

THE EFFECTS OF PREKINDERGARTEN ON KINDERGARTEN SCHOOL
READINESS AS MEASURED BY READING SCORES AT TWO TITLE I SCHOOLS

by

Sharone Denise Harris

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Approved by:

Dr. Rebecca Shore

Dr. Richard Lambert

Dr. Corey Lock

Dr. Pamela Shue

ABSTRACT

SHARONE DENISE HARRIS. The effects of prekindergarten on kindergarten school readiness as measured by reading scores at two Title I schools. (Under the direction of DR. REBECCA SHORE and DR. RICHARD LAMBERT)

This research study examined the effectiveness of prekindergarten (PK) on kindergarten school readiness. The parents or guardians of kindergarten students at two Title I schools located in an urban school district in the southeastern United States completed a questionnaire which allowed the researcher to identify each student's participation in a PK program. Parents also signed a consent form to allow the researcher to access the kindergartener's beginning-of-year reading scores for *DIBELS Next Letter Naming Fluency (LNF)*, *DIBELS Next First Sound Fluency (FSF)*, and *mCLASS Reading 3D Text Reading Comprehension (TRC)*. Responses from the questionnaire were coded into three categories: students who had attended the school district's Bluebird PK program; students who had attended PK at another location; and students who had not attended a PK program. The LEA Office of Accountability provided the researcher with de-identified beginning-of-year reading data and students' demographics that were sorted into ethnicity, gender, disability, and limited English proficiency (LEP). A hierarchical regression model was run to categorize each kindergartener's performance on *DIBELS Next LNF* and *FSF* assessments. A logistic regression model was performed to ascertain the effects of *TRC* scores on the likelihood that students who attended a PK program prior to kindergarten entry would demonstrate proficiency. Results indicated that attendance in the Bluebird PK program and at other PK programs had a positive effect on kindergarteners' school readiness skills.

DEDICATION

First and foremost, I thank God for getting me through this journey and for placing phenomenal people in my life who were great supporters of assisting me in this process. This dissertation is dedicated to my beloved late grandparents, Nohomia and Georgia Robinson, Andrew and Francis Harris, and the Harris and Cusaac families. To my parents, Andrew and Naniece Harris, your love, guidance, and support are what motivated me to achieve the highest degree possible in the field of education. To my sister Mesha, thank you for being patient by providing “quiet time” so that I could remain focused on the task. To my brother Reginald and sister-in-law Olidia, thank you for your words of encouragement and prayers. To my mother’s only sister, Evelyn (a.k.a. Honeybunch), thanks for your prayers and support. To my father’s sisters and brothers, Rochelle, Maggie, the late Doris, Patricia, Linda, Shirley, Mary, Clinton, Charles, Tyrone, Troy, and Christopher, thanks for your prayers and encouragement. Thanks to those in my family who went before me to complete their doctorate, Dr. Robert Hill, the late Dr. Kendra Ogletree Cusaac, Dr. Terrance Cusaac, Dr. Valisha Singleton, and Dr. Dave Joseph. To all of my cousins, thank you. To my preschool nieces Victoria Harris and Simone Harris, and preschool cousins Kaiya Cusaac and Isabell Hughes, seeing you learning how to read in preparation for your upcoming entry into kindergarten was exciting and a great asset as I completed my research study which sought to determine how attendance in a prekindergarten (PK) program effected academic performance. I cannot wait to see the amazing things that life will have in store for you. Once again, I thank God for His faithfulness in leading and guiding me through this process.

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CHAPTER 1: INTRODUCTION

In 1960, John F. Kennedy was elected president of the United States. One of his primary goals was to eradicate poverty and eliminate injustice. Unfortunately, he was not able to see the realization of his vision as he was assassinated in November, 1963. Vice President, Lyndon B. Johnson, was sworn into the presidency upon Kennedy's assassination. As president, he was able to carry out much of President Kennedy's vision and advocated for government assistance for those who were living in poverty. As outlined in his 1964 State of the Union Address, President Johnson spoke about the "War on Poverty." He stated:

Let this session of Congress be known as the session which did more for civil rights than the last hundred sessions combined; as the session which enacted the most far-reaching tax cut of our time; as the session which declared all-out war on human poverty and unemployment in these United States (State of the Union, January, 1964).

Two months later on March 16, 1964, in his Special Message to Congress, President Johnson presented a proposal for a nationwide war on the sources of poverty through community action programs which were to be established through the Economic Opportunity Act. In his message to Congress, President Johnson stated:

This act charts a new course. It strikes at the causes of poverty; not just the consequences of poverty. There are programs which help the entire country, such as aid to education which, by raising the quality of schooling available to every American child, will give a new chance for knowledge to the children of the poor (Special Message to Congress Proposing a Nationwide War on Poverty on the Sources of Poverty, March, 1964).

The Economic Opportunity Act was passed in August, 1964.

In an attempt to best put this plan into action, a panel of experts was convened and led by Dr. Edward Zigler, a professor of child psychology from Yale University. This panel was commissioned to review the federal government's new approach to eradicating poverty and the disparate impact that poverty had on education (U.S. Department of Health and Human Services, 2014). This report found that the benefits of a quality early childhood education, specifically, were particularly extolled. There was another notable report written by the Assistant Secretary of Labor in 1965, Daniel Patrick Moynihan. Moynihan, who would later serve as a United States Senator from New York, commissioned a study of Negro families in the United States in 1965. In this report Moynihan wrote, "When boys from broken homes are in school, they do not do as well as boys from whole families. Grade retardation is higher when only one parent is present, and highest when neither parent is present" (Moynihan Report, p. 39). The report goes on to state, "The authors say that broken homes may also account for some differences between Negro and White intelligence scores" (Moynihan Report, p. 39). These widely circulated reports provided the justification of increased federal intervention on poverty by means of establishing an early childhood education program. The result of these reports was the creation of an eight week summer program through the Office of Economic Opportunity called Project Head Start.

Project Head Start was created in 1965 in an attempt to provide an equal playing field for three and four year old children living in poverty prior to entering the traditional K-12 educational system. The initial premise of this eight week summer program was to provide early social and educational interventions to low socio-economic status (SES) preschool children. Specifically, the legislation for this federally funded pre-kindergarten (PK) program was designed "to help break the cycle of poverty, providing preschool

children of low-income families with a comprehensive program to meet their emotional, social, health, nutritional and psychological needs” (U.S. Department of Health and Human Services, 2014). The notion was that if preschool children of poverty had their needs met within the five domains specified in the prior report, they would be ready to learn at the level of students from more advantaged backgrounds when it was time for them to enter elementary school.

Since its inception, Head Start has had both supporters and detractors. As with any large scale federal or state compensatory program, evaluation of the program’s success, or lack thereof, had become a lightning rod for public debate. The first major evaluation of the impact of Head Start was reported four years after its implementation in 1969 by the Westinghouse Learning Corporation (Westinghouse Group). Although Head Start was a comprehensive program, addressing the needs of the child as a whole, the Westinghouse Group reported that participants in the Head Start program showed small gains in student achievement, which quickly faded out as the children progressed through the educational system (Westinghouse Learning Corporation, 1969). Supporters of Head Start did not agree with the interpretation of findings and challenged the results as based on the methodology of the experiment. Therefore, subsequent longitudinal studies have been conducted to evaluate the long-term effects of participants in early childhood education programs.

Three well known longitudinal studies that are often referenced in support of the effectiveness of prekindergarten programs are the High/Scope Perry Preschool program of Ypsilanti, Michigan that was conducted from 1962-1967, the Carolina Abecedarian Project of Chapel Hill, North Carolina implemented between 1972-1977, and the Chicago Longitudinal Study of Chicago, Illinois conducted from 1985-1986. Each of these studies

tracked participants from early childhood through adulthood to identify the possible results of early intervention as it related to cost benefits, education, crime analysis, and overall health. The results of the studies indicated that participants in the experimental groups who received early childhood intervention services, all of whom were at-risk children aged five years and under, experienced positive effects in multiple areas; increased cognitive scores and school success, reduced crime participation later as adults, and more widespread health care coverage later in life (Nores, Belfield, Barnett, & Schweinhart, 2005). By providing quality early childhood interventions to at-risk children, the overall duration of the programs as calculated by this study, resulted in benefits that exceeded the costs over the lifetimes of participants.

The effectiveness of PK programs was further brought into focus as a result of the 2002 reauthorization of the Elementary and Secondary Education Act (ESEA), known by its common moniker in the 2000's as No Child Left Behind (NCLB). ESEA was enacted in 1965 as part of President Johnson's, "War on Poverty." The goal of ESEA, which still holds true today, was to improve educational equity for students from lower income families because school districts with lower income students generally experienced less state and local funding than those from more affluent districts. Title I of ESEA provided financial assistance to local educational agencies (LEAs) and schools with high numbers or high percentages of children from low-income families to help ensure that all children had the opportunity to meet challenging state academic standards (United States Department of Education, 2014). ESEA allocated federal funding to school districts serving lower income students as a means of providing educational resources intended to close the achievement gap. ESEA has been reauthorized seven times, with its most recent of reauthorizations in 2002 under then President George W. Bush. It was referred to as

the implementation of the age of increased accountability because the new reauthorization required increased testing. As the Republican nominee for president during the 2000 presidential campaign, then Governor George W. Bush, spoke about the “soft bigotry of low expectations” in the nation’s schools (Republican National Convention, January, 2000). The enactment of NCLB led to an unprecedented level of assessments of all educational programs at all levels and in all states.

As is often the case, after any large scale federally implemented initiative, it is not uncommon for individual states to pattern the creation of similar programs at the state level. According to the National Institute for Early Education Research (2013), twenty-eight percent of America’s four-year-olds were enrolled in a state-funded preschool program when compared to eleven percent enrolled in Head Start and three percent in other publicly-funded PK programs. Prekindergarten programs vary across states and localities in how they are funded, eligibility requirements, site locations, and education standards that must be mastered to demonstrate school readiness skills. For purposes of this study, publicly-funded PK programs will refer to PK programs that operate from multiple sources of state, local, and federal funding and are operated by the state. Each state may identify the PK program under a different name.

The purpose of this study was to gain insight into the effectiveness of prekindergarten programs, specifically the Bluebird PK program implemented in the urban school district located in the southeastern United States, and its effects on kindergarten school readiness in the area of reading. For comparison purposes, the researcher reviewed the effectiveness of select state preschool programs with large urban school districts. They were Illinois, a state that started its PK program the same year of implementation of Head Start in 1965 in Chicago, IL; Georgia, which established the

nation's first state-funded universal PK program in 1995; Florida, the state that created a Voluntary Prekindergarten program in 2005, and offered PK services for a myriad of eligible four year old students; and North Carolina, a state that was at the forefront of early childhood education reform in the 1990's, led by then Governor Jim Hunt.

Although personal experience has motivated the researcher to conduct this study, it is important to examine the effectiveness of PK programs on kindergarten school readiness from a theoretical perspective, human development. Bronfenbrenner's theory on ecological systems of human development is a theory that seeks to explain how the genetics of a child and the child's environment affect how he/she develops (Bronfenbrenner, 1994). This theoretical perspective will be employed to examine the influence of students' attendance in a PK program and its effects on their kindergarten school readiness skills in the area of reading. The urban school district selected for this study had no systematic way of tracking preschool students' academic performance once they transitioned to kindergarten. This will be one measure to identify its effectiveness.

Research Questions

For purposes of this study, four essential questions were posed.

1. What percentage of kindergarteners at two Title 1 schools located in an urban school district in the southeastern United States participated in its publicly-funded PK program, Bluebird PK?
2. When controlling for covariates (ethnicity, gender, disability status, and LEP status), are there differences in reading performance as measured by *DIBELS Next* scores for *Letter Naming Fluency (LNF)* between three subgroups of kindergarteners; those who participated in the Bluebird PK program, those who

participated in other PK programs, or those who did not participate in any PK program?

3. When controlling for covariates (ethnicity, gender, disability status, and LEP status), are there differences in reading performance as measured by *DIBELS Next* scores for *First Sound Fluency (FSF)* between three subgroups of kindergarteners; those who participated in the Bluebird PK program; those who participated in other PK programs, or those who did not participate in any PK program?
4. When controlling for covariates (ethnicity, gender, and disability status), are there differences in reading performance as measured by *mCLASS Reading 3D Text Reading Comprehension (TRC)* scores between three subgroups of kindergarteners; those who participated in the Bluebird PK program, those who participated in other PK programs, or those who did not participate in any PK program?

Study Significance

The debate on the benefits of PK at all levels, federal, state, and local have raged. Surprisingly, there is no systemic examination or analysis of PK data in the state located in the southeastern United States in order to determine effectiveness of individual PK programs. Districts within the state as well as individual schools are left to their own devices of measuring the effects of PK programs on kindergarten school readiness. This study will be one measure in two Title I schools located in an urban school district in the southeastern United States to determine if there is any correlation between attendance in its publicly funded PK program and kindergarten school readiness.

Research Design

This study was designed to determine if participation in the publicly-funded PK program located in an urban school district in the southeastern United States, had an effect on kindergarten school readiness, specifically in the area of developing reading skills. For purposes of this study, Bluebird PK will be used as the name for the publicly-funded PK program located in this district. *DIBELS Next Letter Naming Fluency (LNF)* and *First Sound Fluency (FSF)* and *mCLASS Reading 3D Text Reading Comprehension (TRC)* were used to determine kindergarten school readiness. It should be noted that this was not a true experimental design because students were not randomly assigned for the study, nor were they randomly assigned the treatment, which was opting out of attending the Bluebird PK program. *DIBELS Next* and *TRC* assessments were administered within the first quarter of the kindergarten school year and were used to measure certain individual components of reading. The beginning-of-year data identified students' knowledge of naming upper and lower case letters of the alphabet that are out of sequence as measured by *DIBELS Next LNF*, first sounds in words through *DIBELS Next FSF*, and reading comprehension as measured by *mCLASS Reading 3D TRC*. Theoretically, students who attended a PK program should report to school better prepared for kindergarten when compared to students who did not as based on these measures.

A descriptive statistical analysis was performed to compare students that participated in the Bluebird PK program; "other PK programs" that represented students who attended Head Start, PK at a faith-based location, or PK at a private school; and students that did not attend a PK program. A hierarchical regression model was used to evaluate the relationship between students' attendance in a PK program and the effects on

DIBELS Next LNF and *FSF* test scores. A logistic regression analysis was performed to ascertain the effects of *mCLASS Reading 3D TRC* scores on the likelihood that students who attended a PK program prior to kindergarten entry will demonstrate a passing score, proficient.

Limitations

1. In the event a student attended a PK program outside of the study location prior to entering kindergarten, there is a lack of information regarding the eligibility requirements and quality of that PK program.
2. The researcher had no control over who administered *DIBELS Next LNF* and *FSF* and *mCLASS Reading 3D TRC* assessments to kindergarteners which may affect the interpretation of the test results. For example, one school may have mandated teacher assistants and support staff to administer the assessment, whereas the other school may have mandated the classroom teacher to administer the assessment.
3. Differences may exist with the implementation of the PK curriculum among individual PK sites/centers within the study location.
4. Differences may exist in extra parental support preparation with regard to kindergarten school readiness.

Delimitations

1. This study was limited to students entering kindergarten who attended one of the two selected Title I schools in an urban school district located in the southeastern United States that offered the publicly-funded Bluebird PK program at their site.
2. This study was limited by the accuracy of parents completing the questionnaire of their child's participation or lack thereof in a specific type of PK program.

3. Data collected were from entering kindergarteners who were administered DIBELS Next LNF and FSF and mCLASS Reading 3D TRC assessments during the first quarter of school.

Assumptions

There were three assumptions to this research study. First, it was assumed that a high percentage of students entering kindergarten attended the Bluebird PK program at the schools selected for this study. Second, it was assumed that students who attended the Bluebird PK program would receive higher literacy scores when compared to students who did not attend the Bluebird PK program or did not attend a PK program at all. The last assumption was that because all entering kindergarteners in the urban school district located in the southeastern United States were administered *DIBELS Next LNF* and *FSF* and *mCLASS Reading 3D TRC* within the first quarter of school, the data collected from these assessments were reliable and valid and could be used to compare student data across all schools in the district.

Definitions

1. At-risk students- students who are in danger of academic failure and who require temporary or ongoing interventions in order to succeed academically.
2. Bluebird PK- the name given in place of the actual name of the publicly-funded PK program that is implemented in select Title I schools located in an urban school district in the southeastern United States. It includes Head Start and exceptional children.
3. Dynamic Indicators of Basic Early Literacy Skills (*DIBELS*) Next – a valid and reliable research based assessment that consists of seven measures to function as indicators of phonemic awareness, alphabetic principle, accuracy and fluency

with connected text, reading comprehension, and vocabulary. For purposes of this study, letter naming fluency (*LNF*) and first sound fluency (*FSF*) will be used as one measure of students' school readiness.

4. Economic Opportunity Act of 1964- a component of the War on Poverty that included several programs that were established to relieve the symptoms of poverty in America. The Office of Economic Opportunity was founded under this act, resulting in the creation of the Head Start program.
5. Early childhood education – a term that refers to educational programs and strategies geared toward children from birth to the age of eight.
6. Elementary and Secondary Education Act (ESEA) – was enacted in 1965 as a part of President Lyndon B. Johnson's "War on Poverty" that emphasized equal access to education and established high standards and accountability. ESEA has gone through seven reauthorizations, with its latest reauthorization, No Child Left Behind.
7. Head Start- a federally funded early childhood education program that was established in 1965; provides comprehensive early childhood education, health, nutrition, and parent involvement services to low-income children and their families.
8. mCLASS Reading 3D TRC- a validated and reliable research-based reading assessment that assesses the foundational skills of text, reading, and comprehension diagnostics, giving a complete picture of a student's reading development.
9. NCLB – No Child Left Behind Act of 2002 is the reauthorization of the Elementary and Secondary Education Act of 1965 which serves as an aid program

for disadvantaged students. NCLB supports standards based education reform based on the premise that setting high standards and establishing measurable goals would improve individual outcomes in education.

10. PK – the abbreviation for prekindergarten; a class or program that is for children who are four-years-old.
11. Publicly-funded PK programs – PK programs that operate from multiple sources of state, local, and federal funding and are operated by the state; each state may identify the PK program under a different name.
12. Private school PK programs - schools or child care centers that offered educational and developmental programs for four-year-olds in exchange for tuition or fees.
13. Title I – the federal grant program that was established under the Elementary and Secondary Education Act and was designed to give educational assistance to students living in areas of high poverty. The standards for receiving these funds are decided by individual school districts. The standard set in the urban school district for this research project is set at seventy-two percent of the students in a school who receive free or reduced lunch.
14. Universal PK program – PK program that is available to any child in a given state, regardless of family income, children’s abilities, or other factors.
15. War on Poverty- refers to a set of initiatives proposed by President Lyndon B. Johnson’s administration to prevent poverty in America.

Summary

There have been a number of studies conducted on the effectiveness of publicly-funded PK programs and their effects on students’ academic achievement. However, little

is known of the effects of PK in an urban school district located in the southeastern United States because students who participated in the Bluebird PK program have not been consistently tracked once they transition to kindergarten. This study was designed to determine if participation in the Bluebird PK program located in an urban school district in the southeastern United States had an effect on kindergarten school readiness, specifically in the area of reading.

CHAPTER 2: LITERATURE REVIEW

The 2002 reauthorization of the Elementary and Secondary Education Act (ESEA) ushered in what has come to be known as the age of accountability. It imposed an unprecedented federal intervention into American K-12 education. This reauthorization, commonly called No Child Left Behind (NCLB), placed heightened scrutiny through publicized test scores on the effectiveness of public schools at all levels. Pre-kindergarten (PK), one of the most scrutinized of publicly-funded PK education programs, was no exception. While federal PK programs such as Head Start are often studied and their effectiveness or success questioned with equal vigor, the same cannot be said of individual publicly-funded PK programs. These publicly-funded programs were based on the Head Start model, and were also funded from multiple sources at the federal, state, and local levels. This literature review was arranged around four research questions. First, what percentage of incoming kindergarten students participated in the urban school district's Bluebird PK program located in the southeastern United States? Second, were there differences in reading scores as measured by *DIBELS Next Letter Naming Fluency (LNF)*, *DIBELS Next First Sound Fluency (FSF)*, and *mCLASS Reading 3D Text Reading Comprehension (TRC)* among student who attended the Bluebird PK program, another PK program and those who did not attend a PK?

To better understand the literature surrounding publicly-funded PK programs and their effects on kindergarten school readiness, this literature review began with an examination of the development of present day PK programs beginning with a review of

its origins at the federal level. Next, a review is presented of the percentage of students who participated in state PK programs and the effectiveness of these programs among those who participated and those who did not. To conclude, a review of the history of select states' (Illinois, Georgia, Florida, and North Carolina) early childhood education movements and where those programs stand today. A focus on program evaluations will be addressed, honing in on whether the programs had the intended positive effect on student achievement.

Federal Development of PK Programs

President Kennedy, during his acceptance speech at the 1960 presidential election, spoke of a New Frontier as the vision for his domestic policy, which was to be an extension of President Franklin D. Roosevelt's New Deal. His presidential term ended abruptly with his assassination in November, 1963, leaving then Vice President Lyndon B. Johnson to carry out his vision. On January 8, 1964, President Johnson declared a "War on Poverty" in his State of the Union speech and was deeply committed to using education as a means of eradicating poverty for disadvantaged youth. The Economic Opportunity Act of 1964, a component of the War on Poverty, included programs that were created to prevent poverty in America.

The first major federal aid to education programs that was quickly passed by Congress to close the achievement gap between the poor and the wealthy was the Elementary and Secondary Education Act (ESEA) of 1965 (U.S. Department of Education, 2014). "Title 1 of this legislation provided five-sixths of the total authorized funds and set federal educational policy in a new direction that has continued for more than three decades" (Vinovskis, 1999, p. 189). In the mid-1960s, upon evaluation of ESEA initiated by Congress, there were no sizable improvements in the academic

achievement of students of poverty and their more affluent peers (Vinovskis, 1999). A major issue was the distribution and use of Title 1 funds that were distributed to all school districts. The funding was used as an additional funding source for students, both affluent and disadvantaged, instead of effectively being used to establish sound educational programs that would assist students of poverty who were working below grade level (Vinovskis, 1999). Due to the consistent evaluation outcomes of students identified as Title 1 students not performing as well as their regular education peers from the mid-1960s to mid-1990s, a series of reauthorizations were passed that positioned states and local districts to cater educational programs in meeting the needs of the disadvantaged learners (Vinovskis, 1999). The most far reaching and latest reauthorization of ESEA was the No Child Left Behind Act (NCLB) of 2002, which was initiated under the administration of George W. Bush. This reauthorization, which supported standards-based educational reform, was often referenced as the beginning of an age of accountability. States, school districts, and schools were held accountable for student performance as measured by state assessments.

Head Start

A facet of President Lyndon Johnson's "War on Poverty" was the federally funded preschool intervention program known as Head Start. Zigler and Berman (1983) discussed how many people viewed the purpose of Head Start from a deficit model standpoint. When comparing children from different socioeconomic statuses (SES), it was believed that generally children from middle SES had higher academic achievement and IQ scores when compared to children from lower SES (Zigler & Berman (1983). The notion was that with early environmental interventions, students from lower SES would "catch up" academically, increase their IQ score, and would "overcome the perceived

deficiencies of their family and neighborhood” (Vinovskis, 1999, p. 194). President Johnson’s team of experts, led by Edward Zigler, planned and implemented Head Start. The vision of Head Start was to not only increase disadvantaged children’s IQ score, but to provide services that would encompass preparing the child for school entry. The team wanted to make sure that the program was not marketed as a means of dramatically improving students’ IQ scores within a short duration of time (Zigler & Berman, 1983). Instead, the message that was to be conveyed was the goal of this comprehensive program was to address the “whole” child by providing a cognitively stimulating and emotional nurturing learning environment, health care services, and parent education classes (United States Health and Human Services, 2014). Thus, in the summer of 1965, Project Head Start, as it was called, was implemented as an eight week program and later expanded to a year round program.

The first major evaluation of the effects of Head Start was conducted by the Westinghouse Group. Results from the study were almost detrimental to the future of Head Start programs (U.S. Department of Health and Human Services, 2014). Researchers in the Westinghouse Group completed a comparison study that included 1,980 Head Start participants and 1,983 non-Head Start students who qualified for services but did not enroll (Besharov, Germans, Higney, & Call, 2011). The Head Start programs evaluated ranged from summer programs to full year programs, which provided variations of services from center to center (Besharov et al., 2011). The report indicated that children who attended the summer programs had no gains in academic and affective development, whereas children who attended full day programs demonstrated cognitive and language gains when transitioning up to first grade. These gains faded out as the

children progressed to second grade and beyond (U.S. Department of Health and Human Services, 2014).

Supporters of Head Start challenged the negative results due to biases in the design of the study. They argued that a true comparison group, controlling for environmental factors, parental involvement, and the lack of evaluating the health and nutritional components of the program had influenced the results (Office of Head Start, 2014). Barnett and Hustedt (2003) stated that evaluations of Head Start programs showed consistent positive effects; however, “questions remain about the extent to which that research generalizes across variations both in different Head Start programs and in the children and families that Head Start serves” (p. 55).

In an effort to show the positive effects of early childhood education programs, three nationally known longitudinal studies, which are often cited by proponents of early childhood education, were conducted. They were the High/Scope Perry Preschool program of Ypsilanti, Michigan, the Carolina Abecedarian Project of Chapel Hill, North Carolina and the Chicago Longitudinal Study of Chicago, IL. The following explains the design and results for each research project, respectively.

The first program was the High/Scope Perry Preschool program. In this program, which was conducted from 1962-1967, 123 African American students aged 3 and 4 living in poverty were randomly assigned to one of two groups: one group received a high quality PK program and the second group did not attend PK (Schweinhart, Montie, Xiang, Barnett, Belfield, & Nores, 2005). The results showed that adults at age 40 who had attended PK accumulated higher earnings, held a steady job, were involved in fewer crimes, and were more likely to have graduated from school (Schweinhart et al., 2005).

A second study, the Carolina Abecedarian Project, included children who attended the early childhood program from infancy to kindergarten entry from 1972-1977 (Campbell, Pungello, Burchinal, Kainz, Wasik, Barbain, Sparling, & Ramey, 2012). This was an experimental early childhood program serving the children of low income, African American families in Chapel Hill, NC. The 111 infants were randomly assigned into either a treatment or control group (Campbell et al., 2012). Of the 111 infants, 57 were randomly assigned to the Abecedarian treatment group and attended a full day, year round program from infancy to age five. The treatment group received child care up to eight hours a day, five days a week and educational activities that were game-based and emphasized language. There were 54 infants in the control group (Campbell et al., 2012). The control group was provided nutritional supplements, social services, and health care to ensure that these factors did not affect the outcome of the experiment (Barnett & Masse, 2007). As the children progressed through the system, results showed that the treatment group had attained more years of education at age 21 and were more likely to attend a four year college or university, have a skilled job, less likely to be teen parents, and less likely to indulge in illegal substances (Campbell, Ramey, Pungello, Sparling, & Miller-Johnson, 2002). The outcomes at age 30 held true to the results of these participants when evaluated at age 21.

A third study, the Chicago Longitudinal Study (CLS), was conducted in 1985-1986. The participants consisted of 1,539 low income minority students who attended or received services from one of the twenty Chicago Parent Centers (CPC), and those who attended an alternative all-day kindergarten program in five randomly selected Chicago public schools during their kindergarten year of either 1985 or 1986 (Reynolds, Temple, Robertson, & Mann 2001). The CPC education program was a publicly-funded early

childhood development program that began in preschool and provided up to six years of service in the Chicago public schools (Reynolds et al., 2002). According to Reynolds et al. (2002), results indicated that the preschool students who attended a CPC, when followed through adulthood, had a higher percentage of student participants who completed high school, achieved moderate or higher socioeconomic status, carried some level of health insurance coverage, had fewer that abused drugs and alcohol, and fewer experienced a felony arrest and incarceration.

While not causal, all three of these studies showed some long term benefits from some early childhood education programs. Since these studies, additional research has shown that one predictor of school success prior to students entering kindergarten is their knowledge of early literacy skills. At the beginning of the kindergarten school year, students are administered school readiness assessments that identify their knowledge of letter identification, beginning sounds, and reading comprehension. Typically kindergarten students living in poverty perform lower on school readiness assessments than their peers from more affluent homes. According to Noralk, DiPerna, Lei, and Wu (2012), children living in poverty will most likely have increased risk for developing reading difficulties due to the lack of literacy-rich home environments and cognitively demanding conversations with their parents.

Results from the evaluations of Head Start and the early childhood education programs' meta-studies indicate their effectiveness in kindergarten school readiness. Meta-analyses conducted over the past 25 years of PK programs produced on average an immediate effect of approximately half a standard deviation on an IQ test. This equates to a move from the 30th percentile to 50th percentile on student achievement tests (Barnett, 2008). Although program implementation were different from site to site, the literature

showed the benefits of these comprehensive early childhood education programs on students' school readiness. The next section will address how the framework of the Head Start program influenced policy makers in their mission to prepare students for school through the establishment of state PK programs.

State PK Programs

The debate of the devolution of federally funded Head Start programs to state-subsidized PK programs caused concern for those who felt that the quality and effectiveness of the delivery of services would not have the same effect for those who attended Head Start programs (Henry, Gordon, & Rickman, 2006). According to a report published by the United States Department of Health and Human Services (2003), "when Head Start was launched in 1965, few if any states had early childhood education programs." In a report of the ten year trend from 2001-02 to 2011-12 written by Barnett and Carolan (2013), "state PK programs have grown faster than any other sector in early childhood and play an important role as part of a larger array of early learning programs" (p. 3). Research indicated that only 12%-15% of families eligible for childcare subsidies used them, which equated to approximately 1.8 million children being served using subsidized childcare funds during fiscal year 2005 (Winsler, Tran, Hartmann, Madigan, Manfra, & Bleiker, 2008). The reason for the low number of parents who used subsidized funding for preschool services was due to states setting the eligibility lower than the federal standards, resulting in a long waiting list for students to attend (Winsler et al., 2013).

Data collected through the National Institute for Early Education Research (NIEER), which provides a national comprehensive examination of preschool programs, revealed the following: during the 2013-14 school year, 1.1 million children, or twenty-

eight percent of America's four year-olds were enrolled in a state-funded preschool program (Barnett, Carolan, Squires, & Clarke-Brown, 2013). In addition, 9 percent of four-year-old students in state PK programs have an Individualized Education Plan (IEP) as required for students identified as special needs (Barnett & Carolan, 2013).

According to Barnett and Carolan (2013), over half of Hispanic three and four-year old students reside in just three states; California, Texas, and Florida. Only 25 of 40 states with state-funded PK programs reported their enrollment of students identified as limited English proficient (LEP), which was 21 percent (Barnett & Carolan, 2013).

According to Barnett and Carolan (2013), this high percentage is most likely the result of program requirements that include students from low income families in addition to non-English speaking family members.

It is not uncommon for states to have one preschool program and offer additional preschool programs. The rationale is to allow access of early childhood education for different populations of students, typically with different standards. For example, additional preschool programs allow for provisions to be made for faith-based and other private programs, if the existing program is meant to serve students in a public school setting (Barnett & Carolan, 2013).

NIEER researchers began tracking state PK monitoring through making visits to assess quality of programs in 2004-05 (Barnett & Carolan, 2013). During that time, 70 percent of programs met the requirements which included the following:

Teachers must have a bachelor's degree; teacher training in preschool education; teacher assistant must have a Child Development Associate or an equivalent credential; teachers must have at least 15 hours of professional development annually; class size may not exceed 20 children; ratio may not exceed 10 students per staff member; early learning standards; comprehensive services; nutrition; and monitoring quality visits (Barnett & Carolan, 2013).

The number increased to 78 percent in 2008-09, then fell to 62 percent in 2011-12 (Barnett & Carolan, 2013). The reason for the drop was there was not enough personnel to monitor sites because of a decrease in funding for PK programs due to the recession. Without consistent observations of program quality, it is difficult for states to assess the use of resources provided for the proper implementation of their state PK standards. In the next section, the researcher will address the origins and evaluations of the effects of state PK programs on school readiness in Illinois, Georgia, Florida, and North Carolina.

Illinois

The Illinois state PK program began in 1985 as the Prekindergarten Program for At-Risk Children (Barnett et al., 2013). Funding for the program had been included in the Illinois Early Childhood Block Grant and administered through the state Department of Education since 1998 (Ross, Moiduddin, Meagher, & Carlson, 2008). The Preschool for All Children Act also known as Preschool for All (PFA), passed in 2006. This program expanded the Prekindergarten Program for At-Risk Children to offer universal PK to all three and four year old children in a range of settings that included state-funded, community-based child care centers, and Head Start (Ross et al., 2008).

The Illinois State Board of Education evaluated the effects of PFA. The study, conducted by Erikson Institute during fall 2009 to winter 2012, did not include programs from Chicago because Chicago had its own program evaluation (Illinois State Board, 2012). A total of 120 programs participated in the study. Direct assessment of student and teacher reports were used for data collection. A hierarchical linear model was used to test for the magnitude of children's kindergarten school readiness (Illinois State Board of Education, 2012). The results found that PFA programs significantly improved vocabulary and language ability of participating children representing high and low

income and at-risk status (Illinois State Board of Education, 2012). However, children in the overall sample and from nearly every income and at-risk status experienced a decline in math skills during their time in the program (Illinois State Board of Education, 2014). The results of this study indicate that more emphasis should be placed on professional development in the area of math. The next section looks at the evaluation of early childhood education programs in Chicago, Illinois.

Chicago Public Schools' early childhood education programs, which have been in existence since 1965 during the implementation of Head Start, have been evaluated through the Chicago Program Evaluation Project (Ross et al., 2008). The researchers of the Chicago Program Evaluation Project evaluated approximately 30,000 four year olds in Chicago's early childhood education programs during the 2006-07 school year (Ross et al., 2013). The study examined three types of early childhood education programs: full day programs in community-based childcare centers that operate with federal Head Start dollars and state child care subsidy funds, half day Head Start, and school-based PFA (Ross et al., 2008). A descriptive analysis was used to determine the differences in children's developmental progress during the preschool year which varied by particular program, classroom, and family characteristics (Ross et al., 2008). Ross et al. (2008) emphasized that the population of students in the Chicago area had high concentrations of English Language Learners and parents with lower education levels.

Results showed that although during the preschool year the students made significant growth in terms of English vocabulary development, early literacy achievement, and early mathematics achievement, as is consistent with high levels of family demographic risk and large proportions of English Language Learners, the vocabulary and math achievement were still below the preschool-aged children nationally

(Ross et al., 2008). The findings from PFA and the early childhood education programs in Chicago indicate that the programs show improvement in the area of literacy and social development over the course of time in the PK program; however, the PK students still fell below the national average for preschool age students.

Georgia

Georgia's PK program, which started out as a pilot program in 1992 that served 750 at-risk four year old students in either a school-based, center-based, or home-based site, became established in 1993. Within two years, Georgia became the first state to offer a state-funded universal preschool program for four year olds (Barnett et al., 2013). This PK program was open to all eligible four year olds, not just four year olds from at risk families. To be eligible for the program, children had to be four years old by September 1 of the current school year (Georgia Department of Early Care and Learning, 2014). According to the Georgia Department of Early Care and Learning: Bright from the Start (2014), during fiscal year 2012, Georgia served 84,000 preschool students.

In the research study conducted by Henry, Gordon, and Rickman (2006), the researchers honed in on the program quality and effectiveness of Head Start when compared to the state of Georgia's universal PK program. The randomized, quasi-experimental study included 114 four year olds from the Head Start program and 201 from the Georgia universal PK program (Henry, Gordon, & Rickman, 2006). The students were assessed on the Peabody Picture Vocabulary Test, Woodcock-Johnson Test of Achievement using letter-word and applied problems, and the Oral and Written Language Scales test at the beginning of kindergarten to gather baseline data on their performance (Henry, Gordon, and Rickman, 2006). It was concluded that economically disadvantaged children who attended the state PK program were at least as well prepared

for school when they entered kindergarten as were the children who attended Head Start (Henry, Gordon, & Rickman, 2006). We will now take a look at the results of evaluations that were conducted on the effectiveness of Georgia's PK program on students' school readiness.

In fall 2012, researchers from the Frank Porter Graham Child Development Institute evaluated the effectiveness of Georgia's PK program by including a sample of 1,181 children who were divided into 611 participants in the treated group and 570 in the untreated group (Peisner-Feinberg, Schaaf, LaForett, Hildebrandt, & Sideris, 2014). The treatment group were students who completed Georgia's PK program the previous year and were just entering kindergarten in the study year; the untreated group were students who were not eligible to attend the program the previous year and were just entering kindergarten in the study year. The design used to examine the treatment effects was a regression discontinuity design (RDD). Individual assessments of language, literacy, math, and general knowledge skills and teacher ratings of behavior skills were conducted (Peisner-Feinberg et al., 2014). Results showed that students who participated in the Georgia PK program had significantly higher scores in all areas assessed when compared to students who did not attend the program.

Florida

Florida established the Florida School Readiness Program in 1999 and expanded it in 2001 to include the Prekindergarten Early Intervention Program (PEIP) and the State Migrant Prekindergarten Program (SMPP) (Barnett et al., 2013). The PEIP focused on young children's health, whereas SMPP focused on providing financial assistance for child care to three and four year olds whose parents who were migratory, agricultural, or fishing industry laborers (Barnett et al., 2013). The School Readiness Program worked in

cooperation with other programs such as Head Start, Early Head Start, and Florida's Voluntary Prekindergarten Program in offering services for preschool students (Florida Department of Education, 2014). The following will explain the concept of Florida's VPK program and the effectiveness on student's school readiness skills.

Florida's Voluntary Prekindergarten (VPK) was created in 2005 (Florida Department of Education, 2014). According to the Florida Department of Education (2014), all children who are four years old by September 1, regardless of family income, were eligible to attend. Presently, approximately eighty percent of all four-year-olds attend Florida's VPK program, which amounts to more than 174,000 students (Florida Department of Education, 2014; Barnett et al., 2013). The VPK program is offered in private child-care centers, public schools, and specialized instructional services providers (Florida Department of Education, 2014). Students attending VPK have the option of attending the summer program or a school year program and are evaluated on the effectiveness of the program through the administration of the Florida Kindergarten Readiness Screener that is administered within the first 30 days of kindergarten (Barnett et. al, 2013).

During 2006 fiscal year, a comparison of scores of students who attended VPK and those who did not were used to identify if the program resulted in a positive effect on student achievement. The Office of Program Policy Analysis and Government Accountability (2008), stated in its report that sixty-one percent of children who attended the VPK program were deemed ready for kindergarten and demonstrated higher levels of kindergarten readiness, as measured by assessment data of student's knowledge of alphabet recognition, initial sounds recognition, and classroom readiness skills, than those who did not attend. A logistic regression was used to adjust for differences among

the two groups (The Office of Program Policy Analysis and Government Accountability, 2008). According to the Florida Department of Education (2014), in fiscal year 2011, seventy-nine percent of students who attended the VPK program were ready for kindergarten and fifty-five percent of students who did not attend VPK were ready for kindergarten. The following research study looks at the effects of VPK among different learning centers in Miami, Florida.

In a study conducted by Winsler et al. (2013), the researchers examined school readiness gains of ethnically and linguistically diverse, urban children in poverty attending center-based childcare and public school prekindergarten programs. Participants in the study from The Miami School Readiness Project included 1478 students in center-based childcare programs, 1611 in Title 1 pre-kindergarten programs, and for comparison purposes, 749 children within the same community with sufficient resources to pay their own way to attend public school pre-kindergarten during the 2003-2004 school year (Winsler et al., 2013). The results showed that although gains were made in students' language and cognition skills across all programs from the beginning to end of the year in preschool, students in Title 1 and public school prekindergarten programs made slightly greater gains than those who attended center-based programs (Winsler et al., 2013).

A follow up study conducted by Ansari and Winsler (2013) referenced the effectiveness of children's school readiness skills (cognition, fine motor, and language) as based on stability and sequence of center-based care and family childcare. The participants included a subsample of 2,682 preschool students from the Miami School Readiness Project who originally received subsidies to attend childcare or a public school prekindergarten program in Miami-Dade County during the years 2002-2007 (Ansari &

Winsler, 2013). The authors concluded that all students made some gains; however, there were differences among the subgroups of students. Children who received stable center-based childcare over a two year period made moderate gains in pre-academic skills (Ansari & Winsler, 2013). Ansari and Winsler (2013) further discovered that those in stable family childcare programs made some gains in fine motor and language skills, but lost ground relative to national norms in cognitive skills. Those who switched between center-based to family childcare did show strong social skills, but did not show as much pre-academic growth when compared to those who switched to family childcare which demonstrated the least growth (Ansari & Winsler, 2013). Students who switched to public PK programs at age four showed the strongest school readiness skills and were the only group to score above the national averages in language and cognition (Ansari & Winsler, 2013).

North Carolina

One of the most comprehensive reviews of the history of early childhood education in North Carolina came from a policy brief written by Karen Ponder, writing to the Institute for Emerging Issues, at North Carolina State University. The emphasis on early childhood education in the state of North Carolina began in earnest under the direction of Governor James Holshouser. In 1973, during his one year term in office, he led efforts to fund a full day kindergarten program using state dollars (Ponder, 2010). Governor Holshouser proposed full day kindergarten because although there was a Child Care Licensing System created in 1971, it only focused on the facilities rather than the quality of programs provided for children (Ponder, 2010). His successor, Governor Jim Hunt, who served a historic 4 terms from 1977-1985, 1993-2001, completed the phase of statewide full day kindergarten in 1978 (United States Department of Education, 2014).

Governor Hunt, also known as the education governor, was at the forefront of education reform in North Carolina and the nation. The following explains the state of North Carolina's early childhood education system prior to Governor Hunt's re-election in 1992.

Ponder (2010) reported that "in the early 1990's, twenty percent of children under age five lived in poverty and North Carolina had the worst childcare standards in the country" (p. 4). Children had to adjust to multiple teachers due to the high teacher turnover rate and the majority of childcare facilities were not good enough to meet the developmental and learning needs of children (Ponder, 2010). It was then that Governor Hunt ran for re-election for a third term and won with a strong educational platform that focused heavily on early childhood education. The Smart Start Initiative, which North Carolina's legislature passed in 1993, was a comprehensive program that reflected the framework of the Head Start program (Ponder, 2010). The vision of the program was for every child to enter school healthy and to be able to demonstrate school readiness skills (Smart Start and The North Carolina and Partnership for Children, 2014). Governor Hunt solicited support from both state level administrative nonprofit agencies, local coalitions, and nonprofit agencies to effectively implement the program (Ponder, 2010). By 1999, all counties in North Carolina received Smart Start funding (Ponder, 2010). Because of the support from both public and private partnerships, North Carolina's Smart Start Initiative was the first in the nation to provide a comprehensive approach for children birth to kindergarten (Ponder, 2010).

A decade after its implementation, evaluations of the Smart Start Initiative were conducted by researchers from the Frank Porter Graham Institute at the University of North Carolina (Ponder, 2010). Bryant, Maxwell, Taylor, Poe, Peisner-Feinberg, and

Bernier (2003) performed a study that included 110 preschool child care programs that were part of previous observational studies of North Carolina's child care quality between 1994 and 1999. The centers were located in 20 partnerships that entered Smart Start in the first, third, or fourth years of funding and were in a variety of geographic setting that included urban, rural, piedmont, east and west (Bryant et al., 2003). From these classrooms 512 preschool children were assessed on their language, literacy, numeracy, and social-emotional skills (Bryant et al., 2003). Results showed positive results in all areas that included a higher percentage of students outperforming their peers academically in math and language skills, and socially with demonstrating fewer behavior programs when compared to students who did not participate in the program (Bryant et al., 2003). The most current research released by Duke University in March 2011, revealed that third graders have higher standardized reading and math scores and lower special education placement rates in counties that had received relatively more funding for Smart Start when those children were younger (Smart Start and North Carolina and Partnership for Children, 2014).

Another North Carolina publicly funded PK program, created by Governor Mike Easley in 2001, was the More at Four program. This program differed slightly from the Smart Start Initiative because the targeted population was at risk four year olds (Ponder, 2010). As indicated by the North Carolina Department of Public Instruction (2011), the More at Four program was ranked one of only five programs in the nation to meet all 10 of the survey's benchmarks on early learning standards, teacher degrees, teacher specialized training, assistant teacher degrees, continuing professional development requirements, maximum class size, staff-child ratios, screening, referral and support services, meals and monitoring procedures. Although a great achievement for the state of

North Carolina, the legislature discussed the possibility of merging More at Four with Smart Start because of the ongoing debate of having two major early childhood education programs functioning under two different departments, Department of Public Instruction and Department of Health and Human Services, respectively (Ponder, 2010). During a news release from the Department of Public Instruction, State Superintendent June Atkinson stated:

Recent budget proposals that would cut the program by 20 percent and transfer it out of the Department of Public Instruction would make it impossible to maintain the critical focus on high quality teachers, access for the most disadvantaged children and the academic curriculum that have helped to create so many success stories for students across our state" (Department of Public Instruction, 2011).

The legislature sought to merge More at Four with Smart Start, all functioning under one umbrella, the Department of Health and Human Services (Ponder, 2010). Opponents of the merge argued that removing the program would academically affect an estimated 32,000 at-risk four year olds across the state of North Carolina (Department of Public Instruction, 2009). According to Peisner-Feinberg, Schaaf, and Hildebrandt (2014), the More at Four program operated from 2001-2011 and was overseen by the North Carolina Office of Early Learning in Raleigh, North Carolina. In the 2011-2012 school year, the statewide program was changed to the North Carolina Pre-Kindergarten (PK) Program, overseen by the North Carolina Division of Child Development and Early Education (Peisner-Feinberg et al., 2014). Formerly More at Four, the North Carolina PK program continues to provide a high quality PK program for at risk four years old students.

Summary

This literature review revealed many instances where low-income students who participated in federally and publicly-funded PK programs demonstrated a positive effect on kindergarten school readiness skills at the end of their preschool year. These results

positively affected 1.1 million four year-olds who were enrolled in state-funded PK programs during the 2012-13 school year (National Institute of Early Education Research, 2013). In looking specifically at literacy achievement among the various subgroups of preschool students, families that chose to use subsidized funding to send their child to a publicly-funded PK program, outperformed students academically in the areas of letter identification, concepts of print, and letter sounds when compared to those who attended a center-based childcare, family-childcare, or those who did not attend a program at all. Students within the states of Illinois, Georgia, Florida, and North Carolina all showed positive effects on reading achievement of students who attended the publicly funded PK programs when compared to those who did not.

Although the literature presented several meta-studies that generalized positive academic results across the performance of students who attended a federally-funded or publicly funded PK program, there is still the question of the effectiveness of individual PK programs within the state in this study. My research study will add to the body of literature by addressing the effectiveness of the publicly-funded PK program, Bluebird, which is offered in an urban school district located in the southeastern United States.

CHAPTER 3: METHODOLOGY

Although there have been a number of studies conducted on the effectiveness of Head Start and publicly-funded PK programs on student achievement, little is known of the effects of the publicly-funded Bluebird PK program in the urban school district in this study. Students who participated in the Bluebird PK program have not been consistently tracked once they transitioned to kindergarten. This study was designed to determine if participation in the Bluebird PK had an effect on kindergarten school readiness, specifically in the area of reading. For purposes of this study, four essential questions were posed.

1. What percentage of kindergarteners at two Title 1 schools located in an urban school district in the southeastern United States participated in the district's publicly-funded, Bluebird PK program?
2. When controlling for covariates (ethnicity, gender, disability status, and LEP status), are there differences in reading performance as measured by *DIBELS Next* scores for *Letter Naming Fluency (LNF)* between three subgroups of kindergarteners; those who participated in the Bluebird PK program, those who participated in other PK programs, or those who did not participate in any PK program?
3. When controlling for covariates (ethnicity, gender, disability status, and LEP status), are there differences in reading performance as measured by *DIBELS Next* scores for *First Sound Fluency (FSF)* between three subgroups of kindergarteners; those who

participated in the Bluebird PK program; those who participated in other PK programs, or those who did not participate in any PK program?

4. When controlling for covariates (ethnicity, gender, disability status, and LEP status), are there differences in reading performance as measured by *mCLASS Reading 3D Text Reading Comprehension (TRC)* scores between three subgroups of kindergarteners; those who participated in the Bluebird PK program, those who participated in other PK programs, or those who did not participate in any PK program?

Research Setting

The setting of this study is an urban school district located in the southeastern United States. The district is the second largest district in the state. The county in this school district currently serves over 4,000 PK students in 235 classrooms. This includes the state's PK program and the district's Bluebird PK program. There are similarities and differences between the two programs (North Carolina Department of Public Instruction, 2014).

According to the North Carolina Department of Public Instruction (2014), the state's PK and the Bluebird PK programs are offered free of charge to eligible preschoolers who reside in the county and are four years old on or before August 31 of the current school year. Both programs follow the urban school district's yearly calendar and have a similar daily schedule. Teachers have the same credentials to teach and classrooms must have a teacher assistant. Parents are required to participate in their child's education through attending school events and to complete the family reading requirements. A screening process is administered to determine eligibility. Due to the number of eligible preschool students that exceed spaces available in each program,

results of the screenings are ranked in accordance with priority need. Remaining students are placed on a waiting list until a space becomes available. Although both programs require a screening process, there are differences in eligibility requirements as based on family income and educational need (North Carolina Department of Public Instruction, 2014).

The state's PK program serves approximately 860 children in 23 high quality community based child-care centers and non-profit preschools. Eligibility for the state's PK program is based on family size and gross income. A child who is four years old on or before August 31 and from a family whose gross income is at or below 75% of the state median income level, will qualify for services. Placement priority is given to children who received no prior early education services outside the home in a group setting (North Carolina Department of Public Instruction, 2014).

The Bluebird PK program, a Title 1 program that is taught in select schools in the urban school district, is currently being implemented in 54 schools that serve 2,900 eligible four-year olds who have demonstrated an educational need and are at risk of failing to meet the state's performance standards. Eligibility requirements are determined by a screening process that includes the administration of the Brigance Early Childhood Screening, a parent survey, parent interview, and an observation by the person who screens the child.

Participants

The research participants in this study were kindergarteners from two Title 1 schools that offered the Bluebird PK program the previous school year. These two sites were selected because of the similarities in the demographics of the schools. A total of 302 kindergarten students from the sites were invited to participate in this study. The

student population breakdown, which included 141 kindergarteners at one site and 161 kindergarteners at the second site were as follows: 53% African American, 25% Hispanic/Latino, 16% Caucasian, 4% Muti-Race, and 2% Asian. The participants in this study were kindergarten students who may have attended the district's Bluebird PK program, a PK program at other locations, or did not attend a PK program.

Of the 302 kindergarteners invited to participate in the study, 157 parents signed the consent form to allow their child's reading data from *DIBELS Next LNF* and *FSF* and *mCLASS Reading 3D TRC* to be used in the study. Parents also completed a questionnaire which was used to categorize if their child attended or did not attend a PK program. If their child did attend a PK program, the parent specified by checking off one of the following items listed of their child's attendance in a PK program: attended the Bluebird PK program at one of the Title 1 schools in this study; attended PK at another school located in the district in the study; attended Head Start; attended a PK program at a faith-based organization; attended a PK program at a private school; or did not attend a PK program at all. Parents were also asked on the questionnaire if their child attended PK as a three-year old.

There were 29 students who attended the Bluebird PK program at one Title 1 school in this study; 25 students attended the Bluebird PK program at the second Title 1 school in this study; 6 attended the Bluebird PK program at another school in the urban school district in this study; 10 attended Head Start; 13 attended a PK program at a faith-based site; 12 attended a private school PK program; and 62 did not attend a PK program prior to entering kindergarten. Because of the low number of students in the category of attendance in PK, the researcher combined the total number of students who attended Bluebird PK for both Title 1 schools and those who attended Bluebird PK at another

school in the district under one category called, “attendance in Bluebird PK.” The total number of Head Start, faith-based, and private school PK programs were combined and was labeled as “PK program at another location.” This process was done to see if there would be a significant difference among the three categories as measured by student’s reading scores. Also, because 27 of the 157 parents responded on the questionnaire of “attended as a three-year old,” descriptive data was generated to inform the researcher of how many were identified within each of the three categories. No other analyses were run for this category.

The school district data indicated that of the 157 kindergarteners who participated in this study, 33.1% were African American, 1.3% were American Indian, 4.5% were Asian, 47.1% were Hispanic/Latino, 0.6% were Multi-Racial, and 13.4% were White. In addition, 30.6% were LEP, 5.7% were EC, 44.6% were male, and 55.4% were female.

DIBELS Next and mCLASS Reading 3D TRC

Dynamic Indicators of Basic Early Literacy Skills (DIBELS) Next, a nationally referenced assessment was developed by Dr. Roland Good, III and Dr. Ruth Kaminski, founders of the Dynamic Measuring Group. *DIBELS Next*, which consists of seven measures to function as indicators of phonemic awareness, alphabetic principle, accuracy and fluency with connected text, reading comprehension, and vocabulary, was created to assist educators in identifying children experiencing difficulty in the acquisition of basic early literacy skills to prevent the occurrence of later reading difficulties (Good & Kaminski, 2014). The framework for *DIBELS Next* was based on curriculum-based measurements, which were developed by Stanley Deno and his team through the Institute for Research and Learning Disabilities at the University of Minnesota in the 1970s-80s (Good & Kaminski, 2014).

In identifying a student's reading performance, a *DIBELS Next* composite score is generated which provides the best indicator of risk. For purposes of this research study, two assessments were administered, letter naming fluency and first sound fluency. It must be noted that a goal for letter naming fluency was not determined because this assessment was used as an indicator of risk rather than an instructional target (Good & Kaminski, 2014). Students demonstrating school readiness in the area of first sound fluency scored at or above 10 on the assessment. This means the student met the benchmark and was on track for meeting mastery of reading skills. A student who scored 5, 6, 7, 8, or 9 had not met grade level expectations and needed some level of intervention. A score of 4, 3, 2, 1, or 0 indicated a severe skill deficit mastery and the student needed intensive intervention in order to move to mastery (Good & Kaminski, 2014).

There have been several research studies on the reliability and validity of *DIBELS*. In a recent study on the reliability and validity of *DIBELS* conducted by Elliot, Lee, Tollefson (2001) from the University of Kansas, 75 kindergarten students from four elementary classrooms were administered the *DIBELS-M* battery, Woodcock-Johnson Psychological Achievement Battery-Revised, Broad Reading and Skills clusters, The Test of Phonological Awareness-Kindergarten Form, and the Kaufman Brief Intelligence Test. The measures tested by *DIBELS-M* were letter naming fluency, sound naming fluency, initial phoneme ability, and phonemic segmentation. It was determined that *DIBELS* measures were reliable and valid in identifying kindergarten students who would benefit from more intensive instruction, progress monitoring, and evaluating the effectiveness of early pre-reading instruction as based on the strong correlations found between *DIBELS-M* and the Woodcock-Johnson Skills Cluster assessments. (Elliott, Lee, & Tollefson, 2001).

The mobile Classroom Assessment Scoring System (*mCLASS*) *Reading 3D Text Reading and Comprehension (TRC)* is a running record of student's reading performance that allows the teacher to evaluate student's foundational skills in becoming a better reader (Wireless Generation, 2014). A panel of 11 early reading and literacy experts was convened to determine the text level that best identified a student's instructional reading level at three benchmark administration periods during the school year. The Reading 3D TRC performance levels are: far below proficient, below proficient, proficient, and above proficient (Wireless Generation, 2014). Evaluations of Reading 3D TRC were conducted in 2004 by researchers in the Montgomery County Public Schools Office of Accountability who partnered with researchers from Amplify (Wireless Generation, 2014). Researchers examined the impact of instruction and its internal and external predictive validity. End-of-year performance correlated with performance on the third grade Maryland State Assessment, which demonstrated that Reading 3D TRC was reliable and valid (Wireless Generation, 2014). For purposes of this study, students entering kindergarten must have a reading level of RB or higher to be considered proficient on the beginning-of-year assessment. Reading Behavior (RB) reading level describes a student's reading pattern by noting whether the student maintained language patterns, used picture support, or pointed to each word while reading. If a student's score is at level A or B, that student is able to read a short story with pictures and is able to tell you about the story.

Research Design

All kindergarten students were administered the one minute one-to-one *DIBELS Next LNF*, one minute one-to-one *DIBELS Next FSF*, and one-on-one *mCLASS Reading 3D TRC* assessments to determine their level of kindergarten school readiness in the area

of reading during the first quarter of school. *DIBELS Next LNF* and *FSF* and *mCLASS Reading 3D TRC* assessments were valid and reliable research-based assessments adopted by the state for all districts to use to gain a comprehensive overview of students' reading performance. Kindergarteners were assessed using *DIBELS Next LNF* and *FSF* to identify student's knowledge of upper and lower case letter names that were administered out of sequence, and first sound fluency. The *mCLASS Reading 3D TRC* assessment was administered to identify their reading performance level. A questionnaire was developed to ascertain whether incoming kindergarten students attended the Bluebird PK program, a PK program at another location, or did not attend a PK program. The selections included these possible responses: attended Bluebird PK at one of the Title 1 schools in the study; attended Bluebird PK at another school in the district participating in this research study; attended Head Start; attended PK at a faith-based school; attended PK at a private preschool; did not attend PK; and also attended as a three-year old. To maintain student privacy, all questionnaires were securely destroyed once names of consented participants were submitted to the LEA Office of Accountability. The LEA Office of Accountability de-identified student data that was sorted into those that attended a specified PK program and those that did not. In order to run specific data analyses, the de-identified *DIBELS Next LNF* and *FSF* and *mCLASS Reading 3D TRC* data were collected from the LEA Office of Accountability and were entered into SPSS for a series of data analyses to be performed.

In answering the first research question, what percentage of kindergarteners at two Title 1 schools located in the southeastern United States participated in Bluebird PK program, a descriptive statistical analysis was generated. The data provided the overall percent of students attending one of the three categories of attendance in a PK program;

attended Bluebird PK, attended PK at another location, did not attend a PK program. For further analysis of descriptive data of the students within each of the three categories, SPSS generated a percent of students by gender, ethnicity, disability, and limited English proficiency (LEP).

In answering the second and third research questions, when controlling for covariates (ethnicity, gender, disability status, and LEP status), were there differences in reading performance as measured by *DIBELS Next LNF* and *FSF* respectively, between three subgroups of kindergarteners; those who participated in the Bluebird PK program, those who participated in other PK programs, or those who did not participate in any PK program, a hierarchical regression model was used. A hierarchical regression model was used to evaluate the relationship between the independent variable and the dependent variable, when controlling for or taking into account the impact of a different set of independent variables or control variables on the dependent variable.

For the assessments, *DIBELS Next LNF* and *DIBELS Next FSF*, respectively, the covariates were ethnicity, gender, disability, and limited English proficient (LEP). They were coded as Hispanic – No = 0, Yes = 1; African American – No = 0, Yes = 1; gender-male = 1, female = 0; disability – No = 0, Yes = 1; LEP – No = 0, Yes = 1. The independent variables were attendance in the Bluebird PK program in the urban school district located in the southeastern United States and attended a PK program at another location. The variables were coded as Bluebird- No = 0, Yes = 1 and PK - No = 0, Yes = 1. The baseline category was “did not attend a PK program.”

In answering the fourth research question, when controlling for covariates (ethnicity, gender, disability status, and LEP status), were there differences in reading performance as measured by *mCLASS Reading 3D TRC* scores between three subgroups

of kindergarteners; those who participated in the Bluebird PK, those who participated in other PK programs, or those who did not participate in any PK program, a logistic regression analysis was performed. The logistic regression model was used to predict the probability that an observation fell into one of two categories of a dichotomous dependent variable based on one or more independent variables that could be continuous or categorical. The dependent variable was TRC score. Using SPSS, students who were proficient or above were given a value of “1” and students who scored below proficient were given a value of “0.” The independent variables that were used to test the predictability were gender, ethnicity, disability, LEP and attendance in a PK program. They were coded as male, African American, Hispanic, disability, LEP, PK, and BB.

These data were reported in table form for ease of use of analyses. This study sought to determine whether there was a link between *DIBELS Next LNF* and *FSF* and *mCLASS Reading 3D TRC* test scores and students who attended the Bluebird PK program, another PK program, or students who did not attend a PK program. Analyses were performed by the researcher under the direction of a supervising UNC-Charlotte professor.

CHAPTER 4: FINDINGS

The urban school district located in the southeastern United States that is the site of this study offers the publicly-funded PK program, Bluebird, for four year olds who have met eligibility requirements. Bluebird PK is free of charge to eligible preschoolers who reside in the county and are four-years old on or before August 31 of the current school year. Eligibility requirements are determined by a screening process that includes the administration of the Brigance Early Childhood Screening, a parent survey, parent interview, and an observation by the person who screens the child. Students who do not meet the requirements to attend the Bluebird PK program either attended other PK programs (Head Start, PK at a faith based location, or PK in a private school) or did not attend a PK program prior to their entry into kindergarten. Bluebird PK began during the 1998-99 school year in this district. Because the school district in this study has not consistently tracked the academic performance of students who have attended the district's Bluebird PK program since the 1999-2000 school year, it is unclear of its past effectiveness once students enter kindergarten. Thus, this study was designed to determine if participation in the Bluebird PK program located in an urban school district in the southeastern United States, had an effect on kindergarten school readiness, specifically in the area of reading. For purposes of this study, four essential questions were posed.

Research Questions

1. What percentage of kindergarteners at two Title 1 schools located in an urban school district in the southeastern United States participated in their publicly funded PK program?
2. When controlling for covariates (ethnicity, gender, disability status, and LEP status), are there differences in reading performance as measured by *DIBELS Next* scores for *Letter Naming Fluency (LNF)* between three subgroups of kindergarteners; those who participated in the Bluebird PK program, those who participated in other PK programs, or those who did not participate in any PK program?
3. When controlling for covariates (ethnicity, gender, disability status, and LEP status), are there differences in reading performance as measured by *DIBELS Next* scores for *First Sound Fluency (FSF)* between three subgroups of kindergarteners; those who participated in the Bluebird PK program; those who participated in other PK programs, or those who did not participate in any PK program?
4. When controlling for covariates (ethnicity, gender, disability status, and LEP status), are there differences in reading performance as measured by *mCLASS Reading 3D Text Reading Comprehension (TRC)* scores between three subgroups of kindergarteners; those who participated in the Bluebird PK program, those who participated in other PK programs, or those who did not participate in any PK program?

Findings

Following university and district IRB approval, data were gathered from two Title I schools in an urban school district located in the southeastern United States. The data were from the 2013-14 school year and were comprised of kindergarteners' beginning-of-year assessment data in *DIBELS Next* as it relates to *LNF* and *FSF* and *mCLASS Reading 3D TRC*. Demographic information was collected which consisted of students' ethnicity, limited English proficiency (LEP) status, disability status, and gender. There were a total of 302 kindergarteners invited to participate in the study. The total sample size consisted of 157 kindergarten students whose parents returned the consent form.

To address the first research question, what percentage of kindergarteners at these two Title 1 schools participated in the Bluebird PK program, it was calculated that of the 157 kindergarten students who participated in this study, 60 students, or 38.2% attended the Bluebird PK program at one of these two schools or another school in the district prior to entering kindergarten; 35 students or 22.3% attended a PK program at locations other than these two schools; and 62 students, or 39.5% did not attend a PK program according to their parent's survey. The two ethnic groups most represented in the Bluebird PK program were African American with 23 students or 38.3%, and Hispanic with 34 students or 56.7% (Table 1).

Table 1: Kindergarten student's attendance in a PK program by ethnicity

Ethnicity	Bluebird PK	Other PK	No PK	Total
African American	23 38.3%	13 37.1%	16 25.8%	52 33.1%
American Indian	1 1.7%	0 0.0%	1 1.6%	2 1.3%
Asian	1 1.7%	3 8.6%	3 4.8%	7 4.5%
Hispanic	34 56.7%	3 8.6%	37 59.7%	74 47.1%
Multi-Racial	0 0%	1 2.9%	0 0%	1 0.6%
White	1 1.7%	15 42.9%	5 8.1%	21 13.4%
Total	60 100%	35 100%	62 100%	157 100

Of the kindergarteners who attended the Bluebird PK program, 21 students or 35% were identified as LEP (Table 2).

Table 2: Kindergarten students who attended a PK program who were limited English proficient (LEP)

	Bluebird PK	Other PK	No PK	Total
Not LEP	39 65%	33 94.3%	37 59.7%	109 69.4%
Yes LEP	21 35%	2 5.7%	25 40.3%	48 30.6%
Total	60 100%	35 100%	62 100%	157 100%

Of the kindergarteners who attended the Bluebird PK program, 7 students or 11.7% were identified with a disability (Table 3).

Table 3: Kindergarten students who attended a PK program by disability

	Bluebird PK	Other PK	No PK	Total
No Disability	53 88.3%	34 97.1%	61 98.4%	148 94.3%
Yes Disability	7 11.7%	1 2.9%	1 1.6%	9 5.7%
Total	60 100%	35 100%	62 100%	157 100%

Of the kindergarteners who participated in the Bluebird PK program, 26 students or 43.3% were female and 34 students or 56.7% were male (Table 4).

Table 4: Kindergarten students who attended a PK program by gender

	Bluebird PK	Other PK	No PK	Total
Female	26 43.3%	18 51.4%	26 41.9%	70 44.6%
Male	34 56.7%	17 48.6%	36 58.1%	87 55.4%
Total	60 100%	35 100%	62 100%	157 100%

Of those who attended the Bluebird PK program, 9 students, or 15% also attended a PK program as a three year old. Kindergarteners who did not attend Bluebird PK, but attended another PK program prior to entering kindergarten, 17 or 48.6% also attended as a three year old (Table 5).

Table 5: Kindergarten students who attended a PK program at the age of three

	Bluebird PK	Other PK	No PK	Total
Attended as a 3 year old	9 15%	17 48.6%	1 1.6%	27 17.2%
Did not attend as a 3 year old	51 85%	18 51.4%	61 98.4%	130 82.8%
Total	60 100%	35 100%	62 100%	157 100%

A hierarchical regression model was run to test the results for the second and third research questions. This model was used to evaluate the relationship between the independent variables (demographics) and the dependent variable (*LNF* and *FSF* test score, respectively), when taking into account the impact of a different set of independent variables (attendance in a PK program) on the dependent variable (*LNF* and *FSF*, respectively).

For the first assessment, *LNF*, Model 1 included the independent variables for demographics only (LEP, disability, African American, Hispanics, and gender). The second set of independent variables that were included to test if there was a relationship between demographics and attendance in a PK program, was represented in Model 2. Those variables were attendance in the Bluebird PK program and attended a PK program at another PK location and were used to predict which subgroup performed better on the *LNF* assessment that was administered during the first 30 days of school (Table 6).

Table 6: *LNF* scores of students by demographics and attendance in a PK program

Model	Variable	<i>b</i>	<i>se</i>	<i>b*</i>	<i>t</i>	<i>p</i>
1	Constant	26.46	3.21		8.24	0.000
	LEP Status	-7.86	3.20	-0.24	-2.46	0.015
	Disability	-1.50	6.25	-0.02	-0.24	0.811
	African American	0.55	3.63	0.02	0.15	0.881
	Hispanic	-5.25	3.58	-0.17	-1.47	0.145
	Male	0.76	2.50	0.02	0.31	0.760
2	Constant	15.42	3.82		3.99	0.000
	LEP Status	-6.45	2.91	-0.19	-2.22	0.028
	Disability	-6.87	5.74	-0.09	-1.20	0.234
	African American	2.40	3.62	0.07	0.66	0.508
	Hispanic	-1.74	3.73	-0.06	-0.47	0.641
	Male	1.22	2.25	0.04	0.54	0.588
	Bluebird PK	13.38 14.83	2.57 3.44	0.42 0.40	5.21 4.32	0.000 0.000

The results for Model 1, which only included demographics, indicated $r^2 = 0.13$. For Model 2, which included adding attendance in PK, the result was $r^2 = 0.30$. This indicated a large increase of 0.17, which showed how much predictive power was added to the model by adding attendance in a PK program in addition to the effect of the demographic covariates. Model 1 was statistically significant ($p=.001$) and Model 2 was statistically significant ($p=.000$).

Within Model 1, LEP was statistically significant ($p=.015$). In Model 2, attendance in Bluebird PK was statistically significant ($p=.000$), attendance in a PK program was statistically significant ($p=.000$), and LEP remained statistically significant ($p=.028$). According to these results, students who were LEP would be expected to identify fewer letters than children who were not LEP ($b= -6.45$); students who attended Bluebird ($b= 13.37$) and students who attended other PK programs ($b= 14.83$) would be expected to know more letters than students who did not attend a PK program prior to entering kindergarten. This means that participation in the Bluebird PK program and other PK programs would be expected to have a positive effect, above and beyond the effect of the demographics, on the number of letters students were able to identify (Table 6).

The third research question addressed whether or not there were differences in reading performance as measured by *DIBELS Next* scores for *First Sound Fluency (FSF)*. Students who identified at least ten initial sounds in words within one minute scored proficient for this assessment. Table 7 shows the results for *FSF*.

Table 7: *FSF* scores of students by demographics and attendance in a PK program

Model	Variable	<i>b</i>	<i>se</i>	<i>b</i> *	<i>t</i>	<i>p</i>
1	Constant	15.82	2.28		6.50	0.000
	LEP Status	-8.02	2.26	-0.34	-3.54	0.001
	Disability	-2.25	4.43	0.04	-0.51	0.612
	African American	-3.36	2.57	-0.14	-1.31	0.193
	Hispanic	-2.84	2.54	-0.13	-1.12	0.265
	Male	1.67	1.77	0.08	0.96	0.341
2	Constant	13.98	2.97		4.67	0.000
	LEP Status	-7.92	2.27	-0.34	-3.49	0.001
	Disability	-4.16	4.47	-0.08	-0.93	0.355
	African American	-3.94	2.82	-0.17	-1.39	0.165
	Hispanic	-3.15	2.91	-0.14	-1.09	0.280
	Male	1.75	1.75	0.08	1.00	0.318
	Bluebird	4.39	2.00	0.19	2.19	0.030
PK	2.30	2.68	0.09	0.86	0.393	

In referencing Model 1 which included the independent variables for demographics only, LEP was statistically significant ($p=.001$). In Model 2, which included adding the independent variables for attendance in a PK program, Bluebird PK was statistically significant ($p=.030$) and LEP remained statistically significant ($p=.001$). According to these results, students who were LEP would be expected to identify fewer first initial sounds in words than children who were not LEP ($b= -7.92$); students who attended Bluebird PK ($b= 4.39$) would be expected to know more first initial sounds in words than students who attended other PK programs and students who did not attend a PK.

The fourth research question addressed when controlling for covariates (ethnicity, gender, disability, and LEP status) if there were differences in reading performance as

measured by *mCLASS Reading 3D TRC* scores between three subgroups of kindergarteners; those who participated in the Bluebird PK program, those who participated in other PK programs, or those who did not participate in any PK program. Students entering kindergarten must have a reading level of RB, A, or B to be considered proficient on this beginning-of-year assessment. A logistic regression model was performed to ascertain the effects of *TRC* scores on the likelihood that students who attended a PK program prior to kindergarten entry would demonstrate proficiency. The dependent variable was *TRC* score.

Although there were 157 kindergarteners included in this study, 11 students were missing data, resulting in 146 students with a *TRC* score. Of the 146 kindergarteners, 76 students scored below proficiency and 70 scored proficient or above, which resulted in an overall percent of 47.9 who were proficient. According to these results, when predicting that all students in the study would pass with a score of proficient, the researcher would be correct 47.9 percent of the time (Table 8).

Table 8: *mCLASS Reading 3D TRC* scores by proficiency level and attendance in a PK program

	Bluebird PK	Other PK	No PK	Total
Proficient	26	24	20	70
	46.4%	76%	34.5%	47.9%
Not Proficient	30	8	38	76
	53.6%	25%	65.5%	52.1%
Total	56	32	58	146
	100%	100%	100%	100%

In Table 9, two models were run. The first model included the independent variables that were used to test the predictability by gender, ethnicity, disability, and LEP. In Model 2, the researcher included a second set of variables, attendance in the

Bluebird PK program and attendance in other PK programs. These variables were coded as BB and PK, respectively.

Table 9: *mCLASS Reading 3D TRC* scores of students by demographics and attendance in a PK program

Model	Variable	<i>B</i>	<i>se</i>	<i>p</i>	<i>Exp(B)</i>
1	Constant	1.43	0.51	0.005	4.17
	LEP Status	-1.15	0.47	0.013	0.32
	Disability	0.21	0.93	0.818	1.24
	African American	-0.86	0.54	0.115	0.42
	Hispanic	-1.20	0.53	0.023	0.30
	Male	-0.54	0.36	0.134	0.58
2	Constant	0.70	0.64	0.276	2.00
	LEP Status	-1.04	0.48	0.029	0.35
	Disability	0.03	0.94	0.976	1.03
	African American	-0.61	0.61	0.324	0.55
	Hispanic	-0.83	0.62	0.178	0.44
	Boy	-0.52	0.37	0.156	0.59
	Bluebird	0.55	0.42	0.189	1.73
	PK	1.07	0.57	0.058	2.92

The correct classification rate using demographics only was 67.1%. When adding attendance in a PK program, the correct classification result was 67.8%. There was only a 0.7% difference, which indicated a weak relationship of the predictability rate.

In Model 1, Hispanic students were statistically significant ($p=0.023$) with an odds ratio of 0.30. LEP students were statistically significant ($p=0.013$) with an odds ratio of 0.32. These results indicated that Hispanic and LEP students would be less likely to score proficient entering kindergarten than students who were non-Hispanic and non-LEP. Model 2 took into account attendance in a PK program. The results showed that

LEP students remained statistically significant ($p=0.029$) with an odds ratio of 0.35. This indicated that LEP students entering kindergarten, while taking into account attendance in a PK program, would be less likely to score proficient. It must be noted that although not statistically significant, students who attended the Bluebird PK program ($\text{ExpB} = 1.73$) and students who attended other PK programs ($\text{ExpB} = 2.92$) were more likely to score proficient on *mCLASS Reading 3D TRC* than students who did not attend a PK program. To further explain, the results suggest that, on average, students who attended Bluebird PK were almost 2 times more likely to score proficient; students who attended other PK programs were 3 times more likely to score proficient on the assessment.

CHAPTER 5: SUMMARY, DISCUSSION, AND RECOMMENDATIONS

The PK program selected for this study was located in an urban school district in the southeastern United States. Due to the lack of consistent monitoring of the effectiveness of the Bluebird PK program over time, the researcher was interested in investigating how well the program prepared academically at-risk four year old students for kindergarten. The purpose of this research study was to determine if participation in the publicly-funded PK program located in an urban school district in the southeastern United States had an effect on kindergarten school readiness in the area of reading. All kindergarten students in this study were administered the district-wide kindergarten entry assessments, *DIBELS Next LNF*, *DIBELS Next FSF*, and *mCLASS Reading 3D TRC* within the first quarter of the 2013-14 school year. The summary, discussion, and recommendations that follow are based on the results of the four research questions.

Results Summary

For purposes of this study, four essential questions were posed.

1. What percentage of kindergarteners at two Title 1 schools located in an urban school district in the southeastern United States participated in its publicly-funded PK program?
2. When controlling for covariates (ethnicity, gender, disability status, and LEP status), are there differences in reading performance as measured by *DIBELS Next* scores for *Letter Naming Fluency (LNF)* between three subgroups of kindergarteners; those who participated in the publicly funded PK located in an

urban school district in the southeastern United States, those who participated in other PK programs, or those who did not participate in any PK program?

3. When controlling for covariates (ethnicity, gender, disability status, and LEP status), are there differences in reading performance as measured by *DIBELS Next* scores for *First Sound Fluency (FSF)* between three subgroups of kindergarteners; those who participated in the publicly funded PK program located in an urban school district in the southeastern United States; those who participated in other PK programs, or those who did not participate in any PK program?
4. When controlling for covariates (ethnicity, gender, and disability status), are there differences in reading performance as measured by *mCLASS Reading 3D Text Reading Comprehension (TRC)* scores between three subgroups of kindergarteners; those who participated in the publicly funded PK program located in an urban school district in the southeastern United States, those who participated in other PK programs, or those who did not participate in any PK program?

For the first research question, which referenced the percentage of students who attended the Bluebird PK program, parents completed a questionnaire to help the researcher identify kindergarteners' attendance in a PK program prior to kindergarten entry. The selections included these possible responses: attended Bluebird PK at home school site; attended Bluebird PK at another school in the district participating in this research study; attended Head Start; attended PK at a faith-based school; attended PK at a private preschool; did not attend PK; and also attended a three-year old program.

Although there were different types of PK programs to choose from, the response rate for kindergarteners who attended a PK program other than Bluebird PK were low. The following were the number of responses that were combined to create the group "other

PK programs:” 10 kindergarteners attended Head Start, 13 attended PK at a faith-based site, and 12 attended a private PK program.

The researcher was surprised at both the low number of students (38.2%) who attended the Bluebird PK program and the high number of students (39.5%) who did not attend PK at all. The researcher expected that a majority of the students who were enrolled in the kindergarten program at one of the two Title I schools would likely have attended Bluebird PK due to both schools being neighborhood schools. It must be noted that for students who did not attend Bluebird PK, kindergarteners who attended another PK program (22.3%) could have attended the state’s PK program at a faith-based school or private PK that followed the district’s school calendar and curriculum as Bluebird PK. In other words, some of the students in a PK program other than Bluebird may have had a very similar PK experience. In delving deeper into the demographic makeup of kindergarteners who attended the Bluebird PK program, the ethnic groups most represented were 38.3% African American and 56.7% Hispanic. In addition, 35% of the kindergarteners were also identified as limited English proficient (LEP) and 11.7% were identified with a disability. In this cohort of kindergarteners, there were more males (56.7%) than females (43.3%) in this study.

The second research question addressed whether, when controlling for demographics, if there would be a significant difference in kindergarteners’ performance of identifying upper and lower case letters of the alphabet within one minute as based on their attendance in a PK program. This assessment measured students’ letter recognition. It must be noted that *LNF* does not have a goal because this assessment was used as an indicator of risk rather than an instructional target. Results indicated that prior to taking into account attendance in a PK program, kindergarteners identified as LEP identified 7

fewer letters of the alphabet than their non-LEP peers, and this finding was statistically significant. When adding attendance in a PK program to demographics, kindergarteners identified as LEP identified 6 fewer letters than their non-LEP peers, and this finding was statistically significant.

Results further indicated a positive effect for kindergarteners in the Bluebird PK who identified 13 more letters of the alphabet than students who did not attend a PK program, and this finding was statistically significant. Kindergarteners who attended “other PK programs,” too, were positively impacted by their attendance in a PK program. They identified 14 more letters of the alphabet than students who did not attend a PK program, and this finding was statistically significant. Although not statistically significant, African American students identified 2 more letters of the alphabet and males identified 1 more letter than females.

The third research question addressed whether, when controlling for demographics, if there would be a significant difference in kindergarteners’ performance of identifying first sounds in words within one minute as based on their attendance in a PK program. To show proficiency for this assessment, kindergarteners had to state 10 sounds correctly in one minute. Results for first sound fluency were similar to the results for letter naming fluency. Kindergarteners identified as LEP, without adding attendance in a PK program, stated, on average, 8 fewer first initial sounds in a minute, and this finding was statistically significant. When adding attendance in a PK program to demographics, kindergarteners identified as LEP produced, on average, 7 fewer first initial sounds in words, and this finding was statistically significant.

Results further indicated a positive effect for students who attended Bluebird PK. This group stated, on average, 4 additional first initial sounds in words than

kindergarteners who did not attend a PK program. This finding was statistically significant. Although not statistically significant, results showed a positive effect for students who attended “other PK programs.” This group was able to produce, on average, 2 more first sounds in words than students who did not attend a PK program.

The fourth and final research question addressed whether, when controlling for demographics, if there would be a significant difference in kindergarteners’ ability to read and understand text as measured by the *mCLASS Reading 3D TRC* assessment. To show kindergarten school readiness for this assessment, students had to score “proficient” for being able to demonstrate reading behaviors (RB). A score of reading level RB or higher indicated proficiency for this assessment. Results indicated that prior to taking into account attendance in a PK program, Hispanic and LEP students were statistically significant at being less likely to score proficient on the *TRC* assessment than students who were non-Hispanic and non-LEP. When adding attendance in a PK program, LEP students remained statistically significant at the likelihood of not scoring proficient on this assessment. Although not statistically significant, results indicated a positive effect for students who attended Bluebird PK and “other PK programs.” These groups were two times more likely and three times more likely, respectively, to score proficient on the *TRC* assessment.

Discussion

When Head Start was launched in 1965 as a comprehensive approach in providing early social and educational interventions for children of poverty, few if any states had early childhood education programs. 1965 was also the year that the Elementary and Secondary Education Act was passed, which set into motion the improvement of educational equity for students from lower income families whose school districts

generally experienced less state and local funding for educational programs. ESEA has gone through seven reauthorizations, with its latest 2002 reauthorization known as No Child Left Behind (NCLB). The enactment of NCLB led to an unprecedented level of state assessments which many referred to as the age of accountability. State policy makers recognized the importance of early childhood education on students' school readiness skills, and began to create and implement PK programs using the Head Start program as a model. Although operated under various names with different eligibility requirements and means of funding, states' PK programs provided a myriad of services for low-income students who were most in need of early childhood education.

The literature surrounding the benefits of PK programs on kindergarten school readiness is plentiful. As highlighted in the literature review, children who attended a PK program often demonstrated higher student achievement when compared to students who did not attend a PK program. This research study served to examine the effects of attendance in the publicly-funded PK program, Bluebird, on kindergarteners' school readiness skills in the area of reading. The purpose of this study was because students who participated in this program had not been consistently tracked once they transitioned to kindergarten. Similar to the reports from the National Institute for Early Childhood Research (NIEER) on the national average of students attending PK programs within the state, there was a high percentage of students who were Hispanic and identified as limited English proficient (LEP) (Barnett & Carolan, 2013).

The results of this study indicated that attendance in the district's Bluebird PK program had a positive effect on kindergarteners' school readiness skills in reading. In addition, there was also a positive effect for students who attended "other PK programs" when compared to their peers who did not have a PK experience. The researcher noted

that kindergarteners who attended “other PK programs” could have had a similar PK experience as those who attended Bluebird PK in the public school setting. This is because the state’s PK program followed the district’s school calendar and used the same curriculum and assessments to document end-of-year PK performance.

Although overall there were positive effects of attendance in a PK program, these findings did not hold true for two subgroups, Hispanics and LEP students. As indicated in the literature review, specifically the Chicago Program Evaluation Project that had high concentrations of LEP students, results showed that although during the preschool year the students made significant growth in terms of English vocabulary development and early literacy achievement, as is consistent with high levels of family demographic risk and large proportions of LEP students, the vocabulary and early literacy achievement were still below the preschool-aged children nationally (Ross et al., 2008).

Implications

This study is limited in size and scope to make definitive conclusions with regard to the possible implications on local education policy. One potential policy implication of the study is that a high number of students did not attend a PK program prior to kindergarten entry. This could be due to the reduced number of Bluebird PK sites and classrooms that were cut due to budget constraints during the 2010-11 school year. If funding could be increased to expand the program, more eligible students would have access to participate, which could result in closing the achievement gap of students who are ready for kindergarten.

Another implication is the quality of delivery of services. Although students in the Bluebird PK program made positive gains in student achievement in this research study, students in “other PK programs” made slightly higher gains in letter recognition and

reading comprehension and students identified as Hispanic and LEP did not demonstrate positive effects on kindergarten school readiness. This could be because “other PK programs” sites only serve PK students with an administrator that solely focuses on the PK program. In contrast, the Bluebird PK program, which is typically implemented in a public school setting with students up to fifth (PK-5 grade schools) or eighth grades (PK-8 grade schools), have administrators who have to shift the focus across all grade levels. Research has shown (Shore, Shue, & Lambert 2010; Bish, Shore & Shue, 2011; and Shue, Shore, & Lambert 2012) that elementary principals do not receive substantial professional development concerning early childhood education or child development and would like additional training in these areas. In addition, they may not have experience evaluating early childhood educators or observing in PK classrooms. Increased professional growth opportunities targeting early childhood issues could improve the quality of services delivered to PK programs housed on elementary school campuses.

Recommendations

In conducting this study, the researcher asked parents to complete a questionnaire to identify what type of PK program, if any, their child attended prior to kindergarten. In addition, parents were also asked if their child attended PK as a three-year old. One recommendation for future research would be to have parents not only check the status of type of PK program, but to also write the name and location of the PK program. This would aid the researcher in providing a thorough examination of the effects of different types of PK programs on kindergarten school readiness. More detail regarding these programs could enrich the findings of a similar study on kindergarten readiness and preparation through PK.

It is recommended that further studies be conducted investigating the possible effects on kindergarten school readiness for children who had two years of PK experience when compared to children who only had one year. Both the quality of the prior PK and the amount of prior PK experiences could influence findings. The researcher in the present study hoped to explore this option, but did not have enough parent responses to do so.

Another recommendation is to look at the quality of PK programs in addressing the needs of Hispanic students and students identified as LEP. It can be challenging to teach students with a home language other than English. However, policy makers could incorporate strategies that are implemented in elementary schools' English as a Second Language programs in the PK program for these subgroups of students.

It is further recommended that training be provided for elementary principals who house PK classrooms on their campuses in several areas of early childhood education including teaching evaluation. Leadership is important in all educational programs and a deeper understanding of child development and early childhood education quality could only improve the classroom experiences of the publicly-funded PK classes on elementary campuses. Providing opportunities for PK teachers to interface and plan with kindergarten teachers could make for a more seamless transition for children involved in the PK programs on campus as well. In addition, schools of education who prepare school leaders should consider adding early childhood components to their preparation programs as more and more PK classrooms are being placed on elementary school sites (Shore, Shue, & Lambert 2010; Bish, Shore & Shue, 2011; and Shue, Shore, & Lambert 2012).

Conclusion

The goal of this study was to determine the effectiveness of the district's publicly-funded PK program on kindergarten school readiness in reading. The findings of this research study can be added to the body of literature that speaks to the positive effects of early childhood education programs on student achievement. On two of the assessments, *DIBELS LNF* and *mclass Reading 3D TRC*, kindergarteners who attended "other PK programs" scored on average one point higher than kindergarteners who attended the Bluebird PK program. These findings suggest that attendance in early childhood education programs, outside of the Bluebird PK program located in the county for this research study, are highly effective as well in preparing students for kindergarten. The findings further reflected a need for continued support for students identified as Hispanic and LEP. The researcher is hopeful that policy makers in the district of this research study will determine a way to consistently track PK to kindergarten students' performance, which could result in increased funding. This would allow many more four-year old students who desperately need an early childhood intervention to be served under this program.

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APPENDIX



Department of Educational Leadership
9201 University City Blvd., Charlotte, NC 28223-0001
(704) 687-8857, www.uncc.edu

1. What is your child's first and last name?

2. What is your child's school identification (ID) number?

3. Please place a check beside the statement that best describes your child's participation in a pre-kindergarten program last year. Check all that apply.

_____ My child attended Pre-K at Title I School A.

_____ My child attended Pre-K at Title I School B.

_____ My child attended Pre-K at another school in the district located in the southeastern United States.

_____ My child attended Head Start.

_____ My child attended a Pre-K program at a faith-based school.

_____ My child attended Pre-K at a private preschool such as Childcare Network, Kindercare, etc.

_____ My child did not attend a Pre-K program.

4. Did your child also attend a Pre-K program as a 3 year old? Yes No