1965 with the objective to improve school readiness for at-risk children (U.S. Department of Health and Human Services, Administration for Children and Families, 2010)). Head Start was created to provide wrap-around services to support the whole child and the family which includes supports such as nutrition services, medical and dental services, and parenting education (U.S. Department of Health and Human Services, Administration for Children and Families, 2010). Congress required that the US Department of Health and Human Services assess the effects of Head Start on the children it serves on a national level as part of the program's 1998 reauthorization (U.S. Department of Health and Human Services, Administration for Children and Families, 2010). The goals for the study include (a) “determine the impact of Head Start on children’s school readiness, (b)

determine the impact of Head Start on parental practices that support children's development, (c) determine under what circumstances Head Start achieves its greatest impact and for which children," (U.S. Department of Health and Human Services, Administration for Children and Families, 2010, p. xiii).

The study randomly assigned students to a group for enrollment or a control group that could not enroll (U.S. Department of Health and Human Services, Administration for Children and Families, 2010). The control group was able to enroll in an alternate program such as an in-home program, community program, or other program selected by the family (U.S. Department of Health and Human Services, Administration for Children and Families, 2010). To ensure the results could be generalized nationally, the sample of Head Start programs and children was representative of the national Head Start program and included a range of programs of varying quality (U.S. Department of Health and Human Services, Administration for Children and Families, 2010). The key findings from the whole group analyses are summarized below.

1. Head Start had a statistically significant difference on the child's preschool experience between the Head Start group and the control group (U.S. Department of Health and Human Services, Administration for Children and Families, 2010).
2. In both the 4-year-old and 3-year-old groups, positive impacts were noted on several components of school readiness such as pre-academic skills, letter naming, vocabulary, and other areas (U.S. Department of Health and Human Services, Administration for Children and Families, 2010).
3. At the end of first grade, there were only a few statistically significant differences in outcomes when looking at the whole sample (U.S. Department of Health and

Human Services, Administration for Children and Families, 2010). For example, in the cognitive outcomes, the only statistically significant difference was in the area of vocabulary and in the health outcomes. There was also a statistically significant difference for the 4-year-old group on child health insurance at the end of first grade (U.S. Department of Health and Human Services, Administration for Children and Families, 2010).

The Carolina Abecedarian Project. The Carolina Abecedarian Project was created in the 1970s by a team at the Frank Porter Graham Child Development Institute at the University of North Carolina to determine if early education services could prevent cognitive delays and failure in school (Campbell & Ramey, 1994; Sparling & Meunier, 2019). The project was designated for children with social disadvantages such as economic circumstances (Campbell & Ramey, 1994). Campbell and Ramey (1994) stated that there were 120 families initially found eligible and invited to the study based upon the results of their High Risk Index (as cited in Ramey and Smith, 1977). Between 1972 and 1977, the study participants, 98% African American, were randomly assigned to the treatment group or control group (Campbell & Ramey, 1994). The treatment group was provided a full-day, year-round early childhood education for five years with an additional three years of intervention (provided in the family home to the child and parent[s]) for a randomly selected subgroup (Campbell & Ramey, 1994). In addition to the provision of preschool services, efforts were made to involve the parents in the preschool through training, social events, and connections to community supports (Campbell & Ramey, 1994). The longitudinal project followed up with included children at the ages of 5, 8, 12, 15, 21, 30 and 35 with positive effects from the treatment group

(Frank Porter Graham Child Development Institute of the University of North Carolina at Chapel Hill, n.d.). A summary of the results is detailed below.

1. The children who received the birth to age 5 Abecedarian intervention had higher IQ scores through age 15 than the children in the randomly chosen control group (Frank Porter Graham Child Development Institute of the University of North Carolina at Chapel Hill, n.d.). Also, there were fewer placements in special education, less grade retention, and higher tests scores in math and reading during their schooling (Frank Porter Graham Child Development Institute of the University of North Carolina at Chapel Hill, n.d.).
2. The follow up with study participants at the age of 21 revealed the following advantages to the treatment group: statistically significant advantages on intellectual tests and academic tests (reading and mathematics), more likely to attend college or have a skilled job, less likely to have children in their teens, and less likely to use recreational drugs such as marijuana and disclose having depressive symptoms (Frank Porter Graham Child Development Institute of the University of North Carolina at Chapel Hill, n.d.).
3. The follow up with study participants at the age of 30 revealed that the treatment group was more likely to be consistently employed, have a bachelor's degree, postpone starting a family, and other positive variances from the control group (Frank Porter Graham Child Development Institute of the University of North Carolina at Chapel Hill, n.d.).
4. The follow up at the age of 35 showed multiple positive findings with the treated group such as generally better physical health and physical indications that they

will have a healthier future (Frank Porter Graham Child Development Institute of the University of North Carolina at Chapel Hill, n.d.). The project collaborated with the University College London and the University of Chicago to analyze the biomarkers for the study participants (Frank Porter Graham Child Development Institute of the University of North Carolina at Chapel Hill, n.d.).

Chicago Longitudinal Study. The Chicago Longitudinal Study (CLS) investigated at-risk students attending kindergarten during the 1985-1986 school year in the Chicago Public-schools (Reynolds, 1999). The students in the treatment group also participated in the Child-Parent Center Program, established in 1967, to provide a comprehensive early intervention service to the areas of poverty in Chicago (Reynolds, 1999). The goal of the CLS study was to track trends in academic performance and social skills and to evaluate the impact of the Child-Parent Center and Expansion Program (Reynolds, 1999). Additionally, a goal of the CLS aimed to recognize and understand the educational and psychosocial channels through which the consequences of early childhood experiences are experienced (Reynolds, 1999). Lastly, the researchers aimed to discover how various personal, family, school, and community factors affect children's education and social development, especially those that can be changed by program or policy interventions (Reynolds, 1999). The CLS study sample included 1,150 students attending kindergarten from one of the 20 Child-Parent Centers and 389 students who participated in an alternate kindergarten program in Chicago (Reynolds, 1999). All the children involved in the sample attended schools eligible for Title I funding and were economically disadvantaged in addition to other at-risk characteristics (Reynolds, 1999). A summary of the results is detailed below.

1. The research of the Chicago Longitudinal Study demonstrated positive results for the study participants in the areas of test scores, arrests and crime, special education, and high school graduation (as cited in Barnett, 2008). Additionally, a reduction in grade retention was discovered (as cited in Barnett, 2008).
2. During the follow-up with participants at the age of 28, additional positive results were revealed with the preschool group with significantly higher levels of education on three of the four outcomes (Reynolds, Temple, Ou, Arteaga, & White, 2011). In addition, they had a higher rate of health insurance coverage, significantly lower rates of substance abuse, and lower rates of crime and involvement in the justice system (including arrests, incarceration, and felony arrest) (Reynolds et al., 2011).

Early research on the effects of early childhood education found positive short-term and long-term benefits that continue to inform and influence conversations about educating young children (Meloy et al., 2019). The longitudinal studies provided guidance about the benefits not only to the individual participants, but society as a whole and the positive impact on the economy (Meloy et al., 2019). The importance of high quality early childhood education programs and the characteristics of impactful programs are included in the literature review.

High Quality Early Childhood Education

In their research report, "PK-3: An Aligned and Coordinated Approach to Education for Children 3 to 8 Years Old", Bogard and Takanishi (2005) stated that "Variability in classroom quality within schools reveals a lack of unifying vision and planning for how children's experiences connect, overlap, and build on earlier stages

even within the same school" (p. 10). Without alignment of services and skills, the gains noted from early childhood education may not be sustained (Bogard & Takanishi, 2005). As a result, Meloy et al. (2019) suggested that a "preponderance of evidence demonstrates that high-quality preschool leaves children better prepared for school," and posited that future research investigate the attributes most likely to result in lasting, positive results (p. 1).

The creation of a comprehensive, systematic early education system that includes specific quality standards, can be replicated across the nation, and is accessible to children born into poverty, middle class, or wealth is the best opportunity to achieve and maintain positive outcomes for all children and their families (Bogard & Takanishi, 2005; Learning Policy Institute, 2021b; Phillips et al., 2017; Wechsler, Melnick, Maier, & Bishop, 2016). Accessibility of early childhood education means that there are quality programs available, and the programs are affordable for families (Klinkhammer and Berth, 2019). Children who participate in a high quality early childhood education program are less likely to experience unemployment, commit crimes, experience neglect or abuse, require public assistance, become teen parents, and are more likely to lead healthy lives and positively contribute to their communities (Thornton et al., 2020). Additionally, the investment in early childhood education has positive effects for the economy, which returns nearly $7 for every dollar invested as demonstrated by economists (Thornton et al., 2020; Wechsler et al., 2016). Recommendations for a comprehensive system design and quality standards for programs will be discussed within this literature review.

Comprehensive system design. Prior to entering kindergarten, there is not a common infrastructure of supports for young children's development and learning (Phillips et al., 2017). Although federal funding is available for select early childhood education projects (such as Head Start, Child Care Development Block Grant, etc.), the coordination and governance structures do not coincide (Phillips et al., 2017). Research about the development of a comprehensive system includes recommendations that would allow all children to have equitable access to services through alignment of current structures and creation of new methodology and policy (Learning Policy Institute, 2021b; Phillips et al., 2017). Commonalities from multiple research sources include a need for (a) access to an integrated, inclusive programs for all children, (b) policy and funding structures at the federal and state levels to support the integrated programs through shared accountability, (c) programs that are high quality, and (d) development of a system to govern early childhood education (Barnett & Frede, 2010; Bogard & Takanishi, 2005; Learning Policy Institute, 2021b; Morgan, 2019; Phillips et al., 2017; Thornton et al., 2020).

The current structure for early childhood education is fragmented between numerous entities and often targets specific demographics such as economically disadvantaged families (i.e., Head Start) (Barnett & Frede, 2010). Through this targeted approach, many children remain without options for a high quality early childhood education (Barnett & Frede, 2010). The absence of a unifying framework results in children being segregated and presents inequities for children in low-income or minority families (National Academies of Sciences, Engineering, and Medicine, 2023). One option to increase the likelihood that all children have access to integrated, inclusive

programs is through the implementation of a high-quality universal preschool (Morgan, 2019). Universal preschool would alleviate the disparities in program quality between low-income families and those with greater financial means, create alignment between the type of services and quality of service, and ensure all children have access to a similar early childhood education (Morgan, 2019).

Another component for the development of a comprehensive system is the addition of policy and funding structures at federal and state levels to ensure the viability of the services (Learning Policy Institute, 2021b; Morgan 2019). One of the greatest challenges in the field is a lack of funding, which includes the shortage in funding for adequate salaries to recruit and maintain well qualified teaching professionals (Morgan, 2019). In an article in the New York Times, Miller (2021) stated that the United States spends 0.2% of its Gross Domestic Product on early childhood education for children under 3 years in comparison to other wealth countries who spend an average of 0.7% of its Gross Domestic Product. Additionally, policy to align current social programs such as healthcare assistance, public financial assistance, and other community supports currently available to families is critical when building a comprehensive system that families can easily navigate (Learning Policy Institute, 2021b).

High quality early childhood education yields better outcomes for children, families, and society, yet is difficult to enforce without consistent quality standards included in policy (Learning Policy Institute, 2021b). Lacking a structure to govern programs and verify the validity of implementation, equitable access for all children cannot be achieved (Bogard & Takanishi, 2005). The two aforementioned

recommendations are critically important to the successful design of an early childhood education system.

Quality standards. The benefits of high quality early childhood education are well documented, and the body of research cites critical indicators for high quality preschool (Meloy et al., 2019). Without defined guidelines across national, state, and community levels, the indicators are not consistently considered during the planning and implementation of early childhood education (Barnett & Frede, 2010). NIEER created research-based benchmarks to assist in the assessment of early childhood education programs (Barnett & Frede, 2010). NIEER asserted that high quality programs include the following benchmarks: (1) early learning development standards, (2) teachers have a bachelor's degree, (3) teachers have specialized training in pre-k, (4) assistant teachers have a child development associate or equivalent, (5) professional development or coaching for staff, (6) class size of 20 students or lower, (7) staff to child ratio of 1:10 or better, (8) vision, hearing, and health screenings and referrals, (9) curriculum supports, and (10) continuous quality improvement system (Friedman-Krauss et al., 2023). In the "Promise of Preschool", Barnett and Frede (2010), codirectors of NIEER, shared that meeting all standards does not ensure high quality, but it is unlikely that a preschool could be fully effective unless all ten benchmarks are met. The ten benchmarks represent the minimum criteria needed to ensure preschool programs have the resources they need to be effective, especially when serving children at risk of school failure (Barnett & Frede, 2010).

Founded in 1926, the National Association for the Education of Young Children (NAEYC) aspired to improve the quality of early childhood education (National

Association for the Education of Young Children, 2019). They believed that all children should have access to equitable early learning opportunities and prioritized the relationship between practice, policy, and research (National Association for the Education of Young Children, n.d.). Additionally, to guide early childhood education professionals in their work with children, NAEYC (2020) published *Developmentally Appropriate Practice*, which they defined as "methods that promote each child's optimal development and learning through a strengths-based, play-based approach to joyful, engaged learning," (p. 5). The *Developmentally Appropriate Practice* is based on child development, current research, and evidence from a variety of fields (NAEYC, 2020). The NAEYC standards include: (1) relationships, (2) curriculum, (3) teaching, (4) assessment of child progress, (5) health, (6) staff competencies, preparation, and support, (7) families, (8) community relationships, (9) physical environment, and (10) leadership and management (NAEYC, 2019). In the addition to defining the standards, NAEYC provided a description of best practice strategies and criteria to look for when completing a self-assessment or the formal accreditation process (NAEYC, 2019). A review of the NAEYC standards is included below.

Relationships. In order to foster each child's ability to contribute as a responsible community member and to promote each child's sense of individual worth and belonging as part of a community, the program encourages positive relationships between all children and adults (National Association for the Education of Young Children, 2019). With a sense of belonging and positive rapport with peers and adults in the school setting, the students are more able to reap the benefits of the instruction (National Association for the Education of Young Children, 2019). The National Association for the Education of

Young Children also promotes teaching students to self-regulate their emotions and focuses on the adult's ability to respond to challenging behaviors as components of this standard (National Association for the Education of Young Children, 2019).

Curriculum. The program employs a curriculum that supports learning and development in each of the following areas: social, emotional, physical, language, and cognitive, and is consistent with program's goals for kids (National Association for the Education of Young Children, 2019). In addition to other curricular domains, the National Association for the Education of Young Children explains the best practice strategies for supporting the development of students' early literacy skills through reading opportunities (individual and adult read-aloud), learning the alphabet and letter sounds, addressing emerging writing skills, and providing a print-rich environment (National Association for the Education of Young Children, 2019).

Teaching. The curriculum goals of the program are achieved through a variety of developmentally, culturally, and linguistically appropriate and effective teaching strategies that support each child's learning and development (National Association for the Education of Young Children, 2019). Within the seven subcategories outlined for this standard was a focus on the effective supervision of young students and a priority for creating routines and structures (within the classroom and across the school) to ensure the effectual use of instructional time (National Association for the Education of Young Children, 2019).

Assessment of child progress. The program uses assessment results to inform decisions about the children in their care, to improve teaching methods, and to drive program improvement (National Association for the Education of Young Children,

2019). The program uses a variety of formal and informal assessment approaches to provide information on children's learning and development, which occur in the context of reciprocal communications between teachers and families, and with sensitivity to the cultural contexts in which children are developing (National Association for the Education of Young Children, 2019).

Health. Through the promotion of nutrition and health, the program protects students and staff from illness. In addition, safeguards are in place for the maintenance of a healthy environment (National Association for the Education of Young Children, 2019).

Staff competencies, preparation, and support. By recruiting and maintaining staff with the knowledge, certification, and professional dedication to the field of early education, the program is able to support the diverse needs of students and families (National Association for the Education of Young Children, 2019). The priorities of this standard are widely discussed in research since a lack of adequate funding frequently prohibits hiring and retaining professionally trained, highly qualified, professionals (Thornton et al., 2020). Wechsler et al. (2016) shared that the National Research Council and the Institute of Medicine both recommend that states standardize the educational requirements for early childhood teachers and require that all teachers hold a bachelor's degree with a focus in early childhood.

Families. In order to promote children's development in all contexts, the program develops and maintains collaborative relationships with each child's family while ensuring sensitivity to the family composition, language, and culture (National Association for the Education of Young Children, 2019). The best practice strategies

within this standard include knowing and understanding the families, communicating effectively between staff and families, and empowering families to effectively advocate for their child (National Association for the Education of Young Children, 2019). The components of the seventh standard are widely reviewed as researchers have found that all types of young children, including those from diverse ethnic and socioeconomic backgrounds, have been shown to benefit from positive family-program connections in terms of increased academic motivation, grade advancement, and socioemotional skills (Wechsler et al., 2016).

Community relationships. To help achieve its objectives, the program builds relationships within the community and connects families to resources (National Association for the Education of Young Children, 2019). In addition to establishing community relationships to support the curricular and instructional needs of an early childhood education program, families may require assistance in understanding what services they need, how to find and enroll in them, and in determining whether they qualify for programs (Gebhard, 2022; National Association for the Education of Young Children, 2019). Other barriers such as language and cultural differences, lack of access to technology, and concern about stigma can make it even more difficult for families to get the help they need (Gebhard, 2022).

Physical environment. The program's environment is safe and healthy and offers suitable and well-maintained indoor and outdoor space for physical activity (National Association for the Education of Young Children, 2019). In addition, materials and equipment are available to support staff development and child learning and are designed

to meet the physical and developmental needs of young children (National Association for the Education of Young Children, 2019).

Leadership and management. In order to provide all children, families, and staff with high-quality experiences, the program successfully implements policies, practices, and systems that support stable staff and strong personnel, fiscal, and program management (National Association for the Education of Young Children, 2019). Components of the successful development and implementation of high-quality early childhood education include the determination of the class size, the teacher-student ratio, and the duration of the educational services (Wechsler et al., 2016). These elements were discussed throughout research and included recommendations to ensure children had sufficient time to reap the benefits of early childhood education (Wechsler et al., 2016). Participating in a full day program shows greater results than part-day programs and the opportunity to attend for more than one year (such as attending at three years of age and continuing as a four-year-old) yielded greater results (Wechsler et al., 2016). In addition, a student to teacher ratio of 10:1 (or fewer students) is the standard communicated by the National Association for the Education of Young Children and the body of research (National Association for the Education of Young Children, 2019; Wechsler et al., 2016).

The commitment to building a high-quality system for early childhood education is an investment and requires the thoughtful integration of the professional standards evidenced by research (Wechsler et al., 2016). Although the fiscal investment for high-quality programs shows a range of $8,521 to $10,375 per child (2015 dollars), utilizing an approach that weaves funding from a variety of federal, state, and local funds can minimize the financial impact (Wechsler et al., 2016). In the “Unifying Framework for

the Early Childhood Education Profession", a national collaboration to define and establish guidance for early childhood education professionals, Thornton et al. (2020) stated that making significant and sustained investments in high-quality early childhood education is one of the best things our nation can do to support and enhance outcomes for children and their families.

Early Literacy Skills

In a literate society, learning to read and write is a crucial developmental milestone and strong reading skills are the foundation for learning content in other areas, both in school and throughout life (Lonigan, 2006). The extensive research about reading has become known as the *science of reading* and has ignited a sense of urgency to redesign the instructional approach to reading, expectations for educational systems, and legislative policy (Gewertz, 2020). The National Reading Panel was established in response to a Congressional request to evaluate the current state of research-based knowledge about reading instruction (National Reading Panel, 2000). The National Reading Panel's report, published in 2000, explained the components of effective reading instruction, which are now commonly referred to as the *big five* (Gewertz, 2020). The *big five* areas of literacy are phonemic awareness, phonics, fluency, vocabulary, and comprehension (National Reading Panel, 2000). Although the National Reading Panel did not specifically address early literacy skills within their research, a minority report was submitted by a panel member and included in the final report (National Reading Panel, 2000). Within the minority report, Dr. Yatvin proposed that the Panel was unable, due to a lack of time and staffing, and unwilling, due to a lack of consensus on the Panel, to investigate the full scope of reading (National Reading Panel, 2000, p. 2).

Furthermore, she emphasized that the Panel should have considered "the field of reading both horizontally and vertically, examining the basic theoretical models of reading, the methods that grow out of them, and the processes of learning that begin in infancy and continue through adulthood," (National Reading Panel, 2000, p. 2).

The importance of the preschool years for the development of critical early literacy skills is shown in evidence of the growing body of research (Lonigan, 2006). The National Early Literacy Panel (NELP) completed a synthesis of research and published "Developing Early Literacy" in 2008, which outlined the results of the panel's investigation into early literacy (National Institute for Literacy, 2008). Then, in 2009, the National Institute for Literacy published "Early Beginnings: Early Literacy Knowledge and Instruction" (National Institute for Literacy, 2009). This guide was based on the results of the NELP and was developed for early childhood administrators, instructional coaches, and those who provide professional development for instructional practices in literacy (National Institute for Literacy, 2009).

In "Developing Early Literacy", the NELP distinguished between conventional literacy skills and early literacy skills, which are the precursor skills to reading and writing (National Institute for Literacy, 2008). Conventional literacy skills were defined as commonly identified components of literacy that are necessary for reading development (such as reading comprehension, reading fluency, decoding, and spelling), but occur later in the developmental process (National Institute for Literacy, 2008). Early literacy skills, on the other hand, include both conventional literacy skills and the prerequisite, foundational skills that are required to progress toward subsequent skill levels (National Institute for Literacy, 2008). There are a variety of terms that may be

used to describe the early phase of literacy development, such as emerging literacy, preliteracy, emergent reading and writing, early reading, predictive literacy, or early literacy skills (National Institute for Literacy, 2009).

The NELP suggested six early literacy skills, based on their research, that have a high correlation with later success in reading (National Institute for Literacy, 2008). The priority skills recommended by the NELP are listed below (National Institute for Literacy, 2008, p. 3).

1. Alphabet knowledge: The ability to demonstrate knowledge of the names of letters and the sounds associated with printed letters.
2. Phonological awareness: The ability to recognize, manipulate, or analyze the auditory components of spoken language, including the ability to separate or classify words, syllables, or phonemes.
3. Rapid automatic naming (letters or digits): The ability to rapidly name a series of random letters or digits.
4. Rapid automatic naming (objects or colors): The ability to rapidly name a series of pictured objects.
5. Writing: The ability to write letters singularly upon request or to combine letters to write his/her name.
6. Phonological memory: The ability to recall spoken information for a brief period.

Children's learning and the development of early skills are particularly important during the years from birth to age five (National Institute for Literacy, 2009). According to research, preschool learning patterns are closely related to later achievement; children who develop more skills in preschool do better in primary grades (National Institute for

Literacy, 2009). In addition, there is evidence between success with early literacy skills and strong conventional literacy skills as children enter elementary school (National Institute for Literacy, 2009). The biggest predictors of later development of literacy skills, the priority skills described by the NELP, provide a strong foundation for later success (National Institute for Literacy, 2009).

Summary

The principles of early childhood education are rooted in a vast historical progression as societal and family needs evolved and research demonstrated the importance of learning opportunities beginning at birth. The significance of early childhood education on later life outcomes has been documented through countless studies and is now widely accepted as a priority. An early childhood program that is developed and based on high quality standards provides the greatest impact on children's success later in life, on the whole of society, and is worthy of the economic investment. Early literacy skills obtained from birth until entering elementary school create the foundation for reading and writing success in later years.

Chapter 3

Methods

The researcher utilized a quantitative research design to examine the latent impact of participation in a preschool program on the early literacy skill scores of eligible students upon entering kindergarten. Archived data from three cohorts were included in the analyses. A detailed description of the research method, including the research design, population and sampling procedures, instrumentation, and data collection process are included in Chapter 3. In addition, an explanation of the data analysis and hypothesis testing procedures and the limitations of the study are provided in Chapter 3.

Research Design

Creswell (2014) stated that the research design, which provides guidance for the procedures used within the study, is selected based in part on the type of research problem. The researcher selected a quasi-experimental design to study kindergarten students' early literacy skill scores as measured by the FastBridge earlyReading assessment. The purpose of experimental research is to "determine if a specific treatment influences an outcome" (Creswell, 2014, p. 13). The present study is not a true experiment, meaning that the students were selected because they were already categorized in the independent variables. The selected research design, quasi-experimental, allowed the researcher to have sufficient control over maintaining validity by comparing scores on the assessment among the subgroups defined by the independent variables (Lunenburg & Irby, 2008).

The independent variables were preschool attendance status (eligible students either did attend preschool or did not) and the cohort (Cohort 1, 2, 3), which were

designated to describe the students' school year for preschool and kindergarten education attendance (see Table 3). The dependent variable was defined as the early literacy skill scores measured by the FastBridge earlyReading assessment, which was administered in the fall testing period of the kindergarten year. The researcher utilized archived data to determine the extent of the difference of early literacy skill scores between students who were eligible for preschool and participated, and eligible students who did not participate. In addition, the researcher determined the extent of the difference in the early literacy skill scores among the three cohorts, which were composed of eligible students. Lastly, the researcher determined the extent the pattern of differences in the early literacy skill scores, between students who were eligible for and participated in a preschool program compared to eligible students who did not participate, was affected by cohort.

Selection of Participants

Purposive sampling was the approach used to select the study participants. With purposive sampling, the sample is chosen based on the researcher's prior knowledge or experience with the target group (Lunenburg & Irby, 2008). The participants selected for the study were eligible students in the selected preschool classrooms in District A. The classrooms were selected due to the district's use of Title I, Part A Federal Grant Funding to fund the classrooms. Using District A's Early Childhood Preschool Placement Rubric, students were determined as being eligible for preschool because the selected students were "most at risk of failing to meet the State's challenging academic standards based on multiple, educationally related, objective criteria" (U. S. Department of Education, Office of Elementary and Secondary Education, 2017, p. 9). The Early Childhood Preschool Placement Rubric is attached in Appendix A.

The Early Childhood Preschool Placement Rubric combines the results of the student's developmental screening, which includes a behavioral observation based on parent or guardian report, a social-emotional questionnaire completed by the parent or guardians, and the results of the at-risk questionnaire. Once the students have been determined eligible and offered a seat in the district's preschool program, the parent or guardian chose to accept the seat and enroll the student, or the parent or guardian declined the preschool opportunity. The eligible students who declined and did not participate in preschool were documented by District A and included in the study as eligible students who did not participate. The fall FastBridge earlyReading assessment scores for these students in kindergarten were recorded for analysis. The eligible students who participated in preschool were included in the study and their fall FastBridge earlyReading kindergarten assessment scores were recorded for analysis.

Measurement

This section of the chapter describes the measurement of each of this study's variables. The validity and reliability of the instrument, the FastBridge earlyReading assessment, is established. In addition, the subtests will be defined and the internal consistency of the subtests will be shared.

The first independent variable was defined as participation in a one-year preschool program within a public-school setting. Eligible students were categorized in one of two groups: participated in preschool or did not participate. The second independent variable was the cohort, which was designated to analyze the differences in early literacy skill scores based on preschool participation across the three years. The

three cohorts are described below and presented in Table 3. Throughout the study, the preschool year is designated with a P and the kindergarten year with a K.

Cohort 1. The students in Cohort 1 were eligible to attend a one-year preschool program in a public-school setting during the 2018-2019 school year and attended kindergarten during the 2019-2020 school year. Throughout the study, when discussing the preschool year or kindergarten year, the preschool year is designated with a P, and the kindergarten year with a K.

Cohort 2. The students in Cohort 2 were eligible to attend a one-year preschool program in a public-school setting during the 2019-2020 school year and attended kindergarten during the 2020-2021 school year. Throughout the study, when discussing the preschool year or kindergarten year, the preschool year is designated with a P, and the kindergarten year with a K.

Cohort 3. The students in Cohort 3 were eligible to attend a one-year preschool program in a public-school setting during the 2020-2021 school year and attended kindergarten during the 2021-2022 school year. Throughout the study, when discussing the preschool year or kindergarten year, the preschool year is designated with a P, and the kindergarten year with a K.

Table 3

Description of Cohorts 1, 2, 3.

Cohort	Preschool (P)	Kindergarten (K)
Cohort 1	2018-2019	2019-2020
Cohort 2	2019-2020	2020-2021
Cohort 3	2020-2021	2021-2022

The dependent variable was defined as the early literacy skill scores measured by the FastBridge earlyReading assessment given in the fall of the kindergarten year (Christ & Colleagues, 2018). Three years of data were collected to address the research questions. The FastBridge earlyReading assessment was the measurement used for Cohorts 1, 2, and 3.

The purpose of the FastBridge earlyReading assessment is to assess the "skills associated with kindergarten and first grade reading achievement" (Christ & Colleagues, 2018, p. 30). The earlyReading assessment is comprised of 13 subtests that are administered during the assigned testing periods (Christ & Colleagues, 2018). After each testing period, each subtest receives a raw score (Christ & Colleagues, 2018). A composite score is then produced to reflect the cumulative performance during the screening period (Christ & Colleagues, 2018). Christ & Colleagues (2018) stated that the composite score is "the best estimate of students' early literacy skills," but should be "interpreted in conjunction with specific subtests scores" (pp. 34-35). For the purpose of this study, the fall composite score was analyzed. Table 4 below outlines the subtests included in the composite score for each testing period.

Table 4

Recommended Subtests for the FastBridge earlyReading Composite Score

Grade	Fall Composite	Winter Composite	Spring Composite
Kindergarten	Concepts of print	Onset sounds	Letter sounds
	Onset sounds	Letter sounds	Word segmenting
	Letter names	Word segmenting	Nonsense words
	Letter sounds	Nonsense words	Sight words-50

Note. Adapted from *Formative Assessment System for Teachers-Technical Manual*, by T. J. Christ & Colleagues, 2018. http://support-content.fastbridge.org/FAST_Research/FAST_Technical_Manual_Version_FINAL.pdf

For the purpose of this study, the composite score, derived from the kindergarten year fall testing period was reported and included the results of the Concepts of Print, Onset Sounds, Letter Names, and Letter Sounds subtests. The raw score for each subtest is "the number of items correct and/or the number of items correct per minute" (Christ & Colleagues, 2018, p. 34). A description of the subtests included in the fall testing period for kindergarten is below.

Concepts of print. The term *concepts of print* refers to a general understanding of how print functions and how it can be used (Illuminate Education, 2021). This includes the directionality of print materials, turning pages, identifying words, sentences, and sentence parts as well as the beginning and end of sentences (Illuminate Education, 2021). The subtest measures students' knowledge of holding a book, understanding that written material contains a message, and recognition that text is read from left to right (Illuminate Education, 2021). In addition, skills such as understanding the sequence of letters and words, recognizing the differences between letters, words, and sentences, being able to turn pages in a book, and understanding punctuation are skills also included

in the subtest (Illuminate Education, 2021). There are 12 questions included in the subtest with a score range from 0 to 12 (Christ & Colleagues, 2018; Illuminate Education, 2021).

Onset sounds. Created as a phonemic awareness task, students are shown a series of images and asked to accurately identify the image that begins with a certain sound or to produce the initial sound for a specific image (Illuminate Education, 2021). There are 16 items included in the subtest with 16 total possible points (Illuminate Education, 2021).

Letter names. In the Letter Naming subtest, students are tested on their automaticity in naming upper and lowercase letters separately (Illuminate Education, 2021). During the administration of the subtest, students name the letters for one-minute and each upper and lowercase letter named correctly represents one point (Illuminate Education, 2021).

Letter sounds. In the Letter Sounds subtest, the students are tested on their proficiency and automaticity when speaking the sounds of the uppercase and lowercase letters separately. (Illuminate Education, 2021). During the administration of the subtest, the student provides the sound for one-minute and each letter sound produced correctly represents one point (Illuminate Education, 2021).

The composite score is made up of the scores on the subtests that are administered during a general testing period (Christ & Colleagues, 2018). The composite score for the earlyReading assessment is “a weighted combination of each subtest score” and requires a two-stage analysis (linear regression and confirmatory factor analysis) to provide the

most accurate score (Illuminate Education, 2021, p. 52). Shown in Table 5 below are the Fastbridge earlyReading composite score minimum values (Paige, n.d.).

Table 5

FastBridge earlyReading Composite Score Range (Minimum Values)

Grade	Fall Testing Period	Winter Testing Period	Spring Testing Period
Kindergarten	24	26	37
First grade	19	17	11

Note. Adapted from *Development of earlyReading and earlyMath Composite Score*, by P. Paige, n.d. https://fastbridge.illuminateed.com/hc/en-us/articles/1260802460310-Development-of-earlyReading-and-earlyMath-Composite-Score

The validity of an instrument is defined as "the degree to which an instrument measures what it purports to measure" (Lunenburg & Irby, 2008, p. 181). Lunenburg & Irby (2008) also stated that there are three main types of validity: content validity, criterion-related validity, and construct validity. Content validity was achieved for the FastBridge earlyReading subtests by alignment to the Common Core State Standards for Reading (Christ & Colleagues, 2018; National Governors Association Center for Best Practices & Council of Chief State School Officers, 2010). The Common Core State Standards are a set of college-and-career ready standards developed by state education chiefs and governors in 48 states (National Governors Association Center for Best Practices & Council of Chief State School Officers, 2010). Shown in Table 6 below are the alignment of FastBridge earlyReading subtests to the Common Core State Standards for reading.

Table 6

Alignment of CCSS and FastBridge earlyReading Subtests

Subtest	Common Core State Standards	Reading Skill
Concepts of print	RF.K1, RF.K.1.a, RF.K.1.b, RF.K.1.c, RF.1.1, RF.1.1.a	Concepts of print
Onset sounds	RF.K.2.c, RF.K.2.d, RF.1.2.c	Phonemic awareness
Letter names	RF.K.1.d	Alphabetic principle (phonics)
Letter sounds	RF.K.3.a	Alphabetic principle (phonics)

Note. Adapted from *Formative Assessment System for Teachers-Technical Manual*, by T. J. Christ & Colleagues, 2018. http://support-content.fastbridge.org/FAST_Research/FAST_Technical_Manual_Version_FINAL.pdf

Reliability is defined as "the degree to which an instrument consistently measures whatever it is measuring" (Lunenburg & Irby, 2008, p. 182). Lunenburg & Irby (2008) stated that there are five different types of reliability. One type of reliability is internal consistency reliability, which was one of the approaches used to judge the reliability of the FastBridge earlyReading assessment (Christ & Colleagues, 2018; Lunenburg & Irby, 2008). Cronbach's alpha reliability and split-half reliability were used and are evidence that the assessment provides reliable measurement (Christ & Colleagues, 2018). The internal consistency measures are shown in Table 7 below (Christ & Colleagues, 2018).

Table 7

Internal Consistency for FastBridge earlyReading Subtests

			Alpha	Split-Half
Subtest	Grade	N	Median	Median
Concepts of Print	K	336	.75	.76
Onset Sounds	K	597	.87	.91
Letter Names	K	444	.98	.99
Letter Sounds	K	683	.98	.98

Note. Adapted from *Formative Assessment System for Teachers-Technical Manual*, by T. J. Christ & Colleagues, 2018. http://support-content.fastbridge.org/FAST_Research/FAST_Technical_Manual_Version_FINAL.pdf

Data Collection Procedures

Prior to beginning research for this study, the researcher received verbal communication from District A that approval from the Baker University Instructional Review Board was required before District A would review the request for approval. On June 7, 2022, the researcher applied to the Baker University Institutional Review Board for permission to begin research (See Appendix B). Written support from the researcher's advisor was submitted to District A on June 9, 2022 (See Appendix C) along with the written request for research (See Appendix D). Upon receiving consent from the Baker University Institutional Review Board on June 13, 2022 (See Appendix E), the researcher submitted the Baker University Institutional Review Board approval to District A. One June 15, 2022, the researcher received written approval from District A to conduct research (See Appendix F). After receiving approval from both the Baker University Institutional Review Board and District A, the data collection process was initiated.

Upon request, the researcher received the archived data from District A's Department of Data and Accountability and from an administrator within the Department of Early Education. The data were provided to the researcher in several Excel files. District A removed all identifying information before providing the data to the researcher. The researcher received files containing FastBridge assessment scores of all kindergarten students for the 2019-2020, 2020-2021, and 2021-2022 school years. Files containing records for the students who participated in the preschool program for the 2018-2019, 2019-2020, and 2020-2021 school years were provided to the researcher. Lastly, files containing the eligible students who did not participate in preschool were shared with the researcher. After completing the steps below, the data was transferred from the Excel file to International Business Machines Statistical Package for the Social Sciences (IBM SPSS Version 22) to prepare for the analysis. The data will be maintained in a confidential file for three years after the study is completed and then destroyed.

The following steps were completed to prepare the data for analysis:

1. FastBridge Assessment Scores: The composite score for the fall FastBridge earlyReading assessment was included for research along with the student local ID number. All other data that was not included in the analysis was removed from the file.
2. Eligible for Preschool and Participated: The data file included the students' anticipated high school graduation year, which was converted to the school year of their attendance in preschool. The student local ID number was utilized as well. For example, students with a graduation year of 2032 attended preschool during the 2018-2019 school year and kindergarten during the 2019-2020 school year.

When all the student information required for the study was not available, the data for that student were excluded from the analyses.

3. Eligible for Preschool and did not Participate: Included in the data file were the student local ID number and a brief explanation for each declined preschool seat. A column was created by the researcher to indicate that the student was eligible for preschool but did not participate. The new column and the student local ID number was utilized from the data file. All other information was removed.
4. The files were merged to prepare for the analysis. The remaining data that were not used in the analysis were deleted.

Data Analysis and Hypothesis Testing

Three research questions guided the study, and one hypothesis was tested for each research question. A two-factor analysis of variance (ANOVA) test was conducted to address the hypotheses. The research questions, corresponding hypotheses, and data analysis explanations are below.

RQ1. To what extent is there a difference in the early literacy skill scores, as measured by the fall kindergarten FastBridge earlyReading assessment, between students who were eligible for and participated in a preschool program compared to eligible students who did not participate?

***H1*.** There is a difference in the early literacy skill scores, as measured by the fall kindergarten FastBridge earlyReading assessment, between students who were eligible for and participated in a preschool program compared to eligible students who did not participate.

A two-factor ANOVA was conducted to test H1 through H3. The two categorical variables used to group the dependent variable, early literacy skill scores, were participation in a one-year preschool (eligible students participated or did not participate) and cohort (Cohort 1, Cohort 2, Cohort 3). The results of the two-factor ANOVA can be used to test for differences in the means of a numerical variable among three or more groups, including a main effect for participation in a one-year preschool, a main effect for cohort, and a two-way interaction effect (Participation in a One-year Preschool x Cohort). The main effect for participation in a one-year preschool was used to test H1. The level of significance was set at .05. When appropriate, an effect size is reported.

RQ2. To what extent is there a difference in the early literacy skill scores, as measured by the fall kindergarten FastBridge earlyReading assessment, among the three cohorts, which were composed of preschool eligible students?

***H2*.** There is a difference in the early literacy skill scores, as measured by the fall kindergarten FastBridge earlyReading assessment, among the three cohorts, which were composed of preschool eligible students.

In the two-factor ANOVA conducted to test H1 through H3, the two categorical variables used to group the dependent variable, early literacy skill scores, were participation in a one-year preschool (eligible students participated or did not participate) and cohort (Cohort 1, Cohort 2, or Cohort 3). The results of the two-factor ANOVA can be used to test for differences in the means of a numerical variable among three or more groups, including a main effect for participation in a one-year preschool, a main effect for cohort, and a two-way interaction effect (Participation in a One-year Preschool x Cohort).

The main effect for cohort was used to test H2. The level of significance was set at .05. When appropriate, an effect size is reported.

RQ3. To what extent is the pattern of differences in the early literacy skill scores, as measured by the fall kindergarten FastBridge earlyReading assessment, between students who were eligible for and participated in a preschool program compared to eligible students who did not participate, affected by cohort (Cohort 1, Cohort 2, Cohort 3)?

H3. The pattern of differences in the early literacy skill scores, as measured by the fall kindergarten FastBridge earlyReading assessment, between students who were eligible for and participated in a preschool program compared to eligible students who did not participate, is affected by cohort (Cohort 1, Cohort 2, Cohort 3).

In the two-factor ANOVA conducted to test H1 through H3, the two categorical variables used to group the dependent variable, early literacy skill scores, were participation in a one-year preschool (eligible students participated or did not participate) and cohort (Cohort 1, Cohort 2, or Cohort 3). The results of the two-factor ANOVA can be used to test for differences in the means of a numerical variable among three or more groups, including a main effect for designation in a one-year preschool, a main effect for cohort, and a two-way interaction effect (Participation in a One-Year Preschool x Cohort). The two-way interaction effect (Participation in a One-Year Preschool x Cohort) from the ANOVA above was used to test H3. The significance level was set at .05. When appropriate, an effect size is reported.

Limitations

The limitations of a study are beyond the researcher's control and the interpretation of the findings may be impacted by its limitations (Lunenburg & Irby, 2008). In order to avoid misinterpretation of the findings, four limitations are included below (Lunenburg & Irby, 2008).

1. The data were derived from multiple sources within District A including the formal software for student records, the district student assessment database, and record keeping within the early education department. To avoid misinterpretation, this limitation was included to explain the various data sources utilized to create the complete data file.
2. The student rate of preschool attendance and reason for declining the preschool seat could not be verified, so that information could not be used in the data analysis.
3. Students' prior preschool experience or opportunity for participation in a structured daycare setting is unknown.
4. The impact of the COVID-19 pandemic on the students' life experiences is unknown.

Summary

The purpose of the study was to investigate the latent effect of a one-year preschool in a public-school setting on the early literacy skill scores obtained during the kindergarten year. A purposive sampling process was utilized to select the participants of the study. The research design and data collection process were explained within the current chapter. The FastBridge earlyReading instrument was explained and the

reliability and validity of the assessment were described. The data analysis procedures and the study limitations were also discussed. The results of the data analysis are shared in Chapter 4.

Chapter 4

Results

The purpose of this study was to examine the latent impact of participation in a one-year preschool program in a public-school setting on the early literacy skill scores of preschool eligible students upon entering kindergarten. The researcher utilized three years of archived data to compare early literacy skill mean scores between students who were eligible for and participated in preschool and those who were eligible and did not participate. In addition, another priority of the study was to determine the extent of the differences in the overall mean scores among the three cohorts, which were composed of preschool eligible students. Lastly, the researcher determined the extent that the pattern of differences in the mean scores between students who were eligible for and participated in a preschool program and those who did not, was affected by the cohort (Cohort 1, Cohort 2, Cohort 3). This chapter contains the research questions and hypotheses, the statistical analysis for each hypothesis, the results of each analysis, and a summary.

Hypothesis Testing

Three research questions guided the study, and one hypothesis was present for each research question. A two-factor ANOVA was conducted to address the hypotheses. The research questions, corresponding hypotheses, statistical test, and the results are shown below.

RQ1. To what extent is there a difference in the early literacy skill scores, as measured by the fall kindergarten FastBridge earlyReading assessment, between students who were eligible for and participated in a preschool program compared to eligible students who did not participate?

H1. There is a difference in the early literacy skill scores, as measured by the fall kindergarten FastBridge earlyReading assessment, between students who were eligible for and participated in a preschool program compared to eligible students who did not participate.

A two-factor ANOVA was conducted to test H1 through H3. The two categorical variables used to group the dependent variable, early literacy skill scores, were participation in a one-year preschool (eligible students participated or did not participate) and cohort (Cohort 1, Cohort 2, Cohort 3). The results of the two-factor ANOVA can be used to test for differences in the means of a numerical variable among three or more groups, including a main effect for participation in a one-year preschool, a main effect for cohort, and a two-way interaction effect (Participation in a One-year Preschool x Cohort). The main effect for participation in a one-year preschool was used to test H1. The level of significance was set at .05. When appropriate, an effect size is reported.

The results of the analysis indicated a statistically significant difference between the two means, $F(1, 1183) = 5.362$, $p = .021$, $\eta^2 = .005$. See Table 8 for the means and standard deviations for this analysis. The mean for students who were eligible and participated in preschool ($M = 33.98$) was higher than the mean for students who were eligible and did not participate in preschool ($M = 32.86$). H1 was supported. The effect size index, eta squared, indicated a small effect.

Table 8

Descriptive Statistics for the Results of the Test for H1.

Eligible Preschool Students	*M*	*SD*	*N*
Participated	33.98	4.84	1,090
Did Not Participate	32.86	4.38	99

RQ2. To what extent is there a difference in the early literacy skill scores, as measured by the fall kindergarten FastBridge earlyReading assessment, among the three cohorts, which were composed of preschool eligible students?

***H2*.** There is a difference in the early literacy skill scores, as measured by the fall kindergarten FastBridge earlyReading assessment, among the three cohorts, which were composed of preschool eligible students.

In the two-factor ANOVA conducted to test H1 through H3, the two categorical variables used to group the dependent variable, early literacy skill scores, were participation in a one-year preschool (eligible students participated or did not participate) and cohort (Cohort 1, Cohort 2, or Cohort 3). The results of the two-factor ANOVA can be used to test for differences in the means of a numerical variable among three or more groups, including a main effect for participation in a one-year preschool, a main effect for cohort, and a two-way interaction effect (Participation in a One-year Preschool x Cohort). The main effect for designation in a cohort was used to test H2. The level of significance was set at .05. When appropriate, an effect size is reported.

The results of the analysis indicated a statistically significant difference between at least two of the means, $F(2, 1183) = 3.529$, $p = .030$, $\eta^2 = .006$. See Table 9 for the means and standard deviations for this analysis. A follow-up post hoc was conducted to determine which pairs of means were different. The Tukey's Honestly Significant Difference (HSD) post hoc was conducted at $\alpha = .05$. Two of the differences were significant. The mean for students in Cohort 1 ($M = 34.60$) was higher than the mean for students in Cohort 2 ($M = 32.90$). The mean for students in Cohort 3 ($M = 33.90$) was

higher than the mean for students in Cohort 2 ($M = 32.90$). H2 was supported. The effect size index, eta squared, indicated a small effect.

Table 9

Descriptive Statistics for the Results of the Test for H2.

Cohort	*M*	*SD*	*N*
Cohort 1 - K 2019-2020	34.60	4.54	464
Cohort 2 - K 2020-2021	32.90	4.71	338
Cohort 3 - K 2021-2022	33.90	5.06	387

RQ3. To what extent is the pattern of differences in the early literacy skill scores, as measured by the fall kindergarten FastBridge earlyReading assessment, between students who were eligible for and participated in a preschool program compared to eligible students who did not participate, affected by cohort (Cohort 1, Cohort 2, Cohort 3)?

H3. The pattern of differences in the early literacy skill scores, as measured by the fall kindergarten FastBridge earlyReading assessment, between students who were eligible for and participated in a preschool program compared to eligible students who did not participate, is affected by cohort (Cohort 1, Cohort 2, Cohort 3).

In the two-factor ANOVA conducted to test H1 through H3, the two categorical variables used to group the dependent variable, early literacy skill scores, were participation in a one-year preschool (eligible students participated or did not participate) and cohort (Cohort 1, Cohort 2, or Cohort 3). The results of the two-factor ANOVA can be used to test for differences in the means of a numerical variable among three or more groups, including a main effect for participation in a one-year preschool, a main effect for

cohort, and a two-way interaction effect (Participation in a One-Year Preschool x Cohort). The two-way interaction effect (Participation in a One-Year Preschool x Cohort) from the ANOVA above was used to test H3. The significance level was set at .05. When appropriate, an effect size is reported.

The results of the analysis indicated there was not a statistically significant difference between at least two of the means, $F(2, 1183) = 0.097$, $p = .908$. See Table 10 for the means and standard deviations for this analysis. H3 was not supported. The pattern of differences between the students was not affected by cohort. Throughout the three cohorts, the eligible students who participated in preschool on average produced higher assessment scores than the eligible students who did not participate in preschool.

Table 10

Descriptive Statistics for the Results of the Test for H

Eligible Preschool Students	Cohort	*M*	*SD*	*N*
Participated	Cohort 1 - K 2019-2020	34.67	4.54	432
	Cohort 2 - K 2020-2021	32.97	4.76	323
	Cohort 3 - K 2021-2022	34.07	5.12	335
Did not Participate	Cohort 1 - K 2019-2020	33.69	4.55	32
	Cohort 2 - K 2020-2021	31.33	3.33	15
	Cohort 3 - K 2021-2022	32.79	4.48	52

Summary

The results of the hypothesis testing and analysis of data were included in this chapter. The first hypothesis was supported, as the results of the analysis indicated a statistically significant difference between the scores of eligible students who participated in preschool compared to eligible students who did not participate. The second

hypothesis was supported. The results from the analysis of the second hypothesis showed a statistically significant difference between the scores of all students in Cohort 1 and Cohort 3, when compared to Cohort 2. The third hypothesis was not supported through the analysis and did not result in a statistically significant pattern of differences among the cohorts when considering the mean scores of eligible students who participated in preschool compared to eligible students who did not participate. Included in Chapter 5 is a summary of the study, findings related to the literature, and the conclusion.

Chapter 5

Interpretation and Recommendations

The focus of this study was to determine if there is a connection between preschool and early literacy skill scores. The researcher examined the latent impact of participation in a one-year preschool program in a public-school setting on the early literacy skill scores of preschool eligible students upon entering kindergarten. This chapter presents a summation of the study. The three main sections of this chapter include the study summary, findings related to the literature, and conclusions.

Study Summary

This section of the chapter contains an overview of the problem, purpose statement and research questions. In addition, a review of the methodology and major findings are also presented in this section. The findings related to the literature and conclusions are presented following the study summary.

Overview of the problem. There is a wealth of research on early childhood education and the significance of the years between birth and the compulsory age to begin school (Morgan, 2019). Early childhood education has many advantages, including better academic preparation for later grades, a greater likelihood of graduating from high school, a lower chance of being identified as having special needs, a lower chance of having to repeat a grade in school, and a higher chance of making more money in the workforce (National Education Association, 2021). Since learning gaps are greatest when young children enter kindergarten, school districts can focus on early childhood education to help mitigate the differences (Learning Policy Institute, 2021a). However, despite the studies supporting the favorable results for young children, the early

childhood education landscape is surrounded by difficulties such as lack of financing and programming structures that continue to limit options for young children, especially those from low-income families (Barnett & Frede, 2010). The Learning Policy Institute (2021a) stated that of all educational spending, early childhood education programs offer one of the highest returns on investment. Still, early childhood education is not federally mandated or funded and early childhood education competes with other goals in a public-school system, making it difficult for school districts to determine if early childhood education is a priority (Morgan, 2019).

District A allocated Title I, Part A Federal Grant Funding to educate eligible early childhood pre-kindergarten students and committed to exploring preschool accessibility to families in the community (District A, 2017). However, a formal evaluation of the effects of the current preschool program in District A had not been conducted. It is important for school districts, policymakers, and community agencies to know the extent of the effect of preschool education on students' early literacy skills as considerations are made to enhance preschool education opportunities and locate funding to support preschool programs.

Purpose statement and research questions. The purpose of this quasi-experimental quantitative study was to examine the latent impact of participation in a one-year preschool program in a public-school setting on the early literacy skill scores of preschool eligible students during the fall testing period upon entering kindergarten. First, the researcher utilized three years of archived data to compare early literacy skill mean scores between students who were eligible for and participated in preschool and those who were eligible and did not participate. Next, a purpose was to determine the

extent of the differences in the overall mean scores among the three cohorts, which were composed of preschool eligible students. Finally, a purpose was to determine the extent that the pattern of differences in the mean scores between students who were eligible for and participated in a preschool program and those who did not, was affected by the cohort (Cohort 1, Cohort 2, Cohort 3). To address the researcher's purposes of the study, three research questions were identified and three hypotheses were tested.

Review of the methodology. The researcher selected a quasi-experimental design to study kindergarten students' early literacy skill scores as measured by the FastBridge earlyReading assessment. Purposive sampling was the approach used to select the study participants. The participants selected for the study were eligible students in the selected preschool classrooms in District A. The classrooms were selected due to the school district's use of Title I, Part A Federal Grant Funding to fund the classrooms. The independent variables were preschool attendance status (eligible students participated or did not participate) and the cohort (Cohort 1, 2, 3), which were designated to describe the students' school year for preschool and kindergarten attendance. The dependent variable was defined as the early literacy skill scores measured by the FastBridge earlyReading assessment, which was administered in the fall testing period of the kindergarten year (Christ & Colleagues, 2018). Three years of archived data were collected to address the research questions and test the hypotheses. A two-factor ANOVA was conducted to test the hypotheses. A follow-up post hoc was conducted to determine which pairs of means were different when analyzing H2 and H3.

Major findings. This section shares the major findings related to each of the three hypotheses. First, the researcher sought to determine the impact of preschool education

on the early literacy skill scores of eligible students. The results of the analysis indicated a statistically significant difference between the scores of eligible students who participated in preschool versus eligible students who did not participate. The students who participated in the one-year preschool education in a public-school setting produced higher scores on the fall kindergarten FastBridge earlyReading assessment during the fall testing period.

Next, the researcher was interested in the differences in the early literacy skill scores on the fall kindergarten FastBridge earlyReading assessment of all students in Cohorts 1, 2, and 3. The results from the analysis revealed a statistically significant difference between the students' assessment scores in Cohorts 1 and 3 compared to Cohort 2. The mean assessment score for all students was higher in Cohorts 1 and 3 than in Cohort 2.

Finally, the researcher investigated the extent the pattern of differences in the early literacy skill scores of eligible students who participated in preschool and those who did not was affected by the cohort. The results of the analysis demonstrated that eligible students who participated in preschool on average produced a higher score than students who were eligible but did not participate. Regardless of the cohort, the students with preschool education performed better on the fall kindergarten FastBridge earlyReading assessment, which supported the pattern established in the results of the testing of the first hypothesis.

Findings Related to the Literature

This section establishes links between the present study and previous research. The results of the present study support much of the research presented in Chapter 2 and

contribute to the body of research for District A, other school districts with similar demographics, and entities working in the field of early childhood education. The results of the analyses support the research of the prominent early studies regarding early childhood education including the Perry Preschool Study, Project Head Start, The Carolina Abecedarian Project, and the Chicago Longitudinal Study.

The Perry Preschool Study results showed that students who attended preschool consistently outperformed those who did not attend preschool in cognitive and social growth and academic achievement. (Schweinhart, 2022). The program group (students who attended preschool) of the Perry Preschool Study outperformed the no-program group (students who did not attend preschool) on intellectual and language tests from preschool up to age 7 and school achievement tests at the ages of 9, 10, and 14 (Schweinhart, 2022). Project Head Start produced similar results, which showed that positive impacts were noted in pre-academic skills, letter naming, vocabulary, and in other readiness skills in the groups of kindergarteners who had attended preschool (U.S. Department of Health and Human Services, Administration for Children and Families, 2010). The Carolina Abecedarian Project illustrated that students who attended preschool had higher IQ scores through age 15, had less grade level retention, and higher test scores in math and reading during the elementary and secondary school years (Frank Porter Graham Child Development Institute of the University of North Carolina at Chapel Hill, n.d.). Additionally, the Chicago Longitudinal Study researchers found that children who attended preschool had higher test scores through at least middle school, a lower rate of special education identification, reduced rates of grade retention, increased rates of high school graduation, and fewer arrests and instances of crime (as cited in Barnett, 2008).

The results of the present study support the findings in the preceding early studies about early childhood education, which found positive effects related to academic achievement, letter naming and vocabulary, and test scores. Although the focus of this study was early literacy skill scores, as evidenced through previous studies, there are positive effects on other areas of academics, high-school graduation, post high-school education, and social outcomes such as crime and economics (as cited in Barnett, 2008; Frank Porter Graham Child Development Institute of the University of North Carolina at Chapel Hill, n.d.; Schweinhart, 2022; U.S. Department of Health and Human Services, Administration for Children and Families, 2010). This review of the findings related to the literature demonstrates the alignment of the present study results to previous research findings and supports the premise that early childhood education yields positive benefits to students.

Conclusions

This section provides a summative reflection for the study and includes implications for action, recommendations for future research, and concluding remarks from the researcher. Within the implications for action section, a summary of the relevant application of the findings is provided. The recommendations for future research include suggestions that could improve the current research and provides ideas for studies that could further impact the body of research. The concluding remarks is a cumulative perspective about the study.

Implications for action. The findings of this study support previous research and demonstrate the positive effects of preschool on eligible students' early literacy skill scores upon entering kindergarten. This study can be utilized by District A to guide future development of early childhood education programs, may be considered by other

school districts or organizations with an interest in early childhood education, and could be utilized to recommend policy and funding changes to assist preschool initiatives. Based on the results of this study, the following recommendations are presented.

1. It is recommended that District A expand the early childhood education program to ensure that all students within the district's boundaries have equitable access to the program. Identifying and decreasing student and family barriers to participation in preschool should be prioritized and considered throughout the development of the program. For example, one of the barriers discussed in research is the lack of affordable preschool options (Klinkhammer & Berth, 2019; Shonkoff et al., 2000). Middle income families may not qualify for programs targeted toward at-risk populations, but tuition programs may not be financially feasible (Klinkhammer & Berth, 2019). The results of this study demonstrate the positive effects of preschool on eligible students' early literacy skill scores, which helps to minimize the learning gaps that are most evident as students begin kindergarten (Learning Policy Institute, 2021a).
2. Another recommendation is the development of a systematic process to gather information from families with students who are eligible, but do not participate in preschool. Their reason for declining the seat in the preschool program can provide significant insight for the district. The preservation of this feedback is critical to understanding family barriers to accessing the preschool program, provides a global perspective of families' needs within the community, and offers areas of improvement within the district's early childhood education program.

3. Employing a protocol for conducting an ongoing assessment of the preschool program is recommended to ensure that high-quality standards are included in the school district's program design, are implemented with fidelity, and are representative of current research. Students who participate in a high-quality preschool demonstrate better readiness skills when entering school and high-quality indicators maximize the positive effects for students, and therefore, the return on the school district and community investment (Meloy et al., 2019).

Recommendations for future research. The current study allowed the researcher to investigate the effect of preschool education on the early literacy skill scores of eligible students upon entering kindergarten. The analyses' results revealed a positive effect on the early literacy skill scores of students who were eligible for and participated in preschool. Recommendations for the continued research on this topic are included within this section.

The researcher recommends replicating this study to investigate subgroups of the student sample. Including students' race, gender, and disability status in the investigation may yield a different perspective on the effect of participation in preschool on students' early literacy skill scores. Although the researcher did not include students' race, gender, and disability status in the present study, research that considers these descriptors may provide valuable information for district leaders and classroom staff.

Additionally, the researcher suggests that District A continue this study as the school district's early childhood education program evolves to monitor the effects of preschool on students' early literacy skill scores. The proposed study could include the longer-term effects of preschool on early literacy skill scores by following the cohorts

beyond the kindergarten year. The results of this study showed that preschool had a statistically significant effect on eligible students' early literacy skill scores upon entering kindergarten, but the effects of preschool beyond the kindergarten year were not included in the present study.

Finally, the researcher recommends replicating this study with a focus on how eligible students' attendance records affect early literacy skill scores. The researcher was not able to consider students' attendance records as a component of this study, but it would be beneficial to investigate the correlation between the students' attendance record and early literacy skill scores. The results of the study may provide guidance to support the development of student attendance procedures at the preschool level.

Concluding remarks. A significant portion of young children in the United States do not attend preschool, even though a large body of research has demonstrated the benefits of preschool education for young learners (Morgan, 2019). The positive implications for students who participate in preschool has been reflected in this study and a number of previous studies. Early childhood education has become widely accepted as necessary schooling, but many challenges remain to make preschool education accessible for all young students. The findings in this study provide relevant information about the positive effects of early childhood education on early literacy skill scores and should be considered by District A, other public-school districts with similar demographics, and organizations that support early childhood education programs.

References

Barnett, W. S. (2008). *Preschool education and its lasting effects: Research and policy implications*. Retrieved July 17, 2023, from https://nepc.colorado.edu/sites/default/files/PB-Barnett-EARLY-ED_FINAL.pdf

Barnett, W. S., & Frede, E. (2010). The promise of preschool: Why we need early education for all. *American Educator, 34*(1), 21–29. Retrieved from https://files.eric.ed.gov/fulltext/EJ889144.pdf

Barnett, W. S., & Hustedt, J. T. (2003). Preschool: The Most Important Grade. *Educational Leadership, 60*(7), 54–57. Retrieved from https://eric.ed.gov/?id=EJ666030

Bogard, K., & Takanishi, R. (2005). PK-3: An aligned and coordinated approach to education for children 3 to 8 years old. *Social Policy Report: Giving Child and Youth Development Knowledge Away, 19*(3). Retrieved from https://www.fcd-us.org/assets/2016/04/PK-3AnAlignedandCoordinatedApproach.pdf

Campbell, F. A., & Ramey, C. T. (1994). Effects of early intervention on intellectual and academic achievement: A follow-up study of children from low-income families. *Child Development*, *65*(2), 684–698. https://doi.org/10.1111/j.1467-8624.1994.tb00777.x

Camilli, G., Vargas, S., Ryan, S., & Barnett, W. S. (2010). Meta-analysis of the effects of early education interventions on cognitive and social development. *Teachers College Record, 112*(3), 579–620. https://doi.org/10.1177/016146811011200303

Centers for Disease Control and Prevention. (n.d.-a). *Child development basics*. Retrieved July 2, 2023, from https://www.cdc.gov/ncbddd/childdevelopment/facts.html

Centers for Disease Control and Prevention. (n.d.-b). *Early brain development and health*. Retrieved July 2, 2023, from https://www.cdc.gov/ncbddd/childdevelopment/early-brain-development.html

Christ, T. J., & Colleagues. (2018). *Formative assessment system for teachers-technical manual*. Retrieved from http://support-content.fastbridge.org/FAST_Research/FAST_Technical_Manual_Version_FINAL.pdf

Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches*. Thousand Oaks, CA: Sage Publications.

Encyclopedia of Children's Health. (n.d.). *Early childhood education: Definition and description*. Retrieved June 27, 2023, from http://www.healthofchildren.com/E-F/Early-Childhood-Education.html

Essa, E. L., & Burnham, M. M. (2019). *Introduction to early childhood education*. Thousand Oaks, CA: Sage Publications.

Frank Porter Graham Child Development Institute of the University of North Carolina at Chapel Hill. (n.d.). *Follow-Up studies*. Retrieved July 13, 2023, from https://abc.fpg.unc.edu/follow-up-studies/#:~:text=Through%20age%2015%2C%20I.Q.,elementary%20and%20secondary%20school%20years

Fischer, A., Jamieson, C., Silva-Padron, G., Peisach, L., & Weyer, M. (2023). *50-State comparison: State k-3 policies*. Retrieved July 4, 2023, from https://www.ecs.org/50-state-comparison-state-k-3-policies-2023/#:~:text=Key%20Takeaways,at%20least%20half%2Dday%20kindergarten

Friedman-Krauss, A. H., Barnett, W. S., Hodges, K. S., Garver, K. A., Weisenfeld, G. G., Gardiner, B. A., & Jost, T. M. (2023). *The state of preschool 2022: State preschool yearbook*. New Brunswick, NJ: National Institute for Early Education Research.

Gebhard, B. (2022). *Strengthening connections: State approaches to connecting families to services*. Retrieved from https://www.zerotothree.org/resource/strengthening-connections-state-approaches-to-connecting-families-to-services/

Gewertz, C. (2020, February 20). States to schools: Teach reading the right way. *Education Week*. Retrieved from https://www.edweek.org/teaching-learning/states-to-schools-teach-reading-the-right-way/2020/02#:~:text=Worried%20that%20far%20too%20many,that's%20solidly%20grounded%20in%20research

HighScope. (n.d.-a). *Perry Preschool Study*. Retrieved June 7, 2023, from https://highscope.org/perry-preschool-project/

HighScope. (n.d.-b). *Our history-HighScope*. Retrieved June 20, 2023, from https://highscope.org/who-we-are/our-history/

Illuminate Education. (2021). *FastBridge assessments: Content description and use guidelines*. Retrieved from

https://www.illuminateed.com/products/fastbridge/reading-assessment/early-reading/

Illuminate Education. (2022). *FastBridge earlyReading*. Retrieved June 3, 2022, from https://www.illuminateed.com/products/fastbridge/reading-assessment/early-reading/

Klinkhammer, N., & Berth, F. (2019). The education promise and its disillusion: Access barriers in early childhood institutions. *On Education: Journal for Research and Debate*, *2*(6). https://doi.org/10.17899/on_ed

Lascarides, V. C., & Hinitz, B. F. (2013). History of early childhood education. https://doi.org/10.4324/9780203814215

Learning Policy Institute. (2021a). *Expanding early childhood education: How states and districts can use federal recovery funds strategically*. Retrieved from https://learningpolicyinstitute.org/product/federal-funds-ece-factsheet

Learning Policy Institute. (2021b). *Building a national early childhood education system that works*. Retrieved from https://learningpolicyinstitute.org/product/early-childhood-education-system-2021-brief

Lonigan, C. J. (2006). Development, assessment, and promotion of preliteracy skills. *Early Education and Development*, *17*(1), 91–114. https://doi.org/10.1207/s15566935eed1701_5

Lipsey, M. W., Farran, D. C., & Durkin, K. (2018). Effects of the Tennessee Prekindergarten Program on children's achievement and behavior through third grade. *Early Childhood Research Quarterly*, *45*, 155–176. https://doi.org/10.1016/j.ecresq.2018.03.005

Lunenburg, F. C., & Irby, B. J. (2008). *Writing a successful thesis or dissertation*. Thousand Oaks, CA: Corwin Press.

Meloy, B., Gardner, M., & Darling-Hammond, L. (2019). Untangling the evidence on preschool effectiveness: Insights for policymakers. Palo Alto, CA: Learning Policy Institute. Retrieved from https://learningpolicyinstitute.org/product/untangling-evidence-preschool-effectiveness-report

Miller, C. C. (2021, October 6). How other nations pay for child care. The U.S. is an outlier. *The New York Times.* Retrieved from https://www.nytimes.com

Missouri Department of Elementary and Secondary Education. (n.d.). *District/charter report card*. Retrieved June 4, 2023, from https://apps.dese.mo.gov/MCDS/Visualizations.aspx?id=29

Missouri Department of Elementary and Secondary Education. (2022). *PK eligibility for state aid.* Retrieved June 7, 2023, from https://dese.mo.gov/media/pdf/pk-eligibility-state-aid

Moore, K. A. (2006). *Child trends research to results brief - Defining the term "At Risk"* (Publication #2006-12). Retrieved from https://www.childtrends.org/wp-content/uploads/2006/01/DefiningAtRisk1.pdf

Morgan, H. (2019). Does high-quality preschool benefit children? What the research shows. *Education Sciences, 9(*1), 19. https://doi.org/10.3390/educsci9010019

National Academies of Sciences, Engineering, and Medicine. 2023. *Closing the Opportunity Gap for Young Children*. Washington, DC: The National Academies Press. https://doi.org/10.17226/26743

National Association for the Education of Young Children. (n.d.). *Strategic direction: Guiding our work through 2026*. Retrieved from https://www.naeyc.org/about-us/people/mission-and-strategic-direction

National Association for the Education of Young Children. (2019). *Early learning program accreditation standards and assessment items*. Retrieved from https://www.naeyc.org/sites/default/files/globally-shared/downloads/PDFs/accreditation/early-learning/standards_assessment_2019.pdf

National Association for the Education of Young Children. (2020). *Developmentally appropriate practice: Position statement.* Retrieved from https://www.naeyc.org/sites/default/files/globally-shared/downloads/PDFs/resources/position-statements/dap-statement_0.pdf

National Education Association. (2021). Early childhood education. Retrieved June 7, 2023, from https://www.nea.org/advocating-for-change/action-center/our-issues/early-childhood-education

National Governors Association Center for Best Practices, & Council of Chief State School Officers. (2010). *Common core state standards: Reading*. Washington, DC: Author.

National Institute for Literacy. (2008). *Developing early literacy: Report of the national early literacy panel*. Retrieved from https://lincs.ed.gov/publications/pdf/NELPReport09.pdf

National Institute for Literacy. (2009). *Early beginnings: Early literacy knowledge and instruction: A guide for early childhood administrators and professional*

development providers. Retrieved from https://lincs.ed.gov/publications/pdf/NELPEarlyBeginnings09.pdf

National Reading Panel. (2000). *Teaching children to read: An evidence-based assessment of the scientific research literature on reading and its implications for reading instruction*. Retrieved from https://www.nichd.nih.gov/sites/default/files/publications/pubs/nrp/Documents/report.pdf

Redacted. (n.d.-a). *Redacted*. Retrieved May 31, 2023, from Redacted

Redacted. (n.d.-b). *Redacted*. Retrieved May 31, 2023, from Redacted

Paige, P. (n.d.). *Development of earlyReading and earlyMath composite score*. Retrieved June 11, 2023, from https://fastbridge.illuminateed.com/hc/en-us/articles/1260802460310-Development-of-earlyReading-and-earlyMath-Composite-Score

Phillips, D. A., Lipsey, M. W., Dodge, K. A., Haskins, R., Bassok, D., Burchinal, M. R., . . . Weiland, C. (2017). *The current state of scientific knowledge on Pre-Kindergarten effects*. Retrieved from https://www.brookings.edu/wp-content/uploads/2017/04/duke_prekstudy_final_4-4-17_hires.pdf

Raikes, A., Rao, N., Yoshikawa, H., Cohrssen, C., Behrman, J., Cappa, C., . . . Richter, L. (2023). Global tracking of access and quality in early childhood care and education. *International Journal of Child Care and Education Policy*, *17(*1). https://doi.org/10.1186/s40723-023-00116-5

Ramey, C. T., & Ramey, S. L. (1998). Early intervention and early experience. *American Psychologist*, *53*(2), 109–120. https://doi.org/10.1037/0003-066x.53.2.109

Reynolds, A. J. (1999). The Chicago longitudinal study: A study of children in the Chicago public-schools. Retrieved from https://innovation.umn.edu/cls/study-overview/

Reynolds, A. J., Temple, J. A., Ou, S. R., Arteaga, I., & White, B. (2011). School-based early childhood education and age-28 well-being: Effects by timing, dosage, and subgroups. *Science*, *333*(6040), 360–364. https://doi.org/10.1126/science.1203618

Robertson, J. (2014a). Early childhood education spotlight is on KC. *The Kansas City Star*. Retrieved June 5, 2023, from https://www.kansascity.com/news/local/article1288730.html

Robertson, J. (2014b). KC's early learning campaign enlists agencies, others to action. *The Kansas City Star*. Retrieved June 5, 2023, from https://www.kansascity.com/news/politics-government/article1294922.html

Schweinhart, L. J. (2022, September 9). *The High/Scope Perry Preschool Study through age 40*. Retrieved June 7, 2023, from https://image.highscope.org/wp-content/uploads/2018/11/16053615/perry-preschool-summary-40.pdf

Shonkoff, J. P., Meisels, S. J., & Zigler, E. (2000). *Handbook of early childhood intervention*. https://doi.org/10.1017/cbo9780511529320

Sparling, J., & Meunier, K. (2019). Abecedarian: An early childhood education approach that has a rich history and a vibrant present. *International Journal of Early Childhood, 51*(2), 207–216. https://doi.org/10.1007/s13158-019-00247-2

Swadener, B. B. (1995). Stratification in early childhood social policy and programs in the United States: Historical and contemporary manifestations. *Educational Policy*, *9(*4), 404–425. https://doi.org/10.1177/0895904895009004004

Thornton, D., Stockhausen, M., Murphy, D., Fraga, L., Washington, V., Kemp, P., . . . Melmed, M. (2020). *Unifying framework for the early childhood education professional.* Retrieved from https://powertotheprofession.org/wp-content/uploads/2020/03/Power-to-Profession-Framework-03312020-web.pdf

University of Massachusetts Global. (n.d.). *What is early childhood education and why is it so important? Understanding its impact*. Retrieved June 1, 2022, from https://www.umassglobal.edu/news-and-events/blog/what-is-purpose-of-early-childhood-education

U.S. Department of Education. (n.d.-a). *A history of the Individuals with Disabilities Education Act.* Retrieved July 8, 2023, from https://sites.ed.gov/idea/IDEA-History#Sources

U.S. Department of Education. (n.d.-b). *Early learning: Early learning programs.* Retrieved July 9, 2023, from https://www2.ed.gov/about/inits/ed/earlylearning/about.html#programs

U.S. Department of Education, Office of Elementary and Secondary Education. (2017, January). *Non-regulatory guidance. Early learning in the Every Student Succeeds Act-Expanding opportunities to support our youngest learners.* Retrieved from https://www2.ed.gov/policy/elsec/leg/essa/essaelguidance11717.pdf

U.S. Department of Health and Human Services, Administration for Children and Families. (2010). *Head start impact study.* (Final report*)*. Retrieved from https://www.acf.hhs.gov/opre/report/head-start-impact-study-final-report

Ventures, A. (2021). *Evidence summary for the Perry Preschool Project: Social programs that work.* Retrieved from

https://evidencebasedprograms.org/document/perry-preschool-project-evidence-summary/

Wechsler, M., Melnick, H., Maier, A., & Bishop, J. (2016). *The building blocks of high-quality early childhood education programs.* Retrieved from https://learningpolicyinstitute.org/product/building-blocks-high-quality-early-childhood-education-programs

Appendices

Appendix A: Early Childhood Preschool Placement Rubric

[redacted]

Early Childhood Preschool Placement Rubric

Name: _____ DOB: _____ Home School: _____

Gender: ☐ Male ☐ Female Ethnicity: _____ Race: _____

Parent Name(s): _____ Child's Primary Language: _____

Date Preschool Screening Completed: _____ Rubric Completed By: _____

Date Results Shared: _____ Results Shared By: _____

Vision Screening: ☐ Pass ☐ Fail

Hearing Screening: ☐ Pass ☐ Fail

Babysitter: ☐ Yes ☐ No If yes, school _____

Can Transport: ☐ Yes ☐ No

A. Ages and Stages Questionnaire - 3

Performance Areas	Total Score	Decision		Points Possible			Points Earned
		Potential Delay	OK	Potential Delay (Black)	Area to Watch (Gray)	No Concerns (White)	
Communication				10	5	0	
Gross Motor				10	5	0	
Fine Motor				10	5	0	
Problem Solving				10	5	0	
Personal Social				10	5	0	

B. Behavioral Observations Scored from Health Form-Parent Report

Behavioral Observation (Max 18 points)	Total Score		Score of 0-3	Score of 4-6	Score of 7+	Points Earned
			0	5	10	

C. Ages and Stages Questionnaire Social-Emotional 2

	Total Score	Decision		Points Possible			Points Earned
		Potential Delay	OK	Potential Delay (Black)	Area to Watch (Gray)	No Concerns (White)	
Social Emotional				10	5	0	

D. At Risk Characteristics (see check list on reverse)

Number of At Risk Characteristics Identified by Child's Caregiver	Points Possible	Points Earned
0 Characteristics	0	
1 Characteristic	10	
2 – 3 characteristics	20	
More than 3 Characteristics	30	

Automatically Eligible: ☐ Yes ☑ No
(from back of form)

Total Points Scored: _____ /100 points
(sections A+B+C+D)

Recommended for Placement: ☐ Yes (score of 25+) ☐ No (score of 25 or less)

Possible SPED Referral: ☐ Yes ☐ No

Comments/Notes _____

[redacted]

[redacted] Early Childhood Preschool Placement Rubric

AT RISK CHARACTERISTICS

*Obtained from the Family Questionnaire

YES/NO	CHARACTERISTIC	DEFINITION
	1.Low Income	Family is eligible for Free and Reduced Lunch, Public Housing, Child Care Subsidy, WIC, Food Stamps, TANF, Head Start/Early Head Start, and/or Medicaid.
	2. Single Parent Household	Only one parent/primary caregiver resides in the home.
	3. Speakers of other languages/English Language Learners	A language other than English is the primary language spoken in the home.
	4. Parent with a Disability, Chronic Health Condition or Mental Illness	Parent has a physical, cognitive, or health-related condition or impairment that substantially limits one or more major life activities.
	5. Incarcerated Parent(s)	Parent(s) is incarcerated in federal or state prison, local jail, or was released from incarceration within the past year.
	6. Court-Appointed Legal Guardians and/or Foster Care	The child has court-appointed legal guardians or is in foster care.
	7. Lack of pre-school exposure	Child has not previously participated in a structured early childhood program.
	9. [redacted] participation but not currently receiving services	Child qualified [redacted] but is not being served by Early Childhood Special Education and does not have a disability or chronic health condition.
	9. Child with Disabilities or Chronic Health Condition but does not have an Individual Education Program (IEP)	Child has a history of a physical, cognitive, emotional or health-related condition or impairment that substantially limits one or more major life activities AND does not have an IEP.
	9. Child has a current Individual Education Plan (IEP)	Child has a current IEP and is being served through Early Childhood Special Education.
	10. Low Educational Attainment	Parent did not complete high school or GED and is not currently enrolled.
	TOTAL NUMBER OF CHARACTERISTICS MARKED BY PARENT/CAREGIVER (MARK IN SECTION D)	

AUTOMATIC QUALIFYING CHARACTERISTICS

*Obtained from the Family Questionnaire

YES/NO	CHARACTERISTIC	DEFINITION
	8. Previous participation in Early Head Start or Head Start	Child has participated in an Early Head Start or Head Start program in the prior two years.
	11. Homeless or Unstable Housing	Lives in emergency/transitional housing or in a place not intended for regular housing and/or moved more than twice in the past year due to problems with housing.
	12. Placement in a program for neglected or delinquent children	Child placed in a local institution for neglected or delinquent children, or attending a community day program for neglected/abused/delinquent children.
IF ANY OF THESE APPLY, CHILD IS AUTOMATICALLY ELIGIBLE FOR TITLE PLACEMENT. SCREENER MARKS IN SCORING BOX.		

[redacted]

Appendix B. Written Support from the Researcher's Advisor to District A

SCHOOL OF EDUCATION
Baldwin City, Overland Park, Wichita, Topeka,
Kansas City and Lee's Summit

BAKER UNIVERSITY
Own Confidence

To: [redacted]

Re: Sarah Monfore

Date: June 9, 2022

From: Denis Yoder Ed.D.

This letter is written as confirmation that, as Sarah Monfore's major advisor at Baker University, I have reviewed and approved her study, The Effect of Early Childhood Education on the Acquisition of Early Literacy Skills of At-Risk Students. Additionally, I can confirm that her study has been reviewed and approved by Baker University School of Education Research Analyst, Dr. Peg Waterman. If you have any questions, please contact me.

Respectfully,

Denis Yoder

Denis Yoder Ed.D.
Associate Professor
Graduate School of Education
Baker University
785-766-1675
dyoder@bakeru.edu

Appendix C. Request for Research to District A

Request to Conduct Research with the [redacted]

A copy of this form must be returned to [redacted] with the necessary signatures BEFORE approval can be granted to conduct research. Please include your last name as you save your document e.g. [redacted].

Name of Applicant: Sarah Monfore
Employee of [redacted] Yes☒ No ☐
If YES, location of building and your position with the [redacted]
Early Education Center

Is the research in fulfillment of a graduate program requirement and / or in partnership with an external organization (i.e., university, business, industry, etc.)? Yes ☒ No ☐

If YES, Name of external organization and Lead contact person:
External Organization: Baker University
Lead Contact Person and Position. Dr. Denis Yoder, Associate Professor and Student Advisor
Purpose of Research: Dissertation research to fulfill requirements for doctoral degree in educational leadership

Submission Requirements

1. A copy of the complete application submitted for formal approval by a human subjects' review board. This application should include, at a minimum:
   a. A brief summary of the purpose and scope of the research including:
   ☒ The extent to which the research addresses and/or aligns with the goals of the school district
   ☒ Potential benefit of the research to positively impact district, building, or classroom practice
   b. A brief summary of the research methods including:
   ☒ Participants
   ☒ Selection process
   ☒ Remuneration procedures (if applicable)
   ☒ Assurance of confidentiality of participant identification
   ☒ Consent and assent procedures and documents
   ☒ Activities related to the research, including proposed survey, interview, and/or questions/instruments
   ☒ Extent of intrusiveness/disruption regarding classroom instruction
   ☒ Time/effort requirements of participants
2. ☒ Evidence that the proposed research has been formally approved through a review board for protection of human subjects.
3. ☒ Assurance from the researcher that building principals, teachers, students and/or their parents may opt out of participation without consequence even with approval by the district team.
4. ☒ Assurance from the researcher that results will be communicated back to the district upon completion of study. (**Anticipated date of completion**:12/1/2022)
5. [redacted] June 9, 2022
   Signature of Principal(s) of building(s) impacted by research study before approval. **Date**
   [redacted] 6/9/2022

Signature of Director of Data and Accountability: _____

Team Review Date: _____ Approved: _____ Not Approved: _____

Appendix D. Approval from the Baker University Institutional Review Board

BAKER UNIVERSITY
Own Confidence

Baker University Institutional Review Board

June 13th, 2022

Dear Sarah Monfore and Denis Yoder,

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

Please be aware of the following:

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

If you have any questions, please contact me at npoell@bakeru.edu or 785.594.4582.

Sincerely,

Nathan D. Poell

Nathan Poell, MLS
Chair, Baker University IRB

Baker University IRB Committee
Sara Crump, PhD
Nick Harris, MS
Susan Rogers, PhD

Appendix E. Approval from District A for Research

Request to Conduct Research with the [redacted]

A copy of this form must be returned to [redacted] with the necessary signatures BEFORE approval can be granted to conduct research. Please include your last name as you save your document e.g. [redacted]Research Request.

Name of Applicant: Sarah Monfore
Employee of [redacted] Yes☒ No ☐
If YES, location of building and your position with the [redacted]
Early Education Center

Is the research in fulfillment of a graduate program requirement and / or in partnership with an external organization (i.e., university, business, industry, etc.)? Yes ☒ No ☐

If YES, Name of external organization and Lead contact person:
External Organization: Baker University
Lead Contact Person and Position. Dr. Denis Yoder, Associate Professor and Student Advisor
Purpose of Research: Dissertation research to fulfill requirements for doctoral degree in educational leadership

Submission Requirements

1. A copy of the complete application submitted for formal approval by a human subjects' review board. This application should include, at a minimum:
   a. A brief summary of the purpose and scope of the research including:
   ☒ The extent to which the research addresses and/or aligns with the goals of the school district
   ☒ Potential benefit of the research to positively impact district, building, or classroom practice
   b. A brief summary of the research methods including:
   ☒ Participants
   ☒ Selection process
   ☒ Remuneration procedures (if applicable)
   ☒ Assurance of confidentiality of participant identification
   ☒ Consent and assent procedures and documents
   ☒ Activities related to the research, including proposed survey, interview, and/or questions/instruments
   ☒ Extent of intrusiveness/disruption regarding classroom instruction
   ☒ Time/effort requirements of participants
2. ☒ Evidence that the proposed research has been formally approved through a review board for protection of human subjects.
3. ☒ Assurance from the researcher that building principals, teachers, students and/or their parents may opt out of participation without consequence even with approval by the district team.
4. ☒ Assurance from the researcher that results will be communicated back to the district upon completion of study. **(Anticipated date of completion**:12/1/2022)
5. [redacted] June 9, 2022
   Signature of Principal(s) of building(s) impacted by research study before approval. **Date**
   [redacted] 6/9/2022

Signature of Director of Data and Accountability: [redacted]

Team Review Date: 6-15-22 Approved: x Not Approved: _____